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ADDRESSING STRUGGLING READERS DIFFERENTIATED NEEDS THROUGH STRUCTURED ASSESSMENT

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ABSTRACT

The study aimed to revolutionize the reading assessment process for struggling readers in accordance with the guidelines set forth by the Department of Education intended for the upcoming National Learning Camp for School Year 2023-2024, whereas DO no. 14 s. 2023 (11.d) principle stated that the NLC shall be guided with purposeful assessment that enhances teaching and learning. The researcher crafted a reading assessment tool that directly determined the specific reading level of the struggling learners. The structured assessment categorized reading levels from A to Z (Fountas & Pinnell, 2017). However, as the study focused solely on the struggling or beginning readers, only Level A-I were emphasized. The researcher employed a Mixed-Method Research Design. The study's participants were ten Key Stage 1 teachers from Antonio Adricula Sr. Memorial Elementary School, located in the Siniloan Sub-Office of Schools Division Office of Laguna. Survey and interview questionnaire were used to gather the data needed in the study. Basic descriptive statistics such as simple mean and the weighted mean were also used to determine the level of acceptability of the developed structured assessment. Based on the findings, all the indicators have a mean ranging from 4.8 to 4.9 and a weighted mean of 4.89. Hence, it was interpreted that the developed structured assessment for addressing the learners differentiated reading needs was Highly Acceptable. Furthermore, it was found out that the challenges in implementation included parental involvement issues and the meagerness of some teachers' aptitude in addressing the complexity of learners' diverse needs.

Keywords: *assessment, reading intervention, elementary, learning camp*

INTRODUCTION

Assessment plays a pivotal role in evaluating reading proficiency and understanding the capabilities of readers. It serves as a fundamental tool in educational settings, aiding educators in tailoring instruction to meet the needs of different learners. The significance of assessment in reading instruction cannot be overstated. It provides valuable insights into learners' strengths, weaknesses and progress over time.

This study aimed to revolutionize the reading assessment process for struggling readers in accordance with the guidelines set forth by the Department of Education intended for the upcoming National Learning Camp for School Year 2023-2024, whereas DO no. 14 s. 2023 (11.d) principle stated that the NLC shall be guided with Purposeful Assessment that Enhances Teaching and Learning, in which it mentioned the significance of assessment as a tool for guiding evidence-based teaching to promote learning. It was also emphasized that learners in the Intervention Camp shall experience support to achieve Foundational Mathematics and or English skills, thus the researcher aimed to create a valid and acceptable assessment focused on aligning, leveling and structuring learners reading levels to accurately identify and address the needs of struggling readers where it aided as an additional basis for assessing the learners' reading capabilities and determining the appropriate learning strategy and materials necessary to them. The structured assessment served as a diagnostic tool, allowing teachers to identify learners' current reading levels and areas requiring improvement.

The researcher's creation of a structured reading assessment tool is paramount, aimed at precisely pinpointing the reading proficiency of struggling learners, particularly those falling within the Frustration Reading level of the Post-test Phil-Iri assessment or identified as Full Refresher or Moderate Refresher in the Comprehensive Rapid Literacy Assessment (CRLA). However, as Valencia & Buly (2004) observed the limitations of standardized test scores in providing a complete picture of struggling readers' needs. They emphasized the importance of suing assessment data to inform differentiated instruction and provide targeted support. By discerning the strengths, weaknesses, and specific needs of the learners using the structured assessment, teachers were fully equipped to implement the End-of-School-Year (EOSY) National Learning Camp efficiently. The intervention process involved several key steps:

Assessment Phase. Begun by assessing the learners' current reading levels using the researcher developed structured assessment tool which included the structured standardized test and reading assessment form or inventory. These assessments should cover areas such as decoding, fluency, vocabulary, and comprehension. The data gathered from assessments provided insights into students' strengths, weaknesses, and areas for growth.

Leveling Phase. Based on the assessment results, determined each student's reading level. Reading levels are typically classified using systems such as Level A, Level B and up to Level I.

Structuring Instruction. Once students' reading levels have been determined, appropriate instruction to provide support and scaffolding were targeted. This may involve grouping students with similar reading levels for targeted instruction, using differentiated instruction to meet individual needs, and providing appropriate scaffolding to support students as they develop their reading skills.

Selecting Materials. Choose reading materials that are appropriate for each student's reading level.

Monitoring Progress. Continuously monitor students' progress as they engage with reading instruction and practice. Use formative assessments, progress monitoring tools, and ongoing observation to track students' growth over time and adjust instruction as needed. Celebrate students' achievements and provide feedback to support their continued development.

Providing Support. Offer targeted support and interventions to students who may be struggling to make progress. This may involve small group instruction, one-on-one support from a reading specialist, or additional resources and accommodations to address specific learning needs.

Reading levels for beginners are categorized based on various systems, but a common one used in education is the Fountas and Pinnell Guided Reading Level (F&P). In this system, reading levels are categorized from A to Z, with Level A being the easiest and Level Z being the most advanced. Here's a general breakdown of how these levels are categorized:

Levels A-C: These levels typically represent the earliest stages of reading development. These levels have simple, repetitive text which often focus on basic sight words and simple vocabulary.

Levels D-I: At these levels, texts become slightly more complex. Sentences may be longer, and there may be more variety in vocabulary and sentence structure.

Levels J-M: These levels indicate a transition to longer texts with more complex plots and characters. Vocabulary becomes more varied, and there may be more dialogue and descriptive language.

Levels N-P: At these levels are considered transitional readers. They contain longer chapters, more complex storylines, and fewer illustrations. Vocabulary is more sophisticated, and readers are expected to use context clues to understand unfamiliar words.

Levels Q-S: At these levels are considered proficient readers. They include longer, more challenging texts with advanced vocabulary and complex themes. These require readers to infer meaning, analyze characters and plot, and make connections between the text and their own experiences.

Levels T-Z: These levels represent advanced readers. Books at these levels are typically full-length novels with sophisticated language and complex themes. Readers are expected to demonstrate deep comprehension, critical thinking skills, and the ability to analyze literature on multiple levels.

These categorizations serve as general guidelines, and individual reading programs may use slightly different criteria for assigning levels (Fountas and Finnell, 2017). Hence, as the researcher aimed to target the struggling or beginning readers and learners who need abrupt attention and immediate actions, the structured assessment focused at Levels A – I exclusively. It must be noted that the study was limited to the said structured assessment levels.

Research Questions

To address the issue of structured assessment in evaluating learners reading capabilities, this study aimed to answer the following questions:

1. What is the profile of the participants according to age, teaching position, marital status, grade level advisory and years in teaching at the Department of Education?
2. What is the level of acceptability of the developed structured assessment tool in determining the readers' specific reading capabilities and needs?
3. How does the developed structured assessment contribute to identifying specific areas of learners' weakness or learning gaps?
4. What are the benefits and challenges of implementing the developed structured assessment to support struggling readers in diverse classroom settings?

METHODOLOGY

The researcher used Mixed-Method Research Design. Johnson and Onwuegbuzie (2004) defined mixed methods research as research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry. Meanwhile, the following framework was used in the study.

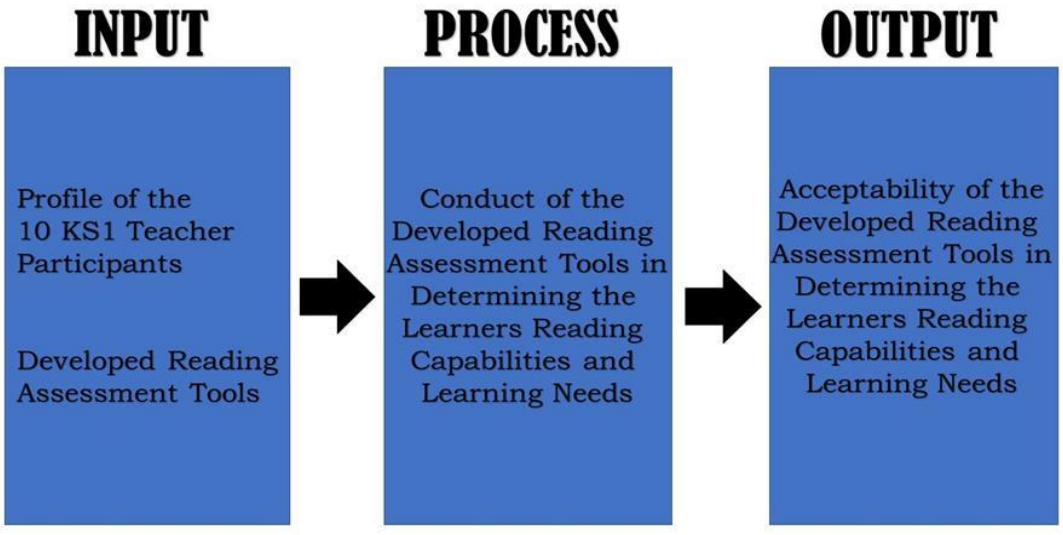


Figure 1. Conceptual Framework of the Action Research

The researcher used the Input-Process-Output model or IPO framework to show the clear relationship and process of her research study. Canonizado (2021) emphasized that IPO is the commonly used approach by researchers in various fields and the IPO model represents all the factors that make up the process thus includes all the material and information that are required in the process itself.

The participants of the study were ten (10) Key Stage 1 or KS1 teachers from Antonio Adricula Sr. Memorial Elementary School in Siniloan Sub-Office, Schools Division Office of Laguna. In the study, the researcher politely asked the ten (10) KS1 teachers Antonio Adricula Sr. Memorial Elementary School in Siniloan Sub-Office, Schools Division Office of Laguna to use and implement the structured assessment developed by the researcher to serve as an assessment in determining the learners' specific reading level and identify their weaknesses or learning gaps. The researcher also gave an online questionnaire and interviewed the teachers about the benefits and challenges of conducting the developed structured assessment to support readers in a diverse classroom setting. The structured assessment was also validated at the school level by three authorized teachers from the school resource validation team such as the content validator, language validator and layout and format validator.

To find the answer to the research questions mentioned above, the researcher used basic descriptive statistics such as simple mean and the weighted mean to summarize the five-point scale Likert scale to determine the acceptability scores given by the teachers for each indicator based on the research questionnaire. The researcher also displayed the results using a bar chart to represent the data. All these data were encoded and generated in software such as MSExcel.

In addition, the answers for the qualitative questions which was asked through questionnaire and interview were also discussed using thematic analysis as Caulfield (2019) explained that it was usually applied to a set of text such as an interview or transcripts, closely examines the data to identify common themes.

RESULTS

For the profile of the participants, the ten (10) Key Stage 1 teachers' data such as age, teaching position, marital status, grade level advisory and years in teaching (DepEd) were shown below.

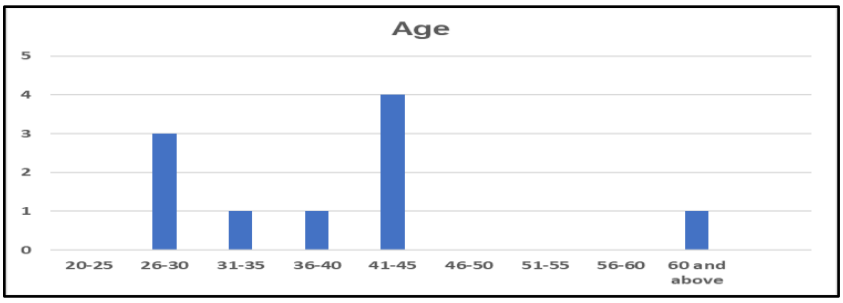


Figure 2. Age of Participants

Based on the graph above, four (4) participants at the age bracket of 41-45 were almost half of the participants population, three (3) were from ages 26-30 and one (1) for each age bracket of 31-35, 36-40 and 60 and above respectively.

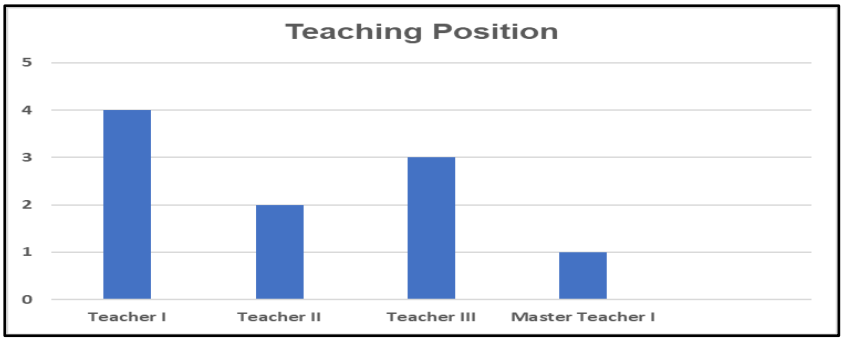


Figure 3. Teaching Position of Participants

For the participants' teaching position, four (4) of them belong to the Teacher I position, two (2) Teacher II, three (3) Teacher III and one (1) Master Teacher I.

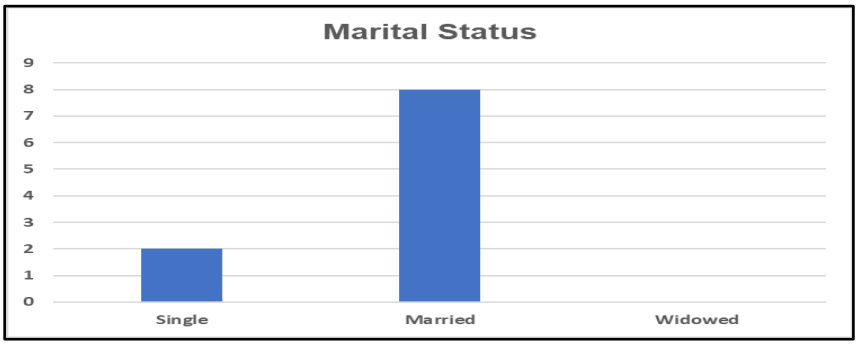


Figure 4. Marital Status of Participants

With regard to the participants' marital status, the majority of them or eight (8) out of ten participants are married and two (2) are single. It was also found out that there was no widow among the participants.

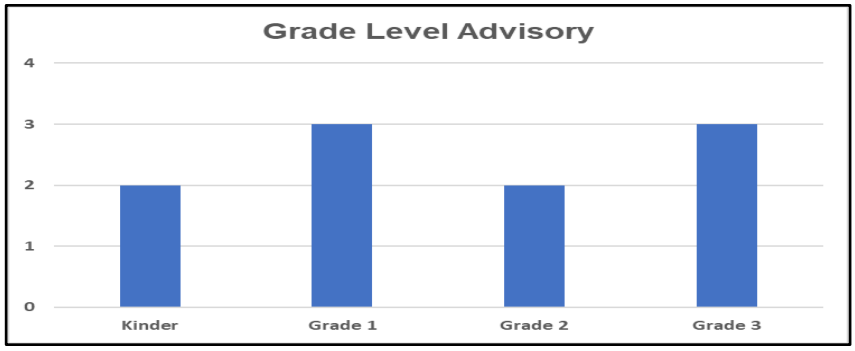


Figure 5. Grade Level Advisory of Participants

Meanwhile, with regards to their respective grade level advisory, the same number of participants were included to the Kindergarten and Grade 2 level which was two (2) participants for each, and the same also goes to the class of Grade 1 and Grade 3 which was composed of three (3) participants as well.

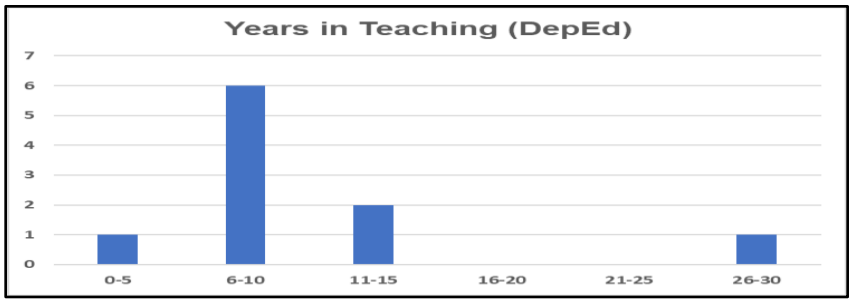


Figure 6. Years in Teaching (DepEd) of Participants

Lastly on the participants profile, their years in teaching at DepEd also varies, more than half or six (6) of them belong to the 6-10 years in teaching, two (2) at the 11-15 years, and one (1) for 0-5 years and 26-30 years respectively.

For the second research question, which is to determine the level of acceptability of the researcher developed a structured assessment. The participants' answers were summarized in the table below.

Participant/ Indicator	Useful in Determining the (Reading) Strength/ Potential of the Learner	Useful in Determining the (Reading)Weakness/ Challenges of the Learner	Readable (size and text appropriate) for the Learner	Suitable to check and record student (reading) performance and output	Reliable to Use as Reading Assessment Tool for key Stage 1 Learners	Helpful for Supporting Struggling Learners	Easy to Use/Administer
Participant 1	5	5	5	5	5	5	5
Participant 2	4	4	4	4	4	4	4
Participant 3	5	5	5	5	5	5	5
Participant 4	5	5	5	5	5	5	5
Participant 5	5	5	5	5	5	5	5
Participant 6	5	5	5	4	5	5	5
Participant 7	5	5	5	5	5	5	5
Participant 8	5	5	5	5	5	5	5
Participant 9	5	5	5	5	5	5	5
Participant 10	5	5	5	5	5	5	5
Mean	**4.9**	**4.9**	**4.9**	**4.8**	**4.9**	**4.9**	**4.9**
Weighted Mean	**4.89**						

Table 1. Level of Acceptability of the Developed Structured Assessment

We can infer from the table above that all the indicators have a mean ranging from 4.8 to 4.9 which can be interpreted as Highly Acceptable based on the Five-Point Likert rating Scale Interpretation, furthermore it can also be supported by its weighted mean of 4.89 which was also further interpreted as Highly Acceptable. Therefore, it can be concluded that the developed structured assessment for addressing the learners differentiated reading needs was Highly Acceptable for the Key Stage 1 teachers view and acknowledgement.

Meanwhile, for the participants response on the research questions, the researcher conducted a survey-interview with the ten (10) Key Stage 1 teachers. Through thematic analysis, their responses at how does the developed structured assessment contribute to identifying learners' weakness or learning gaps. They following themes were discovered:

Determine Learners Weaknesses/Reading Gaps

The findings of the interview revealed that: (a) eight teachers found that the structured assessment can evidently track the learners' weaknesses and learning gaps (reading); (b) some teachers were unable to completely explain how the structured assessment helped them identify the learners weaknesses/learning gaps, but they mentioned that the structured assessment was also helpful to them, such as what mentioned at the second theme below.

Useful in Distinguishing the Learners Reading Level

Participant 4 and 9 particularized that it really helped them distinguished the reading levels of their learners. The remaining participants had similar responses which can be summarized to the usefulness of the structured assessment as it helped them distinguishing their learners' reading levels thus they can strategize or adjust the intervention suited for their learner.

Step-by-Step Process

One particular participant's responses stood out, she answered that as it (structured assessment) was a step-by-step process, she can easily follow the procedure in administering the reading assessment, thus realize the weaknesses of learners.

Based on the participants' responses, it was apparent that the structured assessment was a comprehensive tool that aided in identifying learners' weaknesses and learning gaps. It supported teachers by recognizing the specific reading levels of their learners and its step-by-step process which helped them realize appropriate intervention or support needed to address the differentiated needs of learners.

For the last research question which is about the benefits and challenges in implementing structured assessment to support struggling readers, the responses of the participants were as follows:

Determine the Learners' Specific Reading Level

Based on the participants responses, Participant 1, 4 and 9 highlighted the benefit of using the structured assessment as it served as a guide for teachers to determine the specific reading level of the learners. It helped them realize where they would begin or what appropriate intervention should they provide to their specific learner.

Assess Learners Strengths and Weaknesses

The structured assessment allowed the identification of not just the learners weaknesses or learning needs but also the learners' strength (reading). As Participant 6 and 10 pointed out, the structured assessment also provided opportunities for the learners to showcase their improvement and reading progress. Consequently, if the learners were still found out to be in the lower reading level, the structured assessment could still aid the teacher in developing their individualized support plans, as mentioned by Participant 8.

Lack of Parents Cooperation/Communication

Meanwhile, four participants heavily emphasized the challenges they encountered when administering the structured assessment. They elaborated that as they inform the parents of the struggling readers to the conduct of the project/structured assessment, the politely requested their learners to participate or be present during the day of their assessment, however a lot of them failed to do so, therefore they have to administer it again to those said learners, in which it affected some of the lessons or class schedule of the whole class.

Teachers Aptitude and Time Constraint

A couple of participants alluded that after administering the structured assessment to the struggling readers, a hint of worry was realized due to the challenge of creating the individualized support plan for their learners. They added that assessing each student's specific need can be time-consuming.

In conclusion, as the structured assessment offered significant benefits for teachers and learners such as guiding instruction, identifying needs, providing targeted interventions and supporting learner development. It also presented challenges which includes parental involvement issues and the struggle of some teachers in addressing the complexity of learners' diverse needs through structured process.

DISCUSSION

After the implementation of the study, surely it reveals several key insights, the study made emphasis on the importance of tailoring educational strategies to accommodate the diverse abilities and learning style present in any classroom. By employing structured assessment, teachers can systematically identify individual strengths and areas for improvement, enabling more personalized instruction. Structured assessments provide a clear framework for evaluating reading skill or level of the learner, making it easier to pinpoint specific needs such as phonemic awareness, vocabulary, fluency and comprehension. This targeted approach ensures that interventions are precise and effective, enhancing the likelihood of academic success for the Key Stage 1 learners.

Moreover, the study also highlighted the role of continuous assessment in monitoring progress and adapting teaching methods. As Tomlinson (2001) emphasized the importance of ongoing assessment to tailor instruction to individual student needs and discusses various methods of formative and summative assessment to guide instructional decisions. In essence, the study underscores the critical role of structured assessment in creating an inclusive and responsive educational environment. By recognizing and addressing the varied needs of learners, teachers can foster a more equitable and effective reading instruction framework ultimately leading to improved literacy outcomes.

Moreover, it was recommended that further collaborative planning and providing necessary training and materials to teachers would greatly benefit the learners as the teachers would be highly equipped with knowledge and skills to cater to the complexity of handling diverse struggling readers. The comprehensive understanding of benefits and challenges can help teachers refine and improve the implementation of structured assessment to support struggling readers effectively. One study pointed out that many teachers feel unprepared to effectively support students from diverse background due to lack of proper training and resources. This lack of preparation can lead to feelings of inadequacy and reluctance to address students' needs in the classroom (ACEE, 2023).

Conclusions

Based on the research findings, the following conclusions were drawn for each research questions:

1. The developed structured assessment was found to be highly acceptable from the perspective of the Key Stage 1 teachers. The mean scores ranged from 4.8 – 4.9 on Five-Point Likert rating scale, with a weighted mean of 4.89, all interpreted as “Highly Acceptable”. This demonstrated a strong endorsement of the assessment’s design and utility by the teachers.

2. The structured assessment was effective in identifying specific areas of learners’ weaknesses or learning gaps. Participants reported that it provided feedback on students’ performance, highlighting both strengths and areas needing improvement. This feedback was crucial in understanding learners’ specific needs. The step-by-step level of the assessment helped teachers determine the reading levels and create interventions accordingly, confirming its usefulness in pinpointing and addressing learning gaps.

3. The structured assessment offered several benefits. It guided teachers in addressing the needs of struggling readers by identifying specific learning gaps through a detailed and structured process. Teachers found it highly useful in planning targeted instruction. However, the implementation faced challenges, particularly the lack of cooperation and communication from parents, which hindered the effectiveness of the approach. This highlights the need for strategies to improve parental involvement to fully realize the benefits of the assessment-driven approach.

In conclusion, the structured assessment is highly acceptable to Key Stage 1 teachers, effectively identifies learners’ reading needs, and offers significant instructional benefits though it faces challenges in parental engagement and teachers’ aptitude.

Recommendations

Based on the research findings and conclusions, here are several recommendations:

1. To address the challenge of lack of parental cooperation and communication, school should implement strategies to increase parental involvement. This could include regular parent-teacher meetings, workshops for parents on supporting reading at home and clear communication channels between teachers and parents.

2. Provide continuous professional development opportunities for teachers to effectively use the structured assessment tool. Training should focus on interpreting

assessment results, designing targeted interventions, and utilizing feedback to support differentiated instructions.

3. Foster a collaborative approach among teachers, reading specialists and administrators to support the implementation of the assessment-driven approach. Sharing best practices and successful strategies can enhance the overall effectiveness. Further studies which extends to the limitations of the study was also recommended.

Compliance with Ethical Standards

This is a declaration by the author in her own word and in paragraph form which includes compliance with obtaining informed consent, the respondents' freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents well-being was safeguarded, no conflict of interest exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of findings and that the results were used purely for research.

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This research study would not have been possible without the invaluable support and assistance of numerous individuals and institutions. The researcher wishes to express her deepest gratitude to all those who contributed to the completion of this research.

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AFFECTIVE FILTERS AND ACADEMIC PERFORMANCE OF JUNIOR HIGH SCHOOL STUDENTS: BASIS FOR PROPOSED ENHANCED HOMEROOM GUIDANCE PROGRAM

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ABSTRACT

This study investigated the relationship between affective filters and academic performance among junior high school students in the Philippines, aiming to inform the development of an enhanced homeroom guidance program. A survey was administered to 240 students, measuring their levels of affective filters across four domains: biological, environmental, motivational, and social. The study found a significant positive correlation between the level of affective filters and academic performance, with the environmental variable exhibiting the strongest relationship. Significant differences in affective filters were observed based on sex, ethnicity, parental employment and educational attainment, family income, and family structure. These findings suggest that affective filters are a significant factor influencing academic performance and that interventions should address both individual and environmental factors. The study recommends strengthening homeroom guidance programs to create a more supportive learning environment, foster student motivation, and promote positive social interactions. By addressing these factors, educators can create a more conducive learning environment that supports students' emotional well-being and academic achievement.

Keywords: *Affective filters, Academic performance, Homeroom guidance, Learning environment, Student Motivation*

INTRODUCTION

The principle of learning individuality remains a fundamental educational thrust, addressing the diverse learning styles and backgrounds of students. Modern educational paradigms emphasize the learner-centered approach, particularly in the 21st century, necessitating educational institutions to prioritize students' learning conditions (Darling-Hammond et al., 2020). It is widely recognized that learners' cognitive and affective characteristics influence their learning styles, which vary based on the teaching strategies employed (Ormrod, 2012).

The distinction between cognitive and non-cognitive domains is pivotal in fostering holistic learner development (Good, 2010, as cited in Stalker, 2021). The Department of Education (DepEd) has established policies to support this inclusive approach, addressing learners' affective status, mental health, and other developmental aspects. DepEd Order No. 72 s. 2009 underscores inclusivity, promoting acceptance of all students regardless of their attributes (Department of Education, 2009).

Understanding learners' intellectual and emotional maturity is crucial for effective teaching, aligning with educational principles that incorporate cognitive, psychomotor, and affective domains (Anderson & Krathwohl, 2001). DepEd Memorandum No. 74 s. 2021 further highlights the integration of mental and emotional health concerns into educational programs, acknowledging the impact of varied learning modalities on school policies and instructional goals (Department of Education, 2021).

The shift to modular learning has posed challenges, affecting not only cognitive and intellectual development but also learners' emotional and social conditions (Sarmiento, 2021). Emotional instability among students can disrupt their learning momentum, necessitating initiatives to promote mental resilience. The DepEd's mental health and psychosocial support programs aim to address these issues, recognizing the significant influence of emotional status on academic improvement (Sarmiento, 2021).

Krashen's (2008) concept of the affective filter, as cited by Cabaccan (2022), refers to negative emotional and motivational factors that hinder the reception and processing of comprehensible input. High affective filters, characterized by anxiety, self-consciousness, and low self-esteem, create mental blocks that impede skill acquisition. Factors such as attitude, communication apprehension, and negative evaluation further contribute to the affective filter (Krashen, 2008).

Understanding affective filters is essential for educators, as it informs the selection of appropriate teaching methods that reduce learning barriers and enhance student engagement (Cabaccan, 2022). Identifying current affective filters among students can help assess the effectiveness of existing learning modalities.

As a mental health advocate and guidance counselor, the researcher recognizes the importance of addressing both cognitive and affective learning aspects to improve learning outcomes. This study aims to examine the affective filters of junior high school students and their correlation with academic performance, providing a basis for

enhancing homeroom guidance programs. The findings will offer valuable insights for school administrators, teachers, guidance counselors, and parents, supporting the implementation of a curriculum that benefits learners.

Research Questions

Generally, the study sought to determine the affective filters and their relationship to the academic performance of Junior High School students.

Specifically, it aimed to seek answers to the following questions:

1. What is the profile of the respondents in terms of:
    a. sex;
    b. ethnicity;
    c. sibling order;
    d. parents' employment status;
    e. parents' highest educational attainment;
    f. average monthly family income; and
    g. family structure?
2. What is the level of affective filters among the respondents in terms of:
    a. Affective Biological Variable;
    b. Affective Environmental Variable;
    c. Affective Motivational Variable; and
    d. Affective Social Variable?
3. What is the academic performance of the respondents?
4. Is there a significant difference in the level of affective filters of the respondents when grouped according to their profile variables?
5. Is there a significant relationship between the level of affective filters and the respondents' academic performance?
6. What intervention can be proposed to enhance the homeroom guidance program of the Junior High School students?

METHODOLOGY

Research Design

This study utilized the descriptive-correlational design as it examined the relationship between the level of affective filters and students' academic performance. Creswell (2018) categorically defines this research design as the variables and relationships between and among them. The test of relationship details results including positive, negative, mixed, or no relationship at all but does not establish a causal effect.

Research Locale

The study was conducted in the schools of the identified high schools in the North District of the Schools Division of the City of Ilagan, Isabela in the School Year 2022-2023. Identified schools are categorized as national secondary schools and integrated schools.

Selection and Description of Respondents

The respondents' sample size was calculated using Slovin's Formula [n = N/(1 +Ne2). They were selected through a simple random sampling. The respondents were a pool of students in the Schools Division of the City of Ilagan. Specifically, these students were from the identified secondary schools and integrated schools legally and duly registered in DepEd. The table below shows the list of schools and several students in the Schools Division of the City of Ilagan.

Table 1. Sample Size of the Study

North District	Number of Students	Sample Size (Slovin's Formula)
1. Rang-Ayan National High School	602	104
2. Manaring Integrated School	461	88
3. San Lorenzo Integrated School	331	48
TOTAL	1394	240

Research Instruments

The primary data-gathering instrument used was a structured survey questionnaire comprising two parts. Part I elicits the profile of the respondents in terms of their sex, ethnicity, sibling order, parents' employment status, parents' highest educational attainment, average monthly family income, and family structure. On the other hand, Part II consisting of the items on the affective filter was adopted from Cardona's (2015) study. It is a checklist in a 5-point Likert-type gauge. The checklist is composed of the four affective variables with five (5) items for each variable totaling twenty (20) questions. Items are rated as follows: 5 – Very High; 4 – High; 3 – Moderate; 2 – Low; 1 – Very Low. It was validated in a previous study with an acceptable internal consistency ($\alpha = 0.746$).

Lastly, the academic performance was taken from the grades as reflected in the official records of the respondents for the Second quarter and Third quarter of the SY 2022-2023.

Data Collection Procedure

The researcher sought permission from the school authorities for the conduct of the study. Also, the consent of respondents was obtained. They were informed on the purposes, methodology, and expectations of the study. They were assured that their confidentiality and identity would be maintained.

The researcher floated the questionnaire face-to-face. To ensure 100 percent retrieval of the questionnaire, the researcher supervised carefully the data collection. Furthermore, the grades of the respondents were taken from the official records that are kept by the respective teachers. In compliance with the Data Privacy Act, the researcher

sought first the approval of the respondents and their parents before the grades were obtained.

Data Gathering Tool

All data were tallied and interpreted using different statistical tools. The data were analyzed using the Statistical Probability for Social Sciences (SPSS) version 21.

Statistical Tool

The statistical tools utilized in treating data to be gathered include the following:

For the first research question, descriptive statistics such as mean, frequency count, and percentage were used to treat the profile variables.

Descriptive statistics was utilized in identifying the level of affective filters among the respondents in terms of affective biological variable, affective environmental variable, affective motivational variable, and affective social variable.

Table 2. Interpretation of the Level of Affective Filters

4.20 – 5.00	Very High
3.40 – 4.19	High
2.60 – 3.39	Moderate
1.80 – 2.59	Low
1.00 – 1.79	Very Low

Furthermore, the frequency count, percentage, and mean were utilized in analyzing the academic performance of the respondents. The data was interpreted as follows:

Table 3. Interpretation of Students' Academic Performance

90 – 100	Excellent
85 – 89	Very Satisfactory
80 – 84	Satisfactory
75 – 79	Fairly Satisfactory
Below 75	Did not meet expectations

For research hypothesis 1, it was tested using a T-test and Analysis of Variance (ANOVA) while for research hypothesis 2, the Pearson r shall be employed in determining the significant relationship between the level of affective filters and academic performance of students.

Ethical Considerations

The researcher made sure that during the conduct of the study, the following ethical concerns were followed to necessitate safe, anti-fraud, deliberate, and careful undertakings in the study:

1. The researcher, through proper communications, asked permission from the Division Office, and other concerned offices for the study;
2. The researcher also acknowledged the Department of Education and the Schools Division of the City of Ilagan for allowing her to conduct the study;
3. The researcher informed the respondents of the study through letters and a short orientation to the study. Data and information gathered were treated with utmost respect and confidentiality;
4. The researcher, properly cited gathered information and other relevant studies from authors, books, or any publications through proper citation.

RESULTS AND DISCUSSION

Profile of the Respondents

Table 4. Distribution of the Frequency and Percentage of Respondents' Sex. Ethnicity, and Birth Order

Profile	Frequency	Percent
Sex		
Male	127	59.92
Female	113	40.08
Birth Order		
First-born	78	32.50
Middle-born	79	32.92
Last-born	83	34.58
Ethnicity		
Ibanag	54	22.5
Ilocano	148	61.7
Others	38	15.8
Total	**240**	**100.0**

The table presents the profile of respondents in terms of sex, ethnicity, and birth order. Of the 240 respondents, 127 (59.92%) were male and 113 (40.08%) were female. When considering ethnicity, most of the respondents were Ilocano, accounting for 148 (61.7%) individuals. Regarding sibling order, the data shows that the sample was evenly distributed, with 78 (32.5%) being first-born, and 83 (34.58%) last-born. The Ibanag ethnic group constituted 54 (22.5%) respondents, while 148 (61.7%) belonged to other Ilocano ethnicity.

Table 5. Distribution of the Frequency and Percentage of Respondents' Employment Status of Parents

Profile	Frequency	Percentage
Father's Employment Status		
Government Employee	26	10.83
Private Employee	78	32.5
Self-employed	118	49.17
Unemployed	18	7.50
Mother's Employment Status		
Government Employee	20	8.33
Private Employee	52	21.67
Self-employed	130	54.17
Unemployed	38	15.83
Total	**240**	**100.0**

The table presented above presents the employment status of parents. Moving on to the employment status of the parents, it is evident that the respondents had varying family backgrounds. Among fathers, 118 (49.17%) were self-employed, 78 (32.5%) were private employees and 18 (7.5%) were unemployed. Similarly, for mothers, the highest proportion was self-employed, with 130 (54.17%) respondents and 20 (8.33%) were government employees.

Table 6. Distribution of the Frequency and Percentage of Respondents' Highest Educational Attainment of Parents

Profile	Frequency	Percentage
Highest Educational Attainment (Father)		
Elementary Graduate	112	46.7
Highschool Graduate	104	43.3
College Graduate	20	8.3
Graduate of a Post Baccalaureate Degree	4	1.7
Graduate of a Post Graduate Degree	0	0.0
Highest Educational Attainment (Mother)		
Elementary Graduate	102	42.50
Highschool Graduate	74	30.83
College Graduate	56	23.34
Graduate of a Post Baccalaureate Degree	8	3.33
Graduate of a Post Graduate Degree	0	0.00
Total	**240**	**100.0**

The table reflects the frequency and percentage distribution of the educational attainment of respondents' parents. Regarding the educational attainment of the respondents' fathers, a significant portion had only completed elementary education, accounting for 112 (46.7%) individuals. Only a small percentage, 20 (8.3%), were college graduates, and an even smaller proportion had achieved a post-baccalaureate or postgraduate degree. For mothers' educational attainment, a similar pattern emerged. The largest group completed elementary education, with 102 (42.5%) respondents, and 8 (3.33%) who a post-baccalaureate degree.

Table 7. Distribution of the Frequency and Percentage of Respondents' Family Income and Family Structure

Profile	Frequency	Percentage
Family Income		
15,001 – above	36	15.00
10,001 – 15,000	42	17.50
5,001 – 10,000	58	24.17
5,000 – below	104	43.33
Family Structure		
Nuclear	178	74.17
Extended	62	25.83
Total	**240**	**100.0**

Finally, this table reveals the frequency and percentage distribution of respondents' family income and family structure. Examining the average monthly family income, the data indicates that most respondents fell into the "5,000-below" income bracket, with 104 (43.33%) individuals and 36 (15%) respondents having an income of "15,001 and above."

Finally, looking at the family structure, most respondents came from nuclear families, with 178 (74.17%) belonging to this category. The remaining 62 (25.83%) respondents were from extended families.

In summary, the profile of the respondents reveals a diverse sample in terms of sex, ethnicity, sibling order, parents' employment status, parents' educational attainment, average monthly family income, and family structure. These findings provide insights into the characteristics and backgrounds of the participants involved in the study.

Level of Affective Filters of the Respondents

Table 8. Level of Affective Biological Filters of the Respondents

Factors	Mean	Standard Deviation	Descriptive Interpretation
Factor 1- Affective Biological Variable			
They are willing to learn the concepts of their subjects.	3.77	1.12	Favorable
They are confident in their own learning styles in studying their subjects.	3.53	1.13	Favorable
Whenever they encounter problems inside or outside the school, they relate their learnings to solve such issues.	3.02	1.39	Moderately Favorable
They see learning as an opportunity to help them in their daily tasks.	3.35	1.22	Moderately Favorable
They are committed in my learning of concepts and facts about all their subjects.	3.24	1.33	Moderately Favorable
They don't feel anxious and insecure about their own learnings on their subjects compared to their classmates.	2.73	1.43	Moderately Favorable
Whenever projects are asked by teachers, they don't overthink about the deadline and anxiety doesn't strike me.	2.91	1.34	Moderately Favorable
Overall Mean	**3.22**	**0.60**	**Moderately Favorable**

In the Affective Biological Variable, the respondents displayed moderately favorable level of affective engagement. They expressed a willingness to learn the concepts in their subjects (mean = 3.77) and confidence in their learning styles (mean = 3.53). They also recognized the relevance of their subjects in solving problems (mean = 3.02) and saw it as an opportunity to assist them in their daily tasks (mean = 3.35). Although there was a slight level of anxiety and insecurity compared to their classmates (mean = 2.73), it did not hinder their commitment to learning (mean = 3.24). Overall, the average for this variable indicates a moderately favorable level of affective engagement (mean = 3.22).

This finding implies that the biological factor is a learning hindrance among respondents. Furthermore, according to England (2017), Affective Biological Variable involves those filters that are personal to the individual, including attitude, behavior, and biological features. Therefore, a moderately favorable affective biological variable posits a manageable personal development among the respondents that could hinder learning activities. Students' biological filters self-reported their general class, test, communication, and social anxiety; perceived course difficulty; intention to stay in the major; and demographic variables, as hindering factors toward learning tendencies of

learners. He also indicated that general class anxiety levels differed for students who intended to learn or not.

However, extreme instances may deviate from this general interpretation of the result wherein personal traits of the individual could affect his learning development. This study builds on and expands this former work by investigating biological factors between both general anxiety and a wider variety of anxiety measures and actual student performance and self-reported intention to persist. This, according to Brigati (2019), stated that student anxiety toward active learning could have on these student outcomes.

Low affective filters encourage receptiveness to learning, while high filters hinder acquisition and engagement, with higher filters causing hindered learning transfer and lower classroom engagement.

Table 9. Level of Affective Environmental Filters of the Respondents

Factors	Mean	Standard Deviation	Descriptive Interpretation
Factor 2- Affective Environmental Variable			
The school where they study has easy access to equipment, tools, and resources that facilitate better learning.	3.43	1.26	Favorable
The school where they study has a conducive learning atmosphere resulting to a better understanding.	3.40	1.16	Favorable
They feel that their subjects provided them with enough experiences to grow in their specific strand.	3.44	1.16	Favorable
The boarding house/apartment/ house where they stayed was peaceful and helped me focus during their learning.	3.39	1.37	Moderately Favorable
There is an atmosphere of freedom in the commission of mistake/sin the classroom which strengthens their self-confidence.	2.96	1.46	Moderate Favorable
The school adheres to policies that motivate better learning process.	3.43	1.22	Favorable
The classroom has a TV screen or Projector screen or online classes where they see what they learn that motivates and concretizes our learning.	3.77	1.39	Favorable

Overall Mean	**3.40**	**0.59**	**Favorable**

The table above reflects the level of Affective Filters on the Affective Environmental Variable, the respondents perceived their learning environment in their subjects to be favorable in terms of affective engagement. They acknowledged that their school had easy access to resources and facilities (mean = 3.43) and provided a conducive learning atmosphere (mean = 3.40). The experiences in their subjects contributed to their personal growth (mean = 3.44), and the boarding house or living arrangement they had was peaceful and conducive to focus (mean = 3.39). However, there was a slightly lower perception of an atmosphere of freedom for making mistakes in the classroom (mean = 2.96). The presence of visual aids such as TV or projector screens in the classroom was seen as motivating and enhancing their learning (mean = 3.77). On average, the respondents reported a moderately favorable level of affective engagement in their learning environment (mean = 3.40). Hence, the higher the mean, the higher the affective filters, leading to a greater tendency to hinder the transfer of learning which is caused by disoriented or disturbance.

This finding indicates that the respondents' environmental setting affects their learning development. Boyd (2021) explained that the environmental setting of learners is an important factor in their academic success and total learning development. Jeremiah (2018) also concluded that academic performance is a positive outcome when learners are nourished in a healthy and harmonious environment, including their home and school. However, a favorable level of affective environmental filters is an example of the negative side. Learners with this learning condition are disoriented, malfunctioning, and disturbed. In addition, according to Policay (2021), the physical environment needs to be practical as well as interesting and stimulating. Arranging the desks and chairs in such a way as to facilitate small-group work, individual work and whole-class discussions is a challenge. The ideal structure should cater to different learning styles and consider the teacher's desk situation, either making it accessible or creating additional barriers.

Furthermore, Butac (2020) highlights the significant impact of the learning environment during the implementation of alternative education delivery modality on learners' development and affective filters.

Table 10. Level of Affective Motivational Filters of the Respondents

Factors	**Mean**	**Standard Deviation**	**Descriptive Interpretation**
Factor 3- Affective Motivational Variable			
1. They are eager and motivated to learn in their subjects.	3.52	1.16	Favorable
2. They feel relaxed and confident in learning their subjects.	3.36	1.37	Moderately Favorable

3. They are still motivated to learn concepts in their subjects without moral encouragement.	3.49	1.25	Favorable
4. They are still motivated to learn concepts in subjects without material encouragement.	3.45	1.20	Favorable
5. Their own learning experiences in their subjects help them to learn other subject areas.	3.39	1.06	Moderately Favorable
6. Topics in their subjects make them feel like a real scientist which motivates them to learn even more.	3.45	1.23	Favorable
7. Activities in their subjects make them enjoy learning the concepts even more.	3.30	1.23	Moderately Favorable
Overall Mean	**3.42**	**0.56**	**Moderately Favorable**

Table 4.7 shows the level of Affective Filters in the Affective Motivational Variable, the respondents demonstrated a moderately favorable level of affective engagement. They expressed eagerness and motivation to learn their subjects (mean = 3.52) and felt relaxed and confident in their learning (mean = 3.36). They were self-motivated without relying on external encouragement, both morally (mean = 3.49) and materially (mean = 3.45). They recognized that their learning experiences in their subjects extended to other subject areas (mean = 3.39), and the topics in their subjects motivated them to learn more (mean = 3.45). Although the enjoyment of learning activities in their subjects was slightly lower (mean = 3.30), the average for this variable indicates a moderately high level of affective engagement (mean = 3.42).

Consequently, learners with a moderately favorable level of affective motivational filter lack the necessary motivation, inspiration, confidence, and intrinsic and extrinsic factors such as class goals, habits, and the personal inhibitions of the learners that negatively affect their learning development. Hence, a moderately favorable affective motivational filter may hamper academic success since motivation triggers one's behavior or a drive that comes with a goal or incentive.

Moreover, Cheng (2018) revealed that motivation, as described in the study of educational principles and theories, is a teaching ideal that should focus on the learners themselves. On the other hand, motivations could be greatly hampered by affective filters. Motivational variables are also affective filters that may affect the development of learning of the learners and so as their academic performance in a learning area or course of study. Motivation greatly affects the efficacy of the teacher, rather, it affects the learning development of learners which may hinder or induce their performance. Finally, to fully understand the construct of affective filters, social variables should never be neglected. Mentoring has been identified as a mechanism for supporting instructional improvement and learning development, in the compulsory school and higher education contexts.

Table 10. Level of Affective Social Filters of the Respondents

Factors	Mean	Standard Deviation	Descriptive Interpretation
Factor 4- Affective Social Variable			
1. Their teachers in their subjects help them feel confident and have better learning in the subject.	2.87	1.30	Moderately Favorable
2. Their teachers in subjects provide them with immediate, frequent, and task-related feedback to help them improve their learning and their learning styles in the subjects.	3.35	1.36	Moderately Favorable
3. Their parents support and stimulate their interest in having a better performance in subjects' class.	3.40	1.36	Favorable
4. Their classmates in subjects help them cope with the difficulties that they encounter during the learning process.	2.86	1.30	Moderately Favorable
5. Their classmates, teachers and they have a good relationship inside and outside the subjects	2.92	1.30	Moderately Favorable
6. Their peers initiate learning sessions about their subjects in the group.	2.55	1.27	Least Favorable
7. There is no competition of students within the subjects' classes.	2.63	1.18	Moderately Favorable
Overall Mean	**2.94**	**0.56**	**Moderately Favorable**

Lastly, the table above presents the level of Affective Filters in the Affective Social Variable, the respondents perceived a moderately favorable level of affective engagement. They reported that their subject teachers helped them feel confident and improved their learning (mean = 2.87), and they received immediate, frequent, and task-related feedback from their teachers (mean = 3.35). Their parents also provided support and stimulated their interest in performing better in their subjects (mean = 3.40). While they acknowledged that their classmates helped them cope with learning difficulties (mean = 2.86), there was room for improvement in their relationships with peers (mean = 2.92). The initiation of learning sessions by peers within the group was slightly lower (mean = 2.55), and the absence of competition among students in their classes was also lower (mean = 2.63). Overall, the average for this variable indicates a moderate level of affective engagement (mean = 2.94).

This finding implies that respondents have strong social conditions serving as filters in their academic endeavors. Since Affective Social Environment is anchored in the learners' social environment, which includes their parents, teachers, friends, peers, and other socially relevant and significant individuals to the learners, the COVID-19 pandemic characterized by limited peer and teacher interaction might have contributed to this

scenario. As Umar (2020) claimed, an unfavorable social environment may serve as a piece of baggage for an individual to do well academically.

One of the factors identified by Tehseen & Madi (2015) in their study, Factors Influencing Teachers' Performance and Retention, working conditions have an impact on the student's performance and their retention conditions include facilities defined as the physical workplaces of teachers and the available resources to them. Additionally, research conducted by Jeremiah (2018) stated that physical and social learning environments are contributory factors in learning development among students.

Table 11. Overall Level of Affective Filters of the Respondents

Dimensions of Affective Filters	**Mean**	**Interpretation**
Affective Biological Variable	3.22	Moderate
Affective Environmental Variable	3.40	High
Affective Motivational Variable	3.42	High
Affective Social Variable	2.94	Moderate
Overall	**3.22**	**Moderate**

Legend:
4.20 – 5.00 Very High
3.40 – 4.19 High
2.60 – 3.19 Moderate
1.80 – 2.59 Low
1.00 – 1.79 Very Low

Table 11 reveals the level of affective filters among respondents. In general, the respondents have a moderately favorable affective filter with a mean of 3.22. In the study by Cardona (2015), a moderately high level of affective filters nears a high level of affective filters characterized by strong filters that affect the learning and development of respondents in a particular course of study. These filters are negative walls that hinder the transfer of learning and are further manifested by negative responses and low levels of student engagement in classroom activities. Previous researchers discovered that students' learning development was somewhat hindered by a moderately high level of affective filters (Akinwumi et al., 2016).

Specifically, learners with a moderately favorable level of affective filters are sometimes anxious during instruction, especially while doing activities related to other students and teachers, classroom control, lesson effectiveness, and lesson presentation. Furthermore, they are often anxious about participating in classroom discussions, thus limiting their maximum performance. A moderate level of affective filters is a relatively unsound level of affective filters because it tends to alter and modify the course of learning developments and academic success of learners. As compared to a high level of affective filters, a moderate level is tolerable and mitigated by classroom techniques and methods that resolve identified problems. On the other hand, a high level of affective filters connotes a bigger problem as it already broadened a wider problem regarding negative

filters present among learners such as anxiety, mental health issues, and other relevant problems.

Academic Performance of the Respondents

Table 12. Frequency and Percentage of the Academic Performance of the Respondents

Academic Performance Level	Frequency (n=240)	Percent (100%)
Outstanding (90 – 100)	60	25.0
Very Satisfactory (85 – 89)	50	20.8
Satisfactory (80 – 84)	50	20.8
Fairly Satisfactory (75 – 79)	75	31.3
Did Not Meet Expectations (below 75)	5	2.1
Overall Mean of Academic Performance	**83.92**	**Satisfactory**

The academic performance of the respondents is measured based on their level of achievement in their studies. Table 12 provides the frequency and percentage distribution of the respondents' academic performance levels. Most of the respondents achieved a satisfactory level of academic performance, as indicated by the frequency distribution. Specifically, 60 respondents (25.0%) achieved an outstanding level (90-100), 50 respondents (20.8%) achieved a very satisfactory level (85-89), and another 50 respondents (20.8%) achieved a satisfactory level (80-84). A significant number of respondents, 75 (31.3%), obtained a satisfactory level (75-79). Only a small proportion of respondents, 5 (2.1%), did not meet expectations with a performance below 75.

In summary, the respondents' academic performance can be characterized as satisfactory based on the distribution of performance levels and the mean score. Although there were some variations in individual scores, most respondents achieved a satisfactory level of academic performance.

The result affirms the findings of Policay (2021) on the study of the academic performance of students who perform averagely in their subjects. However, this still falls below the curricular goals of the K–12 curriculum, which focuses on the learners' development based on the identified skills and competencies of the new curriculum. Hence, there is a need to augment instruction through enhanced instructional materials and pedagogical innovations in the learning area.

Further, it should be noted that the average grades obtained through the results of the summative examination were from the first and second quarters of the school year during the implementation of the face-to-face instructional modality as part of DepEd's Learning Continuity Plan. Hence, the respondents' satisfactory academic performance in social studies may be attributed to the learning challenge sand adjustments brought about by the paradigm shift in the education system (Salud, 2022).

Comparison in the Respondents' Level of Affective Filters Grouped by Profile

Table 13. Comparison in the Respondents' Level of Affective Filters when grouped by Sex

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Sex	Affective Biological Variable	0.94	0.39	Accept	Not significant
	Affective Environmental Variable	3.92	0.02*	Reject	Significant
	Affective Motivational Variable	1.79	0.17	Accept	Not Significant
	Affective Social Variable	2.58	0.08	Accept	Not Significant

The table presents the results of the analysis investigating the significant difference in the level of affective filters among respondents when grouped according to their profile variables. The research problem aims to determine if there are variations in the affective filters based on different profiles. The F-value and p-value are provided for each comparison to assess the significance of the differences.

Starting with sex, the analysis indicated that there was no significant difference in the level of affective filters based on sex. The F-value of 0.94 and the p-value of 0.39 suggested that the observed differences were not statistically significant. Consequently, it can be concluded that the level of affective filters does not differ significantly between males and females. The level of affective filters specifically Affective Environmental Filters differs significantly between male and female learners.

In contrast, a related study by Akinsola (2014) found that sex is a factor in students' learning anxiety, claiming that female students have more effective filters than males, attributed to their varied biological, behavioral, and emotional orientations. This point was also affirmed in the study of Payne and Furnham (2016), which claimed that sex significantly influences students' levels of negative emotions. In a parallel study by Cubucko and Donmez (2016), it was found that female students had a higher level of negative emotions in all dimensions of student engagement in the school. In addition, they manifested a higher level of affective filters as they experienced greater mental and emotional walls hindering their learning development.

Additionally, Payne and Furnham (2021) discovered that gender is a significant factor that might change the level of the negative emotions of learners in a particular learning area.

Moreover, Cabaccan's 2022 study found that male students generally perform better academically than female students, indicating a strong influence of affective filters and their profile variables on academic performance.

Table 14. Comparison in the Respondents' Level of Affective Filters when grouped by Ethnicity

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Ethnicity	Affective Biological Variable	1.78	0.17	Accept	Not significant
	Affective Environmental Variable	7.16	0.00*	Reject	Significant
	Affective Motivational Variable	3.88	0.02*	Reject	Significant
	Affective Social Variable	0.15	0.86	Accept	Significant

As for ethnicity, the analysis revealed that there were significant differences in the level of affective filters based on ethnicity. Specifically, the affective filters of environmental and motivational factors showed significant differences. The F-value of 7.16 and the p-value of 0.00 indicated a significant difference between ethnicity and the affective environmental variable. Similarly, the F-value of 3.88 and the p-value of 0.02 suggested a significant relationship between ethnicity and the affective motivational variable.

However, no significant differences were found for the affective filters of biological and social. Therefore, it can be concluded that the level of affective filters differs significantly based on ethnicity, particularly in the environmental and motivational domains. This particularly means that ethnicity influences environmental and motivational levels of affective filters of learners specifically identifying that they are from the Iloko and Ibanag cultural identities. Their ethnic environment and motivational factors brought upon by cultural integration and differentiation are influential in the recognition of present variables towards learning.

In considering learners' ethnic and cultural background for learning development and academic performance, Apolonio (2017), in a local study of Indigenous education,

claimed that the kind of cultural orientation to which the learner adheres determines the likelihood of success in an educational setting. Contrary to this, Osborne (2016) noted that the level of affective filters of learners is affected only if the variables are stated and no other extraneous variables, such as ethnicity or cultural background, influence the study on effective filters.

In contrast, the study by Miller and Wiese (2018) contradicts the findings regarding the relationship between affective filters and ethnicity. They found no significant differences in affective filters based on ethnicity. However, it is important to consider that findings may vary depending on the specific context and sample population.

Table 15. Comparison in the Respondents' Level of Affective Filters when grouped by Birth Order

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Birth Order	Affective Biological Variable	0.40	0.75	Accept	Not Significant
	Affective Environmental Variable	0.49	0.68	Accept	Not Significant
	Affective Motivational Variable	0.83	.480	Accept	Not Significant
	Affective Social Variable	0.17	0.92	Accept	Not Significant

Regarding birth order, the analysis revealed no significant difference in the level of affective filters based on birth order. The F-values ranged from 0.17 to 0.83, and the associated p-values were all greater than the significance level. Consequently, it can be concluded that birth order does not have a significant influence on the level of affective filters.

This result is supported by Semana (2017) who notes that the sibling order of learners in a particular school is not a contributory factor to learners' affective filters. Further, Krashen (2018) revealed that the affective biological filter is not influenced by birth order, particularly in the learning development of learners.

Table 16. Comparison in the Respondents' Level of Affective Filters when grouped by Father's Economic Status

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Father's Economic Status	Affective Biological Variable	2.02	0.09	Accept	Not significant
	Affective Environmental Variable	5.47	0.00*	Reject	Significant
	Affective Motivational Variable	1.68	0.15	Accept	Not significant
	Affective Social Variable	1.18	0.32	Accept	Not significant

In terms of the father's economic status, the analysis indicated a significant difference in the level of affective filters based on the father's economic status. Specifically, the affective filter of the environment showed a significant difference. The F-value of 5.47 and the p-value of 0.00 indicated a significant relationship between the father's economic status and the affective environmental variable. However, no significant differences were found for the affective filters of biological, motivational, and social variables. Therefore, it can be concluded that the level of affective filters differs significantly based on the father's economic status, particularly in the environmental domain

.

This scenario is negated by several pieces of literature navigating the factors affecting students' academic performance in class. One of which is identified is the parents' socioeconomic status relative to their employment status. Jeremiah (2018) narrated that one of the enormous considerations for learners' success in school is the economic support emanating from parents. Thus, paternal support has been tagged as essential in a family for many economic reasons. Concerning students' learning development in school, students with more and better support from their parents are more likely to perform their daily tasks and activities in school.

Table 17. Comparison in the Respondents' Level of Affective Filters when grouped by Mother's Economic Status

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Mother's Economic Status	Affective Biological Variable	0.88	0.47	Accept	Not significant
	Affective Environmental Variable	4.52	0.00*	Reject	Significant
	Affective Motivational Variable	2.94	0.02*	Reject	Significant
	Affective Social Variable	1.78	0.13	Accept	Not significant

For the variable of the mother's economic status, the analysis revealed a significant difference in the level of affective filters based on the mother's economic status. Specifically, the affective filters of Environmental and Motivational showed significant differences. The F-value of 4.52 and the p-value of 0.00 indicated a significant relationship between the mother's economic status and the affective Environmental Variable. Similarly, the F-value of 2.94 and the p-value of 0.02 suggested a significant difference between the mother's economic status and the affective Motivational Variable.

However, no significant differences were found for the affective filters of Biological and Social. Therefore, it can be concluded that the level of affective filters differs significantly based on the mother's economic status, particularly in the Environmental and Motivational domains.

The economic status of maternal support significantly impacts learners' environmental and motivational development, as studies show that high maternal economic support leads to low affective filters in learners' domains.

In the same study by Jeremiah (2018), the unemployment of respondents' mothers negatively impacts children's learning development, but it doesn't guarantee improved school performance when mothers have ample time to teach.

Chen and Zhou's 2017 study reveals significant differences in affective filters among students based on their socioeconomic status, potentially affecting their learning experiences and academic performance.

Table 18. Comparison in the Respondents' Level of Affective Filters when grouped by Father's Highest Educational Attainment

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Highest Educational Attainment (Father)	Affective Biological Variable	1.48	0.22	Accept	Not significant
	Affective Environmental Variable	1.38	0.25	Accept	Not significant
	Affective Motivational Variable	2.73	0.04*	Reject	Significant
	Affective Social Variable	1.10	0.35	Accept	Not significant

Regarding the highest educational attainment of the parents, the analysis indicated a significant difference in the level of affective filters based on the highest educational attainment of both the father and the mother. Specifically, the affective filters of motivation showed significant differences. The F-values ranged from 2.73 to 3.63, and the associated p-values were all below the significance level. However, no significant differences were found for the affective filters of Biological, Environmental, and Social. Therefore, it can be concluded that the level of affective filters differs significantly based on the highest educational attainment of the parents, particularly in the Motivational domain.

The result confirms that paternal education level will not directly affect students' learning conditions and educational outcomes. However, Littkey (2004) as cited by Cardona (2015) revealed that when the family head, who is usually a father, makes efforts to educate the children, there is more likely to be a positive reinforcement of educational goals due to the father's influence in the family. The level of education of fathers could also be determinative of learners' success in classroom processes and activities

.

This learning condition categorically supports the significant difference between the levels of affective filters of the respondents when grouped according to their fathers' educational attainment. As discussed, paternal education affects the learning development of the offspring. This scenario is also characterized by an educational and learning principle wherein the learners' social and parental support are factors to consider learners' continuous development outside the classroom environment. Supporting this point, Akinsola (2017) has established that the higher the father's level of education, the better educational outcomes are deemed expected and realized by their children.

Table 19. Comparison in the Respondents' Level of Affective Filters when grouped by their Mother's Highest Educational Attainment

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Highest Educational Attainment (Mother)	Affective Biological Variable	1.07	0.37	Accept	Not significant
	Affective Environmental Variable	0.90	0.46	Accept	Not significant
	Affective Motivational Variable	0.91	0.45	Accept	Not significant
	Affective Social Variable	1.51	0.20	Accept	Not significant

Table 19 shows a comparison of the respondents' level of affective filters when grouped according to mothers' highest educational attainment. It is shown by the data that there were no significant differences established in the respondents' level of affective filter when grouped by biological variable, environmental variable, motivational variable, and social variable. Thus, it is implied that the respondents have the same level of affective filters across the variables.

Previous studies revealed that paternal education level significantly affects their children's learning development and educational success (Tan, 2017). Besides, Cheng (2018), in her study on parenting and scaffolding, also found the same assertions that mothers who are primarily guidance providers and scaffolding masters are hugely affecting their children's total learning development starting even from the early stages of childhood development. Filial support has been recognized as one of the best informal education methods. In the study by Policay (2021), during the implementation of the alternative modalities in education, it was noted that Filipino mothers provide learning and feedback support to their children who are undertaking such modalities. On the contrary, this was one of the causes of a student's low and diminished academic performance in the present study. Hence, the higher the mother's educational attainment, the more scaffolding techniques are provided to their children. The parents' educational attainment contributes to their children's learning development and complete educational experience.

Table 20. Comparison in the Respondents' Level of Affective Filters when grouped by Family Income

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Family Income	Affective Biological Variable	1.91	0.11	Accept	Not significant
	Affective Environmental Variable	2.24	0.06	Accept	Not significant
	Affective Motivational Variable	2.00	0.09	Accept	Not significant
	Affective Social Variable	3.43	0.01*	Reject	Significant

In terms of family income, the analysis revealed a significant difference in the level of affective filters based on family income. Specifically, the affective filter of society showed a significant difference. The F-value of 3.43 and the p-value of 0.01 indicated a significant difference between family income and the affective Social Variable. However, no significant differences were found for the affective filters of Biological, Environmental, and Motivational. This means that family income cannot be considered as a factor in considering affective filters. The income of the family does not have any influence or effect on the levels of affective filters in the biological, environmental, and motivational aspects. Therefore, it can be concluded that the level of affective filters differs significantly based on family income in the social domain.

This finding indicates that the financial status of the family of learners, as attributed to their monthly net income, significantly contributes to affective social filters. Tehseen & Madi (2015) noted that conditions in the place and budgeting capacity of their families impact the learners' performance and their retention conditions, which include facilities and school support materials present in their homes and available resources as alternatives for learning.

Table 21. Comparison in the Respondents' Level of Affective Filters when grouped by Structure

Profile Variable	Affective Filter Variable	F-computed value	p-value	Decision	Interpretation
Family Structure	Affective Biological Variable	3.83	0.01*	Reject	Significant
	Affective Environmental Variable	1.98	0.12	Accept	Not significant
	Affective Motivational Variable	3.63	0.01*	Reject	Significant
	Affective Social Variable	2.39	0.07	Accept	Not significant

Finally, for the variable of family structure, the analysis indicated a significant difference in the level of affective filters based on family structure. The affective filters of biological and motivational factors showed significant differences. The F-values ranged from 1.98 to 3.83, and the associated p-values were all below the significance level. This means that family structure contributes to the increase or reduction of affective filters of students in their biological and motivational variables. Specifically, when learners are living in extended or nuclear families, the result signifies that this factor influences their personal traits and motivational aspects.

However, no significant differences were found for the affective filter of environmental and social variables. Therefore, it can be concluded that the level of affective filters differs significantly based on family structure, particularly in the biological and motivational domains.

This result is supported by Petren (2015), who explained that family structure determines the level of participation of learners in school. It influences the behavior and thinking of children under such a structure. Specifically, Brown (2016) revealed that the extended family structure adversely affects learners' performance in school due to cited conditions such as no single form of a behavioral model and the adverse effects of multiple parenting.

In a longitudinal study done by Battaglia et al., (2017) they found that children who experienced persistent dependence and meek behavior who were raised in extended families between ages 1.5 and 6 years went on to show more internalizing symptoms, worse overall academic achievement, and poorer physical health later in childhood and preadolescence. While some research suggests nuclear being in isolation may not impact

a student's academic achievement, other research has found a strong correlation between filial ties and academic and social success (Brannlund et al., 2017).

Relationship between the Respondents' Level of Affective Filters and Academic Performance

Table 22. Relationship between the Level of Affective Filters and Academic Performance of the Respondents

Affective Filters	Pearson r – Value	P-value	Interpretation
Biological	0.48	0.00	Significant
Environmental	0.55	0.00	Significant
Motivational	0.46	0.00	Significant
Social	0.38	0.00	Significant

The table provides insights into the relationship between the level of affective filters and the respondents' academic performance.

Starting with the Affective Biological Variable, the Pearson correlation coefficient is 0.48. This indicates a moderately positive relationship between the level of affective filters in the biological domain and the respondents' academic performance. The p-value associated with this relationship is 0.00, which indicates that the relationship is statistically significant. This categorically means that personal traits, features, and characteristics of learners significantly influence and affect their academic performance. When their Affective Biological Variable is low, it is more likely that learners will develop academic success.

Moving to the Affective Environmental Variable, the Pearson correlation coefficient is 0.55. This indicates a strong positive relationship between the level of affective filters in the environmental domain and academic performance. The p-value of 0.00 suggests that this relationship is statistically significant. This result signifies that environmental aspects and circumstances of learners are contributory factors in their academic success and learning development. In a nutshell, learners' physical environment which includes their homes, communities, internal and external premises, classrooms, and school premises, makes a significant contribution to the increase or reduction of learners' academic achievement.

Next, the Affective Motivational Variable exhibits a Pearson correlation coefficient of 0.46. This indicates a positive relationship between the level of affective filters in the motivational domain and academic performance. The p-value of 0.00 indicates that this relationship is statistically significant. The result implies that intrinsic and extrinsic motivation factors exhibited by the learners affect their academic performance.

Lastly, the Affective Social Variable has a Pearson correlation coefficient of 0.38. This indicates a moderately positive relationship between the level of affective filters in

the social domain and academic performance. The p-value of 0.00 confirms the statistical significance of this relationship. In sum, when a positive correlation is obtained between affective social variables and academic performance, this shows that social environment and social circumspect of learners are contributory factors to their academic success. These social factors include but are not limited to their family members, peers, friends, classmates, teachers, or other significant higher authorities.

In summary, the table reveals that there is a significant relationship between the level of affective filters and the academic performance of the respondents. The strength of the relationship varies across the affective filter categories, with the Environmental variable showing the strongest relationship (r = 0.55), followed by Biological (r = 0.48), Motivational (r = 0.46), and Social (r = 0.38). These findings suggest that the affective factors in these domains play a role in influencing the academic performance of the respondents.

The results of the study confirmed the findings of Lingam (2018), which revealed that one of the critical factors that negatively affect students' academic performance is the affective filters in the form of social environments, such as a lack of guidance provided by teachers and academic supervisors. Also, Muwonge et al. (2021) found that poor social support from school administrators and supervisors from the school, too many students in some schools, poor allocation of teaching load in various schools, and being unjustly shifted from their original schools of posting are forms of affective filters that reduce academic performance.

In the context of educational outcomes in the new normal, Salacup (2021) revealed that students' low level of academic performance in their subjects is attributed to various affective filters such as a lack of filial and scaffolding support and insufficiency of teaching provisions. Moreover, it also cited that learners' emotional and social conditions affected their behavior and performance in the subject. Hence, affective filters manifest backlogs in the instruction processes (Nayir, 2020), such as a lack of classroom ambiance and a lack of motivational and social support
.

Finally, as pointed out by Evans (2021), educators are a key factor in improving a learner's mental health and in reducing their affective filters, with much of a learner's time being spent in school, educators are more aware of mental health disorders will be more prepared to better support and implement strategies into their schools and classrooms to support all students. Hence, there should be mechanisms adapted to mitigate the adverse effects of mental health issues and concerns in relation to affective filters as contributory factors in the learning development and academic performance of learners.

Conclusions

In light of the dynamic educational system in the country, the study has established that learners manifest a moderately favorable level of affective filters and satisfactory academic performance. The differences in affective filters are explained by academic

performance and learners' ethnicity, family structure, parents' highest educational attainment, nature of employment, and monthly net family income.

Generally, the study posits that least favorable or low affective filters yield higher academic performance. This notion is congruent with various educational principles modeling the importance of intrinsic and extrinsic factors in the learning development of students, including the social cognitive theory, the principle of behaviorism, physiological factors such as socio-economic status, and the environmental set-up of learning conditions. Hence, academic performance is also affected by learning walls called affective filters, teachers, administrators, parents, and guidance advocates must consider them in their instructional and psychosocial support.

Recommendations

After having analyzed the results of this study, the following are recommended:

1. Since it was found that affective filters are moderately favorable and negatively influence academic performance, it is vital that schools' division and schools develop and establish a supported and contextualized curriculum that centers on the affective needs of the students such as the integration of mental health education in the curriculum and personality education and development in the Junior High School level. Further, learning objectives and competencies must also be aligned with effective learning standards. Teacher-made instructional Materials may also be innovated considering students' unique needs and conditions.

2. Since the Affective Motivational Variable, Affective Biological Variable, and Affective Environmental Variable have a moderately favorable level of affective filters, factors that affect the motivational status and aspects of students' learning must also be strengthened. In schools' guidance and counseling functions, guidance counselors or any guidance advocates in schools may innovate special programs to enhance the motivational and emotional learning conditions of learners. These may be done through school symposia on understanding oneself, and coping mechanisms to stresses, anxiety, and other emotional conditions. School heads, administrators, and supervisors may integrate such programs and innovations in their School Improvement Plan or Annual Improvement Plan for budgeting and supervisory purposes.

3. Since the Affective Social Variable obtained the favorable mean of the Affective Filter Variable, it is recommended that the school's external community, including barangays, as part of the school's external stakeholders, may implement programs and projects on family relations and parenting. The Youth Sector of the barangay may initiate a particular project focusing on educational support for students who are experiencing cognitive and non-cognitive backlogs in their classes. Furthermore, in coordination with the Local Government Unit or Non-Governmental Organizations and private sectors, the barangay may succinctly

establish livelihood projects and employment opportunities for the unemployed and families below the poverty threshold.

4. Finally, the concept of affective filters as a novelty in education research may also be undertaken in other school subjects through different learning modalities. Future studies may also highlight and introduce new effective filters aside from the identified filters from previous studies.

Compliance with Ethical Standards

The author hereby declares that this research was conducted with adherence to ethical standards, ensuring the well-being and privacy of all participants. Informed consent was obtained from all students before data collection, and their anonymity was maintained throughout the study. The data was analyzed with sensitivity and respect for the diverse backgrounds and experiences of the participants. The findings are presented objectively and without bias, aiming to contribute to a better understanding of the role of affective filters in educational settings. All sources used in this research have been properly cited and acknowledged, and no plagiarism has occurred. This research is intended to be used for the advancement of educational practices and to promote the well-being of students.

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ANALISIS NG EPIKONG TUWAANG BILANG BATAYAN SA PAGBUO NG MODYUL SA GRADE 8

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ABSTRACT

Layunin ng pag-aaral na ito na tukuyin at suriin ang mga *morphological functions* ng Epikong Tuwaang: Pagdalo ng Kasal bilang batayan sa pagbuo ng modyul sa Grade 8 gamit ang teorya ni Propp. Sa pagsusuri, natuklasan na ang Epikong Tuwaang ay naglalaman ng 24 na *morphogical functions* kasama rito ang mahalagang papel ng pangunahing tauhan na si Tuwaang, na nagpapakita ng kapangyarihan at talino sa pagharap sa mga hamon at pagresolba sa mga problema. Batay sa natuklasan sa pag-aaral at ginawang analisis ng epiko, nakabuo ng isang yunit modyul ang mananaliksik na nagtataglay ng mga bahaging *learning competencies, paksa, pasimulang gawain, talakayan at pagbibigay ng pagsasanay na kontrolado at independyente, pagtatasa na kontrolado at independyente.* Batay sa nabuong analisis, inirerekomenda ng pag-aaral ang pagsama ng modyul na binuo sa pagsusuri ng Epikong Tuwaang:Pagdalo ng Kasal sa mga l*earning resources* para sa Grade 8 Filipino.

Susing-salita: *morphological functions, epiko, Tuwaang, yunit modyul*

INTRODUCTION

Ang kakulangan ng maayos na mapagkukunan ay maaaring magdulot ng mga hadlang sa pag-aaral ng mga estraktura at elemento ng mga epiko. Para sa mga mananaliksik at estudyante na nagnanais na maunawaan at suriin ang mga epikong ito, mahalaga ang malalim at tiyak na mga sanggunian upang magkaroon ng mas malawak at masistemang pagsusuri. Ang kakulangang ito ay maaaring humadlang sa pag-unawa at interpretasyon ng mga teksto at maaaring magdulot ng mga pagkakamali o pagkakapalit ng mga detalye o elemento ng mga epiko kapag isinasalin o isinusulat ang mga ito.

Upang malunasan ang suliraning ito, mahalagang gawin ang pagsisikap upang mahanap at mapreserba ang mga maayos na mapagkukunan para sa mga Epikong Tuwaang: Pagdalo ng Kasal. Maaaring isagawa ang sistematikong pananaliksik sa mga komunidad na may alam sa mga epikong ito, ang paghahanap ng mga transkripsiyon o mga kasulatan na nauugnay sa mga epikong ito, at ang pagtatala ng tradisyong oral ng mga kuwento mula sa mga katutubo o mga taong may kaalaman sa mga epiko.

Ang pagbuo ng yunit modyul ay isa sa tunguhan ng pag-aaral na ito upang mas madaling maitaguyod at pahusayin ang epektibong pagtuturo at pagkatuto. Ang paggamit ng mga pang-instruksiyonal na materyales ay iba’t ibang paraan na maaaring suportahan ang mga mag-aaral na mapataas ang kanilang kaalaman at mas mabuting pag-unawa sa nilalaman ng paksa.

Sa pamamagitan ng mga hakbang na ito, malalampasan ang suliranin ng kakulangan ng maayos na mapagkukunan at magiging mas malawak ang kaalaman at pag-unawa sa morpolohiya ng mga Epikong Tuwaang: Pagdalo ng Kasal. Ito ay magbubukas ng mga oportunidad para sa mas malalim na pag-aaral, pagsusuri, at pagpapahalaga sa kultura at tradisyon ng mga Pilipino na konektado sa mga epikong ito.

Popular ang morpolohiya ni Vladimir Propp dahil sa *unique* nitong katangiang kumilatis ukol sa mga elemento at pagkakasunod-sunod ng mga karakter at pangyayari. Ang kaniyang teorya ay kilala bilang *Morpology of the Folktale* o Morpoholohiya ng mga Salaysay ng Bayan. Sa konteksto ng pag-aaral ng Epikong Tuwaang, ang morpolohiya ni Propp ay maaaring magkaroon ng mahalagang papel sa pag-unawa at pagsusuri ng mga pangyayari at mga karakter sa salaysay. Ang pag-aaral ng morpolohiya ay nagbibigay-daan sa atin na mapaghiwalay ang iba't ibang bahagi ng kuwento at malaman ang mga pangunahing tungkulin at mga galaw na ginagampanan ng mga karakter. Katulad ng *The Morphology of Fairy Tales* ni Dundes (1978), isang Amerikanong *folklorist*, ginamit niya ang teorya ni Propp upang maunawaan ang estruktura at mga elementong naratibo ng mga *fairy tale*. Sa *Proppian Analysis of Bollywood Narratives* ni Ray (2007), sinuri niya ang *Bollywood narratives* gamit ang mga konsepto ni Propp upang maunawaan ang mga *function* at karakter. Sa *A Morphological Analysis of Greek Mythology* ni Georganas (2012), ginamit niya ang teorya ni Propp upang suriin ang mga mitolohiyang Griyego at maunawaan ang mga elementong naratibo at estruktura ng mga kuwento.

Sa Epikong Tuwaang, makikilatis ang ilang mga tauhan tulad ng mga pinuno, masamang tao, at bayani. Tinutulungan din nito ang mga karakter na maunawaan ang mga tradisyonal na tungkulin sa kuwento. Sa pamamagitan din nito, madidiskubre ang mahahalagang karakter sa pagpapasulong ng kuwento. Maaaring gumamit din ng isang espesyal na paraan ng pag-aaral na tinatawag na morpolohiya upang maunawaan kung paano nagkakaron ng koneksiyon ang lahat ng mga karakter at pangyayari. Nakatutulong din ang nasabing pagsusuri na mabigyang-linaw ang bawat aksiyon/kilos ng mga tauhan at nagbibigay ng interes at kawilihan sa mambabasa. Maihahambing din ang Epikong Tuwaang sa iba pang mga kuwento mula sa iba't ibang etnikong grupo sa Pilipinas upang maihambing ang pagkakatulad at pagkakaiba ng mga karakter at maging ang konteksto nito. Sa Epikong Tuwaang sa Mindanao, maaaring hindi pa ganap na naibigay ang isang malalim na pagsusuri sa estruktura ng tema at simbolismo na natagpuan sa epikong Mindanao at hindi pa ganap na isinasama ang Epikong Tuwaang sa mga pag-aaral na naglalayong ihambing ito sa iba pang mga epiko mula sa iba't ibang etnikong grupo sa Pilipinas. Ang pagkumparang ito ay maaaring magbukas ng mga ugnayan at pagkakapareho sa pagitan ng mga epiko ng Mindanao at iba pang rehiyon sa bansa.

Sa pag-aaral ni Padilla (2022), ginamit niya ang morpolohiya ni Propp bilang isang metodolohiya sa pagsusuri ng estruktura ng mga mito. Sa pag-aaral ni Dacillo (2021), ginamit ang estruktura ng mga tradisyonal na kuwentong Agusan Manobo at sa pananaw ng mga Manobo. Ang mga pag-aaral na nabanggit ay naglalayong maunawaan ang estruktura ng mga kuwento sa mga mito, epiko, at tradisyonal na kuwento ng Mindanao. Ipinakita nila ang mga ugnayan ng mga kuwento sa mga ideolohiya ng lipunan at mga kultural na halaga. Ang mga pag-aaral na ito ay may malaking ambag sa pagpapahalaga at pangangalaga ng mga mito at kuwentong-bayan bilang mahahalagang bahagi ng kulturang Pilipino.

Batay sa aklat na *Morphology of Folklore* ni Propp, nagbibigay ito ng magandang halimbawa ng paraan ng *orthodox formalist* na ipinakita sa pagsusuri ng istraktura ng mga epikong Mindanaoan. Isa sa mga mahahalagang konsepto na maaaring suriin at maunawaan ay ang *Thirty-One Function*. Ang *Thirty-One Function* ay isang termino na ginagamit sa pag-aaral ng mga epiko na may layuning maunawaan ang iba't ibang mga gamit at kahalagahan nito sa paglalahad ng kuwento. Ito ay isang sistematikong pag-aaral ng mga elemento at mga tungkulin na ginagampanan ng mga karakter at pangyayari sa epiko.

Kaya sa papel na ito, ang paggamit ng morpolohiya ni Vladimir Propp sa Tuwaang - Pagdalo ng Kasal ay masuri ang mga *function* at makabuo ng isang yunit modyul na angkop sa pangangailangan ng mga mag-aaral sa Grade 8.

Research Question

Tinatangka ng pag-aaral na sagutin ang tiyak na katanungang:

Ano-anong mga bahagi ng isang yunit modyul para maiugnay sa *morphological functions* ni Propp sa isang yunit modyul sa Grade 8?

METHODOLOGY

Research Design

Kuwalitatibong disenyo ang ispesipikong ginamit sa pananaliksik upang suriin ang Kuwentong Tuwaang: Pagdalo ng Kasal mula sa prosa ng aklat na *Philippine Folk Literature: The Epics* ni Damiana L. Eugenio nakalap mula sa orihinal na teksto at sa aklat sa Filipino 8. Sa pamamagitan nito, sinuri ang morpolohiya ng kuwentong Tuwaang Pagdalo ng Kasal gayundin ang mga tunggalian (*conflict*) at resolusyon na nakita at inilarawan sa kuwentong ito.

Locale of the Study

Ang pag-aaral na ito ay isinagawa ng guro na nagturo sa asignaturang Filipino sa ikawalong baitang.

Respondents of the Study

Ang pag-aaral na ito ay isang content analysis kaya walang sangkot na mga kabataan o mag-aaral sa pag-aaral na ito.

Sampling Procedure

Isa rin sa naging sanggunian o materyal na ginamit sa pagsusuring ito ang kuwentong Mindanao na natagpuan sa aklat na ginamit sa ikawalong baitang na Panitikang Pilipino sa hayskul na espesyal na ginamit ang Epikong Tuwaang. Naghanap din ng orihinal na kopya mula sa CMU University Library ang mananaliksik upang maging basehan at pagkukumpara sa bersiyong Filipino ang nasabing kuwento. Paglirip sa nilalaman at sistematikong pinag-aralan ang mga teksto upang maunawaan ang mga katangian at kabuuan ng teksto.

Sinuri ng mananaliksik ang mga salita, pangungusap, konsepto, tema, o iba pang mga elemento ng teksto upang matukoy ang mga estruktura at mga ugnayan sa loob ng mga ito.

Instrument of the Study

Ginamit ng mananaliksik ang teorya ni Vladimir Propp na *morphological functions* sa kuwentong Tuwaang: Pagdalo ng Kasal na nagtataglay ng mahabang salaysayin na nakasulat sa wikang Ingles at may salin sa Filipino naman sa ibang sanggunian.

Data Gathering Procedure

Ang mananaliksik ay naghanap ng orihinal na kopya ng epikong Mindanao na Tuwaang upang maging basehan sa kanyang pag-aaral tungkol sa Morphological Function sa Epikong Tuwaang: Pagdalo Ng Kasal. Matapos ang pag-aaral ng mananaliksik na nakabuo ng isang yunit modyul na magamit niya sa pagtuturo sa asignaturang Filipino sa ikawalong baitang. Isinagawa ang pag-aaral sa taong panuruan 2023-2024.

Statistical Treatment of Data

Sa pag-aaral na ito, ginamit ng mananaliksik ang content analysis upang mapag-aral at makabuo ng analisis ng Epikong Tuwaang: Pagdalo Ng Kasal bilang batayan sa pagbuo ng modyul sa Grade 8. Ito ay nagpapalawak ng kaalaman sa guro tungkol sa morphological function sa pagtuturo ng mga kuwentong-bayan sa asignaturang Filipino.

RESULTS AND DISCUSSION

Ano-anong mga bahagi ng isang yunit modyul para maiugnay sa morphological functions ni Propp sa isang yunit modyul sa Grade 8?

Batay sa naging resulta ng analisis na may 24 na *morphological functions* ang Epikong Tuwaang upang maiugnay ang resulta ng morpolohikal na analisis sa unang katanungan. Inilapat ang mga kasunod na sagot sa bahagi ni isang yunit modyul.

Una, ang modyul ay nagtataglay ng mga sumusunod na bahagi. Nariyan ang introduksiyon kung saan kabilang sa bahaging ito ang paglalahad ng kasanayan o kompetensi sa bawat yunit. Ang *learning competencies* sa edukasyon ay tumutukoy sa mga sistemang panturuan, pagtatasa, pagbibigay-grado, at pang-akademikong pag-uulat na batay sa ipinakikita ng mga mag-aaral na natutuhan nila ang kaalaman at kasanayan na inaasahan nilang makukuha habang patuloy silang lumalago sa kanilang edukasyon. Ang mga kakayahan ay mga pagsama-sama ng pangunahing kaalaman, kasanayan, at kakayahan (KSA) na kinakailangan upang makamit ang isang katanggap-tanggap na antas ng pagganap. Ang edukasyong batay sa kakayahan ay isang uri ng pag-aaral na nakatuon sa kung ano ang natututuhan ng mga mag-aaral kaysa sa gaano katagal sila nandoon sa silid-aralan.

Sa paksang epiko, may anim na *competency* ang inaasahan na nakamit ng mag-aaral pagkatapos ng yunit . Narito ang mga sumusunod na kompetensi:

Code	Kompetensi
F8PN-Ig-h-22	Nakikinig nang may pag-unawa upang - mailahad ang layunin ng napakinggan - maipaliwanag ang pagkakaugnay- ugnay ng mga pangyayari
F8PB-Ig-h-24	Napauunlad ang kakayahang umunawa sa binasa sa pamamagitan ng: - paghihinuha batay sa mga idea o pangyayari sa akda - dating kaalaman kaugnay sa binasa
F8PT-Ig-h-21	Nakikilala ang kahulugan ng mga piling salita/pariralang ginamit sa akdang epiko ayon sa: kasingkahulugan at kasalungat na kahulugang talinghaga
F8PD-Ig-h-21	Nauuri ang mga pangyayaring may sanhi at bunga mula sa napanood na *video clip* ng isang balita
F8PS-Ig-h-22	Nagagamit ang iba't ibang teknik sa pagpapalawak ng paksa: - paghahawig o pagtutulad - pagbibigay depinisyon - pagsusuri
F8PU-Ig-h-22	Naisusulat ang talatang: - binubuo ng magkakaugnay at maayos na mga pangungusap - nagpapa-hayag ng sariling palagay o kaisipan - nagpapakita ng simula, gitna, wakas
F8WG-Ig-h-22	Nagagamit ang mga hudyat ng sanhi at bunga ng mga pangyayari (dahil, sapagkat, kaya, bunga nito, iba pa)

Sa *Competency-Based Curriculum Design* (2020-2022) ito ay pag-aaral tungkol sa integrasyon ng mga *competency* sa pagbuo at implementasyon ng mga kurikulum at modyul. Ito rin ay nakatuon sa paglikha ng mga *learning experience* na nakatuon sa kakayahan at *skill development*.

Sa *Competency-Based Teacher Training* (2018-2021) ito ay pagsulong ng mga programa at estratehiya ng pagsasanay na nakatuon sa pagbuo ng *competency* ng mga guro. Ito ay nakatuon sa aktibong pag-aaral, *hands-on* na mga pagsasanay, at *continuous professional development*.

Sa bahaging introduksiyon pa rin, kasama ang pagpapakilala/pagtala sa paksa/*topic* tatalakayin. Ang paksa/*topic* ay ang pangunahing nilalaman o pokus ng Modyul. Ito ay ang sentral na tema o paksang binibigyang-diin at sinusubaybayan sa buong modyul. Ito ang nagbibigay-direksiyon sa mga gawain, materyal, at pagtataya na gagawin. Ito ay espesipikong pag-aaral o paksa na nakatuon sa isang tukoy na aspekto o *subtopic* na kaugnay ng mas malawak na kurso o programa. Ito ay naglalayong magbigay ng detalyadong pag-aaral at pag-unawa sa isang partikular na paksa.

Sa modyul na nabuo ng mananaliksik ang paksa ay tungkol sa epiko.

II. Paksang- Aralin	3.1 Epiko at Elemento nito (Buod ng Tuwaang: Pagdalo ng Kasal) 3.2 Tuwaang: Pagdalo ng Kasal (*Morphological functions)* 3.3. Tuwaang: Pagdalo ng Kasal (Tauhan sa kuwento/uri ng karakter ni Propp) 3.4 Tuwaang: Pagdalo ng Kasal (Sanhi at Bunga)

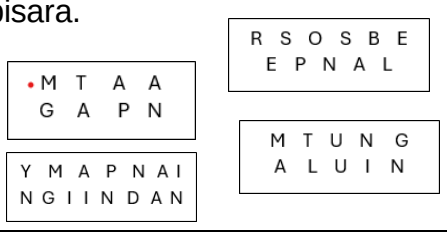
Ang paksa ng modyul na ito ay naaayon sa pagpapaunlad ng kakayahang pag-iisip at pagsusuri ng mga mag-aaral. Ito ay makatutulong sa kanila na maunawaan ang mga konsepto at teorya, gayundin naman ay ang kakayahang suriin at husgahan ang mga ito sa loob ng kontekstong panlipunan at pampolitika.

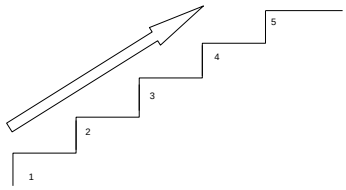
Sa modyul na nabuo ng mananaliksik ang paksa ay tungkol sa kaligirang pangkasaysayan at elemento ng epiko. Makita sa *appendices* C ang buod ng Epikong Tuwaang na naging batayan sa pagtalakay at pagsuri sa *morphological functions* ni Propp at ang uri ng karakter sa epiko.

Ang pangalawang bahagi sa modyul ay pamamaraan kung saan ito ay may proseso na kailangang sundin. Sa bahaging ito, hindi maaaring may kaligtaan na proseso. Narito ang proseso sa bahaging pamamaraan:

Una, pagbabalik-aral, ito ay maiugnay ang kasalukuyang aralin sa mga natutunan sa nakaraang aralin sa pamamagitan ng pagsusuri ng mga nakaraang konsepto. Sa modyul, ang pagbablik-aral ay ginawa sa pamamagitan ng pagtatanong hinggil sa paksang natakay. Sa pamamagitan ng pagtatanong, malalaman ang kanilang naunawaan sa paksang natalakay at naihahanda sila sa bagong paksang tatalakayin.

Sa bahaging pamamaraan dito ipakilala ang bagong aralin gamit ang kuwento, aktibidad, tula, awit, sitwasyon o iba pang gawain. Sa modyul na ito gumamit ang mananaliksik ng iba’t ibang estilo o estratehiya para makakuha ng atensiyon sa mag-aaral. Ang sumusunod ang mga ginamit na estilo ng mananaliksik.

Estilo/estratehiya	Kahulugan	Sa Talakayan
1. Word Puzzle	Ang *word puzzle* ay isang uri ng *puzzle* o laro na nakasentro sa mga salita at wika.	Panuto: Kumpletuhin at buuin ang salita na naglalarawan ng isang katangian ng lider. Idikit ito sa pisara. 

<table>
<tr>
<td>2. Ladder concept</td>
<td>Ang ladder concept strategy ay isang estratehiya sa pagtuturo na nakatutulong upang maging mas episyente at epektibo ang pagkatuto ng mga mag-aaral. Ito ay gumagamit ng isang ladder o serye ng mga konsepto na nakakatulong upang maiugnay at matuto ang mga mag-aaral nang mas mabuti.</td>
<td>Ayusin ang ang pagkasunod-sunod ng mga pangyayari sa natalakay na kuwento ni Tuwaang: Pagdalo ng Kasal. Ilagay sa bilang 1 ang unang nangyari , 2 ang sumunod hanggang matapos ang kuwento.
 
</td>
</tr>
<tr>
<td>3. Picture sequencing</td>
<td>Ang mga mag-aaral ay kinakailangan na isaayos o ihanay ang mga larawan ayon sa tamang pagkakasunod-sunod o sequence. Ito ay nakakatulong upang malinang ang kanilang kasanayan sa pagsama-sama sa mga detalye.</td>
<td>Panuto: May mga larawan akong ipapakita at ilagay mo siya sa dapat niyang kalagyan.
  </td>
</tr>
<tr>
<td>4. Sentence building</td>
<td>Ang sentence-building ay isang aktibidad sa pagtuturo na nakatuon sa pagbuo ng mga pangungusap mula sa mga binigay na elemento. Kadalasan, ang mga elemento na ibinibigay ay mga salita, frazes, o mga bahagi ng pangungusap na maaaring gamitin ng mga mag-aaral upang makabuo ng mga kompleto at maayos na pangungusap.</td>
<td>Panuto: Hanapin ang iyong kapareha para mabuo ang isang pangungusap.
<table>
<tr><td>Dahil sa puspusang pagsupo ng mga pulis sa mga ilegal na droga…</td><td>Marami ang nadakip at marami rin ang namatay</td></tr>
<tr><td>Inanunsiyo na ni Miss Universe Pia Wurthzbach na gaganapin sa Pilipinas ang nasabing patimpalak…</td><td>Marami ang nasisiyahan dahil ito ay isa sa mga pamamaraan upang makilala nang husto ang ating bansa at mapuntahan ang maraming</td></tr>
</table>
</td>
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			magandang tanawin
		Sinabi ng binata na linisin ang mga kalat sa buong bahay	Kaya ipinaliwanag ni Tuwaang na sila ay may pulang dahon.

Ang paggamit ng iba't ibang estratehiya sa pagtuturo ay pagpapahusay ng *academic performance*, pagpapaunlad ng *critical thinking* at *problem-solving skills*, pagtaas ng motibasyon at *engagement* sa pag-aaral, at pagpapaunlad ng *social* at *communication skills*. Sa kabuuan, ang epektibong paggamit ng iba't ibang estratehiya sa pagtuturo ay nakatutulong upang mapahusay ang kabuuang *learning experience* at *outcome* ng mga mag-aaral, na mahalaga para sa kanilang akademiko at personal na pagsulong.

Isang pag-aaral na inilathala nina Smith & Garcia (2019) sa *Journal of Educational Psychology* ay nagtukoy na ang paggamit ng *word puzzles* ay nakakatulong sa pagpapahusay ng *vocabulary* at *comprehension skills* ng mga mag-aaral. Ang mga mag-aaral na nakasali sa aktibidad ng *word puzzle* ay nagpakita ng mas mataas na *retention* at aplikasyon ng mga bagong *vocabulary* na natutuhan.

Ayon sa isang pag-aaral na inilathala nina Gonzalez & Tanaka (2021) sa *Educational Psychology Review*, ang paggamit ng *ladder concept strategy* ay nakakatulong sa pagpapahusay ng *critical thinking* at *problem-solving skills* ng mga mag-aaral. Ang mga mag-aaral na gumamit ng *ladder concept* ay nagpakita ng mas malalim na pag-unawa sa mga konsepto at mas mahusay na kakayahan sa paglutas ng problema.

Isang pag-aaral na inilathala nina Fernandez & Kim (2020) sa *Journal of Visual Literacy* ay nagpakita na ang paggamit ng *picture sequence strategy* ay nakakatulong sa pagpapahusay ng *reading comprehension* at *sequencing skills* ng mga mag-aaral. Ang mga mag-aaral na nakasali sa aktibidad ng *picture sequence* ay nagpakita ng mas mataas na kakayahan sa pagkakasunod-sunod ng mga pangyayari at detalye.

Ayon sa isang pag-aaral na inilathala nina Patel & Osman (2022) sa *Reading and Writing Quarterly*, ang paggamit ng *sentence building strategy* ay nakakatulong sa pagpapahusay ng *writing skills* at *grammatical accuracy* ng mga mag-aaral. Ang mga mag-aaral na gumamit ng *sentence building* ay nagpakita ng mas mahusay na kakayahan sa pagbuo ng mga kompleto at wastong mga pangungusap.

Sa bahagi pa rin ng pamamaraan, ito ay ang isang aktibidad o proseso sa pagtuturo at pag-aaral kung saan ang mga mag-aaral at guro/tagapagpadaloy ay nakikibahagi sa isang interaktibo at mapagpalaro na pag-uusap tungkol sa isang partikular na paksa o tema. Sa talakayan magkaroon ng mga tanong upang matulungang matuklasan at maintindihan ng mag-aaral ang konseptong itinuro. Ang mga tanong ay itatanong sa isang lohikal na paraan upang makapagbigay ng pang-unawa. Sa modyul gumamit ang mananaliksik ng mga tanong na may kaugnayan sa naunang gawain.

Ang talakayan ay ang maikling pagtalakay sa partikular na aralin. Sa modyul, sa unang araw tinalakay ang kasaysayan ng epiko at elemento nito lalong-lalo ang Epikong Tuwaang: Pagdalo ng Kasal. Sa ikalawa at ikatlong araw, tatalakayin o ipapakilala ng mananaliksik sa mag-aaral ang *morphological functions* ni Propp sa Epikong Tuwaang: Pagdalo ng kasal at susuriin nila ito. Sa ikaapat na araw, susuriin naman ang pitong uri ng karakter na natalakay ni Propp sa kaniyang aklat. Sa huling araw, pag-aaralan ang sanhi at bunga sa epiko.

Paksa	Talakayan
3.1 Epiko at Elemento nito (Buod ng Tuwaang: Pagdalo ng Kasal)	Pagtalakay sa buod ng Epikong Tuwaang: Pagdalo ng Kasal mula sa https://www.kapitbisig.com/philippines/bilingual-tagalog-english-version-of-epics-mga-epiko-tuwaang-epic-of-bagobo-bilingual-tagalog-english-version_794.html Mga Gabay na Tanong: 1. Sino ang pangunahing tauhan sa akda? 2. Paano inilarawan si Tuwaang bilang isang lider? 3. Naging mabuting lider ba si Tuwaang ? Ipaliwanag ang inyong sagot. Pagtalakay sa Kaligirang Pangkasaysayan ng epiko at elemento nito mula sa https://filipino.net.ph/epiko/ Ipakilala si Vladimir Propp. Pagtalakay sa morphological function ni Vladimir Propp.
3.2 Tuwaang: Pagdalo ng kasal (Morphological functions)	Mga Tanong: 1. Ano ang morphological functions ni Propp? 2. Bakit niya ito nabuo? Nakabubuti ba ito? Nakatutulong ba ito sa atin sa pag-aaral ng kuwentong-bayan? Sa anong paraan?
3.3. Tuwaang: Pagdalo ng Kasal (Tauhan sa kuwento/ uri ng karakter ni Propp)	Pagtalakay sa 7 uri ng karakter at mga larangang aksiyon ni Propp sa mga tungkulin ng kuwento." Vladimir Propp 7 Character Types and Narrative Theory (media-studies.com) Mga Tanong: 1. Ano-ano ang pitong uri ng karakter sa larangan ng aksiyon ni Propp? 2. Mahalaga ba ito sa pag-aaral ng kuwento?

3.4 Tuwaang: Pagdalo ng Kasal (Sanhi at bunga)	3. Dapat ba sa isang kuwento na naroon ang pitong uri ng karakter? Ipaliwanag Pagpapanood ng isang vi*deo clip* ng balita ng mga mag-aaral. http://www.youtube.com/watch?v=Zxrz1vah9jg Mga Gabay na Tanong 1. Tungkol saan ang iyong napanood na balita? 2. Ano ang rason kung bakit nangyari ang ganoong sitwasyon? 3. Ano-ano kaya ang magiging mga hakbang para maiwasan ang nagyari? Pagtalakay sa sanhi at bunga. Ikokonekta ang sanhi at bunga sa tunggalin at resolusyon sa *morphological function*.

Ayon sa pag-aaral nina Park & Kim (2023) ang *discussion-based* na pagtuturo ay nakakatulong sa pagpapahusay ng aktibong pakikilahok at motibasyon ng mga mag-aaral. Ang mga mag-aaral na nakasali sa *discussion* ay nagpakita ng mas mataas na antas ng *engagement* at interes sa paksa, na nagreresulta sa mas mataas na *academic performance*.

Kaugnay rin sa pag-aaral nina Kim & Park (2021) ang *discussion-based* na pagtuturo ay nakakatulong sa pagpapahusay ng *academic performance* at *retention* ng mga mag-aaral. Ang mga mag-aaral na aktibong nakikibahagi sa *discussion* ay nagpakita ng mas mataas na antas ng pag-unawa at kakayahang i-apply ang mga natutuhan.

Ang pagtalakay o *discussion* ay isang mahalagang aspekto ng proseso ng pagtuturo at pag-aaral dahil ito ay nakakatulong sa pagpapahusay ng iba't ibang *critical* at *cognitive skills* ng mga mag-aaral. Ang pagtalakay o *discussion* ay nagbibigay-daan sa mga mag-aaral na maging mas aktibo at interesado sa pag-aaral, dahil ito ay nagbibigay-daan sa kanila na maging mas partisipante sa proseso ng pag-aaral.

Sa bahagi ng pamamaraan ang mga pagsasanay ay isang mahalagang bahagi ng proseso ng pag-aaral at pagkatuto. Ito ay tumutukoy sa mga aktibidad na ginagawa ng mga mag-aaral upang palawigin, palakasin, at mapanatili ang kanilang mga kasanayan at kaalaman.

Kontroladong Pagsasanay: Ito ay ang mga pagsasanay na pinangungunahan at kontrolado ng guro. Maaaring magsama ng mga takdang gawain, ehersisyo, at aktibidad na Ito ay ang mga pagsasanay na pinangungunahan at kontrolado ng guro.

Maaaring mag-include ng mga takdang gawain, ehersisyo, at aktibidad na may tukoy na mga instruksiyon at *guidelines*. Nakakatulong ito upang matulungan ang mga

mag-aaral na matutong mabisang magsagawa ng mga gawain. Dito, ang guro ay nagbibigay ng *feedback* at pagwawasto.

Naniniwala si Rosenshine (2012) na ang *controlled practice* ay nagbibigay-daan sa mga mag-aaral na mag-apply ng mga natutuhan sa mga kontrolado at estruktural na sitwasyon, na nakakatulong sa kanilang pag-unawa at kakayahang mag-apply ng mga kasanayan at konsepto.

Ayon kay Tomlinson (2014), ang *controlled practice* ay nagbibigay-daan sa mga guro na mas epektibong i-address ang iba't ibang pangangailangan at antas ng mga mag-aaral.

Kontroladong Pagtatasa: Ito ay ang mga pagtatasa na pinangungunahan at kontrolado ng guro. Maaaring magsama ng mga *quiz*, pagsusuri, at iba pang gawain na may tukoy na mga instruksiyon at *guidelines*. Nakakatulong ito upang matipid at matukoy ang antas ng pag-unawa at kakayahan ng mga mag-aaral. Dito, ang guro ay nagbibigay ng *feedba*ck at nagpapataw ng mga grade.

Bilang susog sa kaisipan ukol sa kontroladong pagtatasa, nabanggit sa pag-aaral ni Wiliam (2011) na ang kontroladong pagtatasa ay nagbibigay-daan sa mga guro na gamitin ang kontrolado at nakatutulong na pagtatasa bilang bahagi ng regular na pagtuturo na pinatotohanan naman batay sa parehong ideyang inilahad sa artikulo ni Bennett (2011). Ito rin ay nagpapakita kung paano ang kontroladong at nakatutulong na pagtatasa ay makakatulong sa pagbuo ng kultura ng pag-aaral sa silid-aralan (Shepard, 2000).

Ang independiyenteng pagsasanay: Ito ay ang mga pagsasanay na ginagawa ng mga mag-aaral nang walang direktang pamamahala ng guro.Maaaring magsama ng mga takdang gawain, proyekto, at iba pang aktibidad na nangangailangan ng pag-iisip at pagsagawa ng mga mag-aaral. Nakakatulong ito upang magkaroon ng mas mataas na lebel ng awtonomiya at pananagutan sa pagkatuto. Dito, ang guro ay nagbibigay ng limitadong *feedback* at suporta.

Para naman kay Hattie (2008), ang independiyenteng pagsasanay kinalalangkapan ng *feedback* at *assessment* na mahalaga sa pagpapahusay ng akademikong pag-unlad. Dagdag pa Marzano (2007), ang ideyang ito ay nagpapakita na ang independiyenteng pagsasanay, kasama ang iba pang estratehiya ay kritikal sa pagpapahusay ng pag-aaral at tagumpay ng mga mag-aaral.

Ayon naman kay Rosenshine (2012) nagpapakita na ang independiyenteng pagsasanay, kasama ang kontroladong pagsasanay ay kritikal sa pagpapahusay ng pag-unawa at kakayahan ng mga mag-aaral.

Ang Independiyenteng Pagtatasa ay isang uri ng pagtatasa na ginagawa ng mga mag-aaral nang walang direktang pamamahala ng guro. Maaaring magsama ng mga pananaliksik, presentasyon, at iba pang aktibidad na nagpapakita ng kanilang pag-unawa

at kakayahan. Nakakatulong ito upang matukoy ang antas ng pag-unawa at pagsisikap ng mga mag-aaral. Dito, ang guro ay nagbibigay ng *feedback* at *grade* sa pangkalahatan.

Ayon kina McMillan & Hearn (2008), ito ay nagpapakita na ang independiyenteng pagtatasa, tulad ng *self-assessment* ay makakatulong sa pagpapataas ng motibasyon at tagumpay ng mga mag-aaral ang ideang ito ay katulad sa pag-aaral nina Andrade & Valtcheva (2009).

Ang kabuuang idea sa pagsasanay na ito ay isang komprehensibo at detalyadong paglalarawan ng iba't ibang uri ng pagsasanay at pagtatasa sa edukasyon. Ang kombinasyon at pagkakaiba-iba ng mga ito ay mahalaga sa proseso ng pagkatuto.

Ang pinadadaloy/kontroladong pagsasanay at pagtatasa ay nagbibigay ng gabay at suporta sa mga mag-aaral habang sila ay nagsasanay. Ito ay nakakatulong upang matutong mabisang magsagawa ng mga gawain at matukoy ang antas ng kanilang pag-unawa.

Ang independiyenteng pagsasanay at pagtatasa ay nagbibigay ng mas malaking awtonomiya at pananagutan sa mga mag-aaral. Ito ay nakakatulong upang lumikha ng mas mataas na antas ng pag-iisip at pagsagawa, at matukoy ang kanilang lebel ng pag-unawa at pagsisikap.

Sa kabuuan, ang kombinasyon ng lahat ng ito ay nagbibigay ng komprehensibong karanasan sa pagkatuto, na nakakatulong upang makamit ang mga layunin sa edukasyon.

Conclusions

Sa pag-aaral ng morphological functions ni Propp sa Epikong Tuwaang: Pagdalo ng Kasal, natuklasan ng mananaliksik na ang pagbuo ng isang yunit na modyul sa Grade 8 ay napakaimportante para mas malawak o malawig ang kanilang pag-unawa sa pagsusuri gamit ang morphological functions ni Propp hindi lamang sa epiko kundi sa ibang kuwento. Ang modyul ay nagbigay ng oportunidad sa mga mag-aaral upang mag-isa nilang matuklasan at matutuhan ang mga konsepto. Ito ay nakakatulong sa pag-unlad ng kanilang kakayahang mag-isa silang mag-aral. Ang modyul na ito ay may maayos na estruktura at proseso na nakakatulong sa pagkatuto at pag-unawa ng mag-aaral sa paksang natatalakay, kabilang ang morphological functions at elemento ng Epikong Tuwaang.

Recommendations

Batay sa naging resulta at kongklusyon ng pag-aaral, inirerekomenda ng pag-aaral ang sumusunod:

Una, Ipatupad ang modyul na ito sa Grade 8 upang mas maunawaan ng mga mag-aaral ang konsepto ng morphological functions.

Pangalawa, Ipalawig ang paggamit ng modyul at konsepto ng morphological functions hindi lamang sa Epikong Tuwaang kundi pati na rin sa iba pang uri ng kuwento at tekstong naratibo.

Pangatlo, Pataasin ang kakayahan ng mga mag-aaral na magamit at mag-analisa ng morphological functions sa iba't ibang konteksto.

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Complicance with Ethical Standards

Isinaalang-alang ng mananaliksik ang etikal na konsiderasyon upang masiguro ang pagiging wasto at kaayusan ng pag-aaral. Ang pananaliksik na ito ay naglayong suriin at sistematikong pag-aralan ang mga teksto upang maunawaan ang kanilang nilalaman

at mga katangian. Tiniyak din ng mananaliksik na makapag-*apply* ng IERC Permit batay sa pagtalima ng mga kinakailangang dokumento upang maaprubahan.

Ang pagkakasangkot ng mga tao ay hindi naaangkop sa pag-aaral, ngunit sinunod ng mananaliksik ang tamang paraan ng pagsusuri sa napiling epiko batay sa teorya o modelo na nakabatay sa pag-aaral. Tiniyak din na ang mga datos na nakalap ay tiyak at tumpak.

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AN EVALUATION OF THE IMPLEMENTATION AND EFFICACY OF MARKETING STRATEGIES IN DUMAGUETE CITY'S HOTEL INDUSTRY: A FRAMEWORK FOR POST-PANDEMIC MARKETING RECOVERY

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ABSTRACT

The COVID-19 pandemic has presented unprecedented challenges to the hotel industry, particularly impacting establishments in Dumaguete City. However, amidst these adversities, a study aims to explore how hotels in the area have employed marketing strategies to navigate the crisis and lay the groundwork for a resilient recovery. Utilizing a descriptive research approach, the study collected data through questionnaires, interviews, and observations from twenty-four participating hotels. Results tell that despite facing significant hurdles, the majority of these hotels are accredited by the Department of Tourism and maintain a bed capacity of 50 to 99 persons. Despite challenges, they have displayed resilience, maintaining a monthly average occupancy rate of up to 90 percent, reflecting sustained tourist activity. Notably, many hotels have established themselves in the industry, emphasizing their effectiveness and longevity. Marketing strategies have focused on innovative approaches such as local tours, culinary experiences, and wellness activities, driven by personalization to enhance guest satisfaction. Technology adoption, including chatbots and customized emails, has facilitated direct bookings and operational efficiency. Dynamic pricing mechanisms, supported by revenue management systems, have enabled profit optimization and market adaptation. Leveraging social media and content marketing, hotels have enhanced visibility and engagement, aiming for sustainable growth and success in the post-pandemic era.

Keywords: *Pandemic, Hotel Industry, Marketing Strategies, Recovery Framework, Digital Presence*

INTRODUCTION

The world has shifted in unbelievable ways since the pandemic began, and the hotel industry, known for its resilience and agility, has been at the forefront of this transformation. The hotel industry, significantly impacted by COVID-19, requires empirical studies to establish effective marketing strategies that can respond to the pandemic and prepare for recovery. Under Republic Act No. 11469, also known as the Bayanihan to Heal as One Act, the President has the authority to oversee the operations of establishments to reduce the spread of COVID-19 and aid in the recovery of the Philippine economy. Additionally, the Tourism Act of 2009 mandates the Department of Tourism to enforce a comprehensive system of accreditation for tourism enterprises, including hotels and other accommodation establishments.

In the hospitality sector, choosing the right hotel capacity is crucial from a strategic standpoint for stakeholders. Dumaguete City, recognized as the most improved city during the 10th Cities and Municipalities Competitiveness Summit in October 2022, is a fast-growing and competitive town in Negros Oriental. The hotel industry in Dumaguete faced a tremendous crisis during the pandemic, with operations shut down to counter the hazards posed by the virus. Despite this, Dumaguete is home to 33 registered hotels, catering to work, relaxation, official business travel, and excursions, including establishments like Hotel Essencia, Hotel Nicanor, and Bethel Guest House.

During the pandemic, the focus has been on revitalizing marketing strategies for the hotel industry's recovery. The pandemic has drastically altered the demands of the hospitality sector, making it increasingly competitive and highlighting the strategic value of marketing management. Developing a strategic marketing recovery plan is essential for the industry's survival and growth.

This study aims to evaluate how strategic marketing management is implemented and its effectiveness within Dumaguete City's hotel industry. The results will offer guidance to future hotel managers and top executives, particularly in navigating crises like the pandemic. They'll gain crucial understanding into overcoming industry challenges, underscoring the importance of adapting marketing strategies to a constantly evolving landscape.

METHODOLOGY

Research Design

To fulfill the study's objectives, the researcher utilized a descriptive correlational design, distributing self-created survey questionnaires to respondents. Using accessible resources, this method shows the nature of the current situation at the time of the study. The researcher used the 4Ps of Marketing Mix in this investigation, focusing on marketing strategies during the post-pandemic. To further validate the results, self-interviews, and observations were undertaken with the identified key participants.

Research Participants

The participants of the study were managers and supervisors in the hotel industry in Dumaguete City. A total of 86 responses were collected by distributing at least five questionnaires to each of the 24 hotels in Dumaguete City. The data collection took place over four working days, from March 16 to March 20, 2024, and from March 29 to April 2, 2024. Additionally, feedback from hotel receptionists on duty was considered for validation purposes to support the study.

Research Locale

The study took place in Dumaguete City, Negros Oriental, known as the City of Gentle People, and a prominent university town. This lovely city in Central Visayas, Region 7, has become a favorite tourist destination, drawing visitors globally. While diving has long been the main attraction, The city government has also emphasized promoting land-based tourist attractions in Dumaguete and Negros Oriental. The city is subdivided into 30 barangays, the smallest political divisions in a Philippine city.

The respondents for the study were visited at their respective hotel establishments and provided with self-made questionnaires, approved by the managing head. Data collection occurred over four working days, from March 16 to March 20, 2024, and from March 29 to April 2, 2024.

Dumaguete, the capital of Negros Oriental, boasts a population of around 125,000 residents., although this number can double or even triple during the daytime. This vibrant city quickly captivates the hearts of its visitors, making it more than just a gateway to nearby tourist destinations.

Data Gathering Procedure

The study took place in Dumaguete City, Negros Oriental, also known as the City of Gentle People and a well-known university town. This charming city, located in Region 7, Central Visayas, has become a popular tourist hotspot, attracting visitors from around the

world. While diving has long been the main attraction, the city government has also focused on promoting land-based tourist attractions in Dumaguete and Negros Oriental. The city is subdivided into 30 barangays, the smallest political divisions in a Philippine city.

To conduct the study, respondents were visited at their respective hotel establishments and provided with self-made questionnaires, approved by the managing head. Data collection occurred over four working days, from March 16 to March 20, 2024, and from March 29 to April 2, 2024. Dumaguete, the capital of Negros Oriental, has a population of approximately 125,000, although this number can double or even triple during the daytime. This vibrant city quickly captivates the hearts of its visitors, making it more than just a gateway to nearby tourist destinations.

Data Analysis Procedure

Frequency distribution was used to calculate the effectiveness of implementation of strategies. Each entry in the table denotes the frequency or count of occurrences of values within specific groups or intervals, providing a summary of the distribution of values in the sample. Weighted mean, on the other hand, accounts for variation in the relative contribution of individual data values to the mean. Percentage analysis aids in determining the proportion of a specific dataset relative to the whole, enabling the establishment of the hotel industry profile.

Pearson's correlation coefficient measures how strong and in what direction two continuous variables are related. This study looks at how the hotel industry profile relates to how marketing strategies are used, and how the level of strategy implementation affects their effectiveness in Dumaguete City's hotel industry. Regression analysis is used to figure out how important current marketing strategies are and how well they're being used in the industry.

Ethical Considerations

The researcher carefully considered ethical considerations in conducting the research, ensuring transparency, informed consent, voluntary participation, confidentiality, and the well-being of the participants. All necessary ethical considerations and protocols for the entire duration of the study were stringently followed. The researcher also maintained the confidentiality of all data obtained, including the support personnel's identity as well as their ratings. Moreover, the researcher secured ethical approval from the Ethical Committee of the University Research Office.

RESULTS AND DISCUSSION

Table 1. Accreditation with Department of Tourism

Accreditation With the Department of Tourism	Frequency	Percentage
Star Rating (2-5 Star)	35	28.93
Accredited Hotel with Certification	76	62.81
Not Yet Accredited with DOT	10	8.26
For others, please specify	0	0
Total	121	100

The hotel industry in Dumaguete City showcases a high level of compliance with quality and regulatory standards, as demonstrated by the 62.81% accreditation rate from the Department of Tourism (DOT). This significant proportion underscores the industry's commitment to maintaining high standards in service and operations. According to Chen and Chen (2019), accreditation serves as a benchmark for quality assurance, encouraging hotels to adopt best practices in service delivery and operational efficiency. This is corroborated by Mensah and Dei Mensah (2019), who found that accreditation processes prompt hotels to invest in staff training and development, leading to enhanced customer satisfaction and operational effectiveness. Furthermore, Guillet and Kucukusta (2016) highlight that accredited hotels often benefit from preferential treatment in government-led marketing initiatives, increasing their visibility and attractiveness to potential guests, and thereby boosting occupancy rates and revenue.

Recent studies further emphasize the broader benefits of accreditation. Hao, Chon, and Wen (2021) stress that continuous quality assessment and improvement are essential for maintaining high standards in the hospitality industry. This proactive approach not only ensures compliance with current standards but also prepares hotels to meet future needs and expectations of tourists, fostering long-term sustainability and success. Additionally, Yang, Liu, and Li (2020) found that accreditation enhances a hotel's reputation and credibility, which are critical for attracting international tourists. The integration of sustainable practices into hotel operations, as suggested by Sigala (2018), is increasingly important for accreditation, attracting eco-conscious travelers and providing a competitive edge. These insights illustrate that accreditation not only ensures compliance and quality but also drives continuous improvement, marketing advantages, and sustainability, contributing to the robust growth and competitiveness of the hotel industry in Dumaguete City.

Table 2. The extent of Implementation and Level of Effectiveness of Product

A. PRODUCT	SD	WX	RANK	A. PRODUCT	SD	WX	RANK
Consider local tours, wellness activities, and unique	0.81	4.22	3	It provides our guest with services and offerings that are	0.63	4.62	2

experiences beyond standard amenities.				unique, memorable experiences.			
Incorporate preferred room settings, favorit meals, and personalized greetings.	0.90	4.13	4	It personalized the guest experience by embracing individual preferences.	0.67	4.33	3
Using tools like chatbots and customized emails can enhance guest engagement.	1.06	4.30	2	This virtual handholding boosted our hotel booking conversion rates, leading to an increas in direct bookings.	0.50	4.65	1
Use analytics to understand what guests prefer and adjust your offerings accordingly.	1.08	3.81	5	It offered real-time predictions for demand and prices, enabling personalize guest offers and improving efficiency.	0.95	4.02	4
Stay open to change and adapt based on customer needs and expectations.	0.68	4.53	1	It made our hotel responsive to customer needs and continuously refine our acquisition strategies for better results.	0.50	4.65	1
cwx = 4.20 Well Implemented				**cwx = 4.45 Very Effective**			

Legend: Range	Verbal Description
4.20 – 5.00	Very Well Implemented
3.40 – 4.19	Well Implemented
2.60 – 3.39	Implemented
1.80 – 2.59	Fairly Implemented
1.00 – 1.79	Not Implemented

Legend: Range	Verbal Description
4.20 – 5.00	Very Effective
3.40 – 4.19	Highly Effective
2.60 – 3.39	Effective
1.80 – 2.59	Somewhat Effective
1.00 – 1.79	Not Effective

The table above illustrates the goods and services provided by the hotel industry in Dumaguete City to meet customer needs. The data shows that hotels in Dumaguete City prioritize flexibility and responsiveness to customer demands and expectations, achieving the weighted mean of 4.53 (rank 1). In contrast, the use of analytics to gain insights into customer behavior received the lowest weighted mean of 3.81 (rank 5). According to Shi (2021), factors such as organizational culture, location, brand image, and competition

significantly influence hotel managers' strategic decisions. The model of hotel resilience offers a valuable framework for planning and implementing strategies to address external challenges. In challenging times, hotel managers are advised to adopt a range of innovations targeting both internal management and customer service. For instance, the development of chatbots, as noted by Putri et al. (2019), enhances marketing and customer support by offering increased convenience, reducing service and support costs, enabling personalized marketing, and creating new data collection opportunities.

The effectiveness of the hotel industry's products and services in Dumaguete City is evident from the weighted mean scores. The application of various marketing strategies, with a 4.65 weighted mean, indicates that the industry is keenly attuned to client needs and consistently enhances its marketing efforts. Similarly, the delivery of unique and memorable guest experiences through distinct services and offerings also achieved a weighted mean of 4.65. Lei (2024) emphasizes the importance of service customization, which involves tailoring services to meet the specific needs of individual customers, recognizing them as distinct individuals rather than anonymous service users. This approach aligns with the tourism industry's unique characteristic of being dynamic and adaptable to changing conditions and customer preferences, as highlighted by Siwek et al. (2022). These findings underscore the industry's commitment to continuous improvement and responsiveness to customer needs, which are crucial for maintaining competitiveness and customer satisfaction.

Table 2. The extent of Implementation and Level of Effectiveness of Price

B. PRICE	SD	WX	RANK	B. PRICE	SD	WX	RANK
Tools like revenue management systems can aid this process.	0.82	4.21	3	Adopting dynamic pricing maximized our profits by adjusting rates to meet the current market demand.	0.89	4.16	4
Implement customized pricing according to customer loyalty and booking history. Loyalty programs and exclusive deals for members can hel achieve this goal.	0.71	4.45	1	This strategy boosted profitability by enabling us to set prices at the optimal level for each individual, minimizin lost sales during periods of high demand.	0.94	4.16	4
Ensure that all costs, including taxes and service charges, are mentioned during the booking proces to avoid customer dissatisfaction later.	0.86	4.45	1	This approach fostered trust with customers by offering price transparency, enabling them to grasp the value they receive and compare it with competitors.	0.60	4.70	1

When pricing other hotel services like spa treatments, dining experiences, and event spaces, consider offering packages or bundled deals to enhance perceived valu	0.82	4.20	4	This strategy allowed our hot to meet the specific requirements of different clients and enhance custome satisfaction.	0.68	4.44	3
Monitor competitors' pricin strategies and ensure your rates are competitive. Don just compete on price but differentiate based on the value provided to guests.	0.79	4.28	2	It yielded numerous benefits for hotels, ranging from identifying market opportunities to optimizing operational efficiency.	0.69	4.45	2
cwx = 4.32 Very Well Implemented				**cwx = 4.38 Very Effective**			

The hotel industry excels in implementing personalized pricing strategies, earning a commendable weighted mean of 4.45. Personalized pricing hinges on factors like customer loyalty and booking history. Hotels prioritize transparency during the booking process, disclosing all expenses, including taxes and service fees, to mitigate consumer dissatisfaction (weighted mean = 4.45). However, other hotel services like spa treatments received a lower ranking, with a weighted mean of 4.20. According to Koo et al. (2020), implementing loyalty programs significantly enhances customer satisfaction and loyalty, fostering long-term financial success and strengthening the consumer-brand relationship. Thus, loyalty programs emerge as indispensable tools for cultivating patronage.

The efficacy of the pricing strategy is evident from the data. The transparent inclusion of taxes and service fees at the time of booking, with a weighted mean of 4.70, has been shown to develop customer trust. Transparent pricing allows customers to compare prices with competitors and understand the value they are receiving. However, dynamic pricing, which involves adjusting prices based on market conditions, received the lowest weighted mean of 4.16. Bagchi et al. (2021) suggest that hotels can enhance guest satisfaction and improve revenue by selecting appropriate service designs and managing resource flows effectively. Additionally, Chan et al. (2021) emphasize that customer experiences are both emotional and cognitive. Therefore, monitoring guest requirements, preferences, and perceptions is critical to successfully delivering exceptional guest experiences.

Table 3. The extent of Implementation and Level of Effectiveness of Promotion

PROMOTION	SD	WX	RAN	PROMOTION	SD	WX	RANK
Developing a robust content marketing strategy is essential. To attract potential guests, utilize various mediums such as website	0.81	4.12	3	This strategy has increase our brand awareness, improved customer	0.72	4.20	4

content, blogs, videos, and guides focusing on travel and hospitality.				engagement, and higher website traffic.			
Use social media platforms to showcase your hotel's offerings, share guest experiences, and engage with your audience.	0.82	4.49	1	This strategy empowered our hotel to produce and disseminate pertinent content, including promotions, industry news and engaging trivia, fostering brand awareness among potential customer	0.88	4.31	3
Partner with influencers who align with your brand to reach a wider audience. Ensure the content created is authentic and resonate with the influencer's audience.	1.03	3.31	5	This strategy allowed us tap into new audiences an establish their brand as must-visit destination.	1.08	3.60	5
Optimize your website and conten for search engines by incorporatin keywords that potential guests commonly search for, thus boosting visibility.	0.92	4.09	4	It led to more bookings an revenue for the hotel.	0.81	4.41	2
Regularly measure the effectiveness of your promotional strategies and be willing to adapt based on what's working and what's not.	0.81	4.43	2	This strategy raised brand visibility, engage customer build relationships, and increase revenue.	0.76	4.49	1
cwx = 4.09 Well Implemented				**cwx = 4.20 Highly Effective**			

Table 3 illustrates the implementation of promotional strategies by the hotel industry in Dumaguete City. Promotion involves informing customers about the features and advantages of a product. The data indicates that social media use is the most effective promotional strategy, with a weighted mean of 4.49. In contrast, using influencers ranked lowest with a weighted mean of 3.31. According to Krizanova (2019), online marketing communication's broad reach allows advertisements to target a large audience. This approach helps hotels achieve various objectives, such as raising brand recognition, enhancing customer satisfaction and trust, and strengthening brand loyalty.

The effectiveness of these promotional methods is evident in the hotel industry's increased brand visibility, customer engagement, and relationship building, all contributing to higher bookings and revenue, as indicated by the weighted mean of 4.49. Despite the lower ranking of influencer partnerships (weighted mean = 3.60), the interaction facilitated by internet marketing is crucial. Yoga (2019) emphasizes that travelers are significantly influenced by online reviews and comments from previous customers. Potential customers trust reviews from experienced travelers who have already visited the destination more than

those from potential visitors. Albattat (2020) highlights the growing trend of using online social networks to promote goods and services in the hotel sector. This trend underscores the importance of the hospitality industry embracing technological advancements to enhance guest services and provide employees with efficient tools (Legaspi et al., 2023).

Table 4. The extent of Implementation and Level of Effectiveness of Place

PLACE	SD	WX	RANK	PLACE	SD	WX	RANK
Make sure you have a solid online presence on all relevant platforms, including your website, social media, online travel agents, and others.	0.63	4.42	1	It streamlined operations, offered personalized guest services, enhanced communication, and gleaned valuable insights through data analytics.	0.92	4.09	3
Make the booking process seamless, whether it's on your website, mobile app, or through a third-party platform	0.75	4.22	3	Enabled personalized customer service, enhancing the overall gues experience and boosting satisfaction and loyalty.	0.80	4.09	3
Endeavor for consistency in brand messaging and customer experience across all channels.	0.79	4.19	4	It helped our hotel create a strong and memorable brand impression in the minds of your customers	0.68	4.47	2
Consider developing a mobi app for bookings, customer service, and in-stay services	1.14	3.99	5	This strategy of mobile ordering increased efficiency, lowered staff workload, and minimized costs.	0.92	3.99	4
Remember their preferenc and provide consisten personalized service acro all touchpoints.	0.88	4.37	2	Customized experiences made guests feel valued and appreciated, encouraging their return.	0.68	4.67	1
cwx = 4.24 Very Well Implemented				**cwx = 4.26 Very Effective**			

A major factor in drawing visitors was the destination's attractiveness, the hotel's accessibility, and its proximity to popular locations. However, the advent of the digital revolution has led to a new understanding of Place. Place now essentially refers to all the channels via which guests interact with the hotel. Ensuring a strong digital presence across all platforms was very well implemented by hotel industries in Dumaguete City. They made sure to remember their guest’s preferences and provide consistent personalized services across all touchpoints. According to Lei (2024), by increasing perceived value and emotional connection, personalized service has been beneficial in raising customer happiness, trust,

and loyalty. This is because personalized service differs fundamentally from "one-size-fits-all" service. Personalization of services is especially important for younger generations, who are pickier and actively look for the best deal. A personalized offer is also seen as "special" since it gives the customer a sense of exclusivity and highlights the consideration of the service provider. As a result, the personalization impact is not limited to a single transaction; rather, it may help sustain emotional bonds and foster long-term business-customer relationships.

Concerning the effectiveness of the real location of a service or product, it helped hotel industries in Dumaguete City create a strong and memorable brand impression in their minds. Customized experiences made guests feel valued and appreciated, encouraging their return. The customer's experience should be coherent and consistent regardless of the channel they use to interact with the hotel—website, mobile app, phone call, or in-person visit. Customers' preferences are remembered, previous contacts are acknowledged, and their experience is personalized at every touchpoint via an efficient omnichannel strategy. This seamless omnichannel experience is made possible by data, which is essential. Hotels that track customer visits across many media might obtain significant insights into patron behavior and preferences. By using this data, companies can guarantee consistency over all channels, give tailored recommendations, and enhance the consumer's experience.

According to Böhme (2023), an experience is the result of an individual's perception of a cue, which involves reacting to specific elements and interpreting them afterward. Emotions, meanings, and comprehension influence interpretations of experiences.

Table 5. Summary on the Extent of Implementation and Level Effectiveness on the 4Ps of the marketing mix.

EXTENT OF IMPLEMENTATION	WX	LEVEL OF EFFECTIVENESS	WX
Product	4.20	Product	4.45
Price	4.32	Price	4.38
Promotion	4.09	Promotion	4.20
Place	4.24	Place	4.26
cwx = Very Well Implemented	**4.21**	**cwx = Very Effective**	**4.32**

The implementation of marketing strategies in the hotel industry in Dumaguete City achieved a weighted mean of 4.21, indicating that they are very well implemented. The effectiveness of these marketing strategies received a weighted mean of 4.32, interpreted as very effective. These results suggest that the marketing strategies employed by hotels in Dumaguete City are both crucial and effective. According to Shi et al. (2021), the selection of coping measures by managers is influenced by factors such as organizational culture,

location, brand image, and competitors. The model of hotel resilience provides a valuable framework for planning and selecting strategies to address external challenges.

Recent literature supports the importance of adaptive and innovative strategies in the hospitality industry. For example, Sigala (2018) highlights that dynamic marketing strategies, including the use of social media and personalized marketing, are essential for engaging with customers and building brand loyalty. Furthermore, Hao, Chon, and Wen (2021) emphasize the necessity for hotel managers to adopt a variety of innovations aimed at both internal management and customer service, particularly during challenging times. Innovations such as advanced data analytics and customer relationship management (CRM) systems are crucial for understanding customer preferences and enhancing service delivery (Guillet & Kucukusta, 2016). These strategies not only improve operational efficiency but also increase customer satisfaction and loyalty, contributing to the overall resilience and success of hotel businesses.

Table 6. Relationship between the Profile of Hotel Industry and the Extent of Implementation of Marketing Strategies

Variables	rs	p-value	Decision	Remarks
Type of Accredit	0.021	0.686	Fail to reject the null hypothesis	Not Significant
Bed Capacity	0.041	0.005	Reject	Significant
Monthly average	0.032	0.041	Reject	Significant
Year of Operatio	0.022	0.002	Reject	Significant
Spearman Rank Correlation level of Significant =0.05				

Legend:

Correlation Coefficient	*Verbal Description*
± 0.00 – ±0.09	*negligible*
±0.10 – ±0.29	*small*
±0.30 – ±0.49	*medium*
±0.50 – ±1.00	*large*

Source: *Miller & Cohen (2001)*

Table 6 provides insights into how the hotel industry profile relates to the implementation of marketing strategies. Using Spearman Rank Order Correlation, the analysis shows that Bed Capacity, Monthly Average Occupancy Rate, and Number of Years Operating are significantly linked to the extent of marketing strategy implementation, indicating a positive relationship. However, the hotel industry's accreditation type does not exhibit significant association with the extent of marketing strategy implementation.

The findings align with research by Liu (2022), who emphasizes the importance of the monthly average occupancy rate as a key performance metric in evaluating hotel operations. A high occupancy rate signifies efficient space utilization and increased revenue generation, reflecting effective hotel management practices. Conversely, a low occupancy rate may highlight areas for improvement and optimization within the hotel's operations and marketing strategies. By considering these factors, hotel managers can make informed decisions to enhance marketing efforts and overall performance.

Table 7. The Profile of the Hotel Industry and the Level of Effectiveness of Marketing Strategies in its Relationship

Variables	rs	p-value	Decision	Remarks
Type of Accreditation	0.021	0.003	Reject	Significant
Bed Capacity	0.033	0.005	Reject	Significant
Monthly average Occupants	0.032	0.032	Reject	Significant
Year of Operation	0.022	0.002	Reject	Significant

Spearman Rank Correlation level of Significant =0.05

Table 7 presents the data in identifying the relationship between the profile of the hotel industry and the level of effectiveness of marketing strategies. Using Spearman Rank Order Correlation, it shows that the Type of Accreditation, Bed Capacity, Monthly Average Occupancy Rate, and Number of Years Operating are significantly related to the level of effectiveness of marketing strategies. This means that there is a positive relationship between these variables.

Table 8. Relationship between the Level of Implementation and the Level of Effectiveness of Marketing Strategies of Hotel Industries in Dumaguete City.

Variables	***Coefficients***	***SE***	***t Stat***	***P-Value***
Product	601.988	4106.04	0.147	0.884
Price	-10247.981	3537.424	-2.897	**0.005**
Promotion	6594.353	3147.108	2.095	**0.040**
Place	6320.275	2809.295	2.25	**0.028**
R=	0.4604			
R^2=	0.2119			
adjusted R^2 =	0.1656			
F-Ratio=	4.572			
p-value=	**0.002**	**(significant)**		

Table 8 reveals the level of implementation and effectiveness concerning the four Ps of marketing. Through Multiple Regression Analysis, the overall F Test indicates significance (p=0.002), suggesting that some implementations serve as significant predictors of Marketing Strategy Effectiveness. Upon closer examination, the data demonstrate that the implementation of the 4Ps - product (p=0.884), price (p=0.005), promotion (p=0.040), and place (p=0.028) - significantly influences the current marketing strategies. Notably, the negative coefficient (-10,247.981) associated with price implementation suggests that higher levels of price strategy implementation correspond to lower effectiveness of the strategy. This underscores the impact of pricing strategies on overall effectiveness.

Abrate et al. (2019) emphasize the critical role of appropriate pricing in value and revenue generation, particularly in industries like hospitality where products, such as hotel rooms, are perishable goods. Effective pricing strategies involve setting rates according to temporal profiles to maximize revenues. This aligns with the findings, suggesting that while price implementation is essential, there exists a delicate balance between pricing and strategy effectiveness. By understanding these dynamics, hotel businesses can optimize their pricing strategies to enhance overall marketing effectiveness and revenue generation.

Conclusions and Recommendations

The research provides significant insights into the hotel sector in Dumaguete City, highlighting important patterns and dynamics. A substantial proportion of establishments in the sector are accredited by the Department of Tourism, indicating a strong commitment to maintaining regulatory compliance and quality standards. The study also underscores the hotels' resilience and adaptability in dealing with the challenges posed by the pandemic, evidenced by satisfactory monthly average occupancy rates and moderate bed capacity, which help ensure visitor satisfaction and operational sustainability.

The findings reveal that a significant proportion of hotels have demonstrated durability, suggesting their ability to withstand market fluctuations and adapt to new conditions. The examination of marketing strategy execution shows favorable evaluations for all key elements, with a clear link between a proactive approach and effectiveness. This underscores the importance of innovation and strategic adaptation to optimize outcomes.

Notably, while the type of accreditation does not significantly affect strategy execution, the profile of the hotel industry does influence the efficacy of marketing efforts. This highlights the importance of understanding regional market intricacies and consumer preferences.

Overall, these observations emphasize the critical need for hotels in Dumaguete City to adapt to changing market dynamics and prioritize customer satisfaction. By leveraging these findings, stakeholders can strategically position themselves for long-term success and growth in the region's ever-evolving hospitality industry.

The following are the recommendations

Firstly, establishing a dedicated individual or team within the marketing department to oversee social media strategies is indeed crucial. However, instead of merely checking if strategies are working, this person or team should be responsible for continuously analyzing social media metrics, engaging with customers, and adapting strategies based on performance data. This proactive approach will ensure that the hotel remains agile in addressing market demands and guest preferences in real time.

Secondly, creating a disaster management team is a prudent step, but it should extend beyond marketing methods to encompass overall crisis preparedness and response. This team should consist of cross-functional members who can swiftly adapt strategies during challenging times, whether it's a crisis in the industry or external factors affecting tourism.

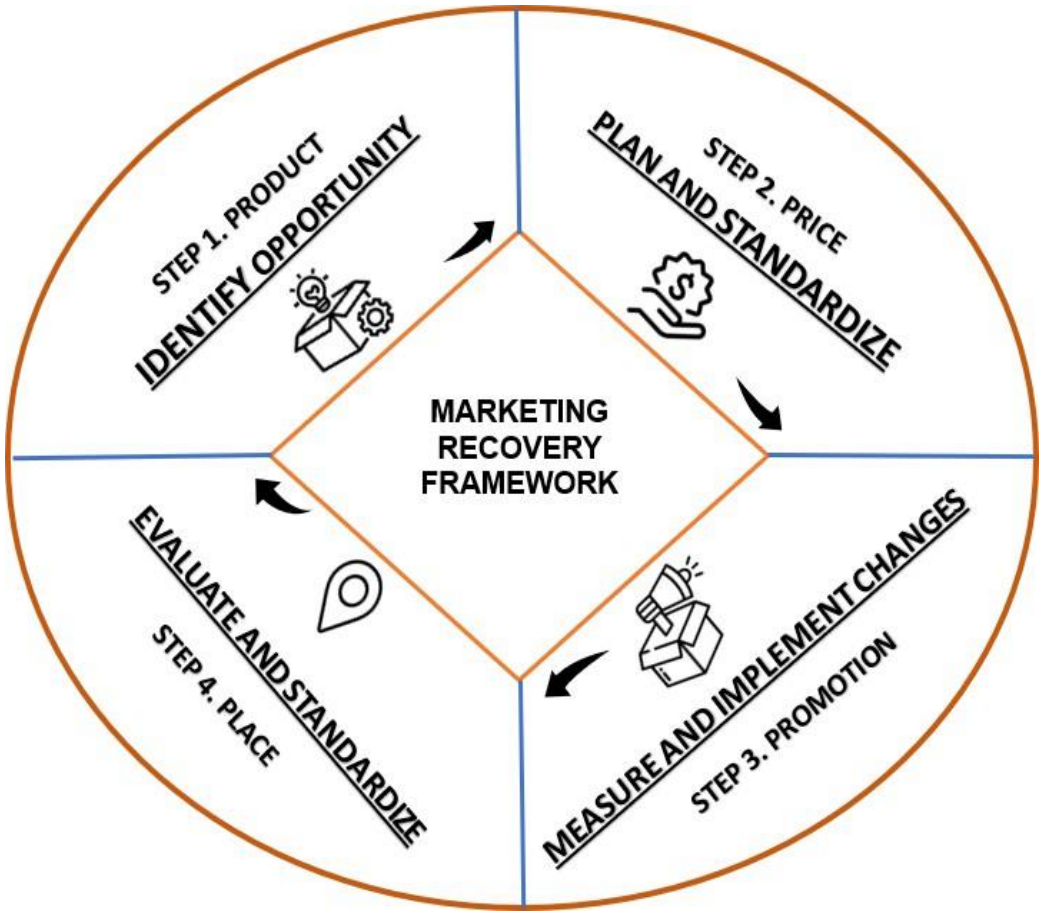
Thirdly, networking with other hotels is valuable, but the focus should be on collaboration rather than competition. By forming partnerships with other establishments, hotels in Dumaguete City can leverage each other's strengths, share resources, and collectively promote tourism in the region. This collaborative approach fosters a supportive community and enhances the overall visitor experience.

Lastly, the proposed Marketing Strategy Framework formulated in this study should be followed.

Compliance with Ethical Standards

The voluntary participation of managers from various hotels in Dumaguete City is of utmost importance. Participants have the right to withdraw from the study at any point, regardless of their age. Informed consent is a fundamental principle in this study, requiring researchers to provide detailed information and assurances about the nature of the study. This ensures that participants fully understand the implications of their involvement and can make an informed decision freely, without any form of coercion.

Proposed Marketing Strategies Framework



Step 1. Product. Identify Opportunity.

Market on your loyal guests. They are critical to segment and match your products to their demands. Create loyalty programs to encourage customers.

Product Innovation. Align the goods and services with the customers' ever-changing demands and expectations. Smart amenities throughout the facility and thoughtful features let guests fully personalize their stay and create the coziest possible environment.

Understanding your guests. Finding and targeting your ideal guest profile for accurate analysis and customer segmentation.

Step 2. Price. Plan and standardize.

Utilize a dynamic pricing strategy. This is used to dynamically modify the price of their goods or services in response to a range of variables, including supply and demand, the time of day, competition pricing, and consumer behavior. Make sure your pricing captures the special and use storytelling and focused marketing to highlight it.

Consider Variable Pricing. Under a variable pricing approach, a product or service's price varies according to demand. This entails modifying room rates in response to a range of variables, including seasonality, events, and booking trends.

Step 3. Promotion. Measure and implement changes.
Collaborate with other hotels. This will develop integrated learning experiences to network.

Create a Disaster Management Team. This will help your hotel industry emphasize marketing strategies and adjust accordingly before any crisis arises.

Seasonal Promotions: To draw customers and fill empty rooms, provide discounts or unique packages during off-peak seasons. Provide early booking incentives, such as discounts or extra benefits, to entice visitors to make bookings.

Step 4. Place. Evaluate and standardize.

Continuously Monitor and Adopt. To continue to keep your offerings appealing and relevant, stay updated on changes in travel reasons, guest feedback, and market trends.

Continuous Improvement. Remaining competitive and surpassing guest expectations requires listening to feedback, keeping up with industry developments, and upholding operational excellence.

Mobile optimization: To cater to the increasing number of guests who use smartphones and tablets to research and book hotels, make sure your website and booking procedure are mobile-friendly.

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A NEXUS BETWEEN COHESION AND WRITING: ANALYZING THE USE OF GRAMMATICAL COHESIVE DEVICES IN SENIOR HIGH ACADEMIC TEXTS

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ABSTRACT

One of the issues encountered by senior high students in their academic writing has always been the attainment of cohesion in their writing. The study sought to analyze the use of grammatical cohesive devices in the academic texts of Senior High. Furthermore, it aimed to evaluate how the grammatical cohesion is attained in the development of senior high academic texts based on the utilization of conjunctions, references, ellipses, and substitution. The study was anchored on the Model of Cohesion by Hasan and Halliday (1976). Ten (10) critique papers with a total of 275 sentences served as the raw data. This study utilized the research method of textual analysis and descriptive research. The findings revealed that 1469 grammatical cohesive devices were used in their critique papers. Additionally, conjunctions and references are more dominant in senior high academic texts. It was also reported that there is a high percentage of use of additives, appositives, and causal-conditional conjunctions while non-selective demonstrative references and existential personal references dominate the senior high academic texts.

Keywords*:* *Grammatical Cohesion, Academic Texts, Writing, Senior High*

INTRODUCTION

Academic writing is one of the most essential writing forms necessitated for senior high students to learn and master in the senior high curriculum. It is evident in various courses such as Reading and Writing Skills (RWS), English for Academic and Professional Purposes (EAPP), and Practical Research. The teachers' selection and

utilization of diverse academic writing tasks provide a myriad of opportunities for the students to hone their skills in this form and style of writing.

Academic writing is characterized to be clear, concise, precise, focused, open-minded, and engaging. Its purpose is to aid the readers' understanding by informing them, making arguments and claims with evidence, and persuading their readers (Hyland & Jiang, 2017).

One of the issues encountered by senior high students in their academic writing has always been the attainment of cohesion in their writing. Students find it difficult to unite the number of sentences in their paragraphs and utilize suitable transition signals in their writing. Furthermore, a comprehension problem may also occur if there is limited background knowledge on the relatedness of sentences in a text. In such cases, readers rely much on a coherent text with appropriate explicit signals to compensate for lack of prior knowledge (Alarcon & Morales, 2011).

Cohesion refers to the use of grammatical and lexical elements on the surface of the text that can form relationships among parts of the text (Tanskanen, 2006). It occurs when the semantic interpretation of some linguistic element in the discourse depends on another. It is the foundation upon which the edifice of coherence is built (Halliday and Hasan, 1985). It is expressed partly through the grammar and partly through the vocabulary (Halliday and Hasan, 1976).

The use of cohesive devices helps tie elements of a text together so that the readers know what is being referred to and how the phrases and sentences relate to each other (Harmer, 2004). The lack of understanding and awareness about cohesion especially on grammatical cohesion leads the students to use inappropriate cohesive devices. This would result to problems regarding the semantic relation among ideas in the text (Afrianto, 2017). Thus, cohesion is a prerequisite feature for any academic text if it aims to achieve its objectives.

When students write compositions, they need to establish clear relations between one sentence and the next by connecting those statements together. Good compositions establish a sense of direction by making explicit connections among their different parts, so that what is said in one sentence or paragraph not only sets up what is to come but is clearly informed by what has already been said (Alarcon & Morales, 2011). Connections can be done by using transition terms, adding pointing words, using key terms and phrases, and repeating words, but with a difference (Birkenstein & Graff, 2018).

However, the study of the concept of cohesion in academic texts has been underexplored in the Philippine research landscape. The present study was conducted to analyze the use of grammatical cohesive devices in the academic texts of Senior High. Furthermore, it sought to evaluate how the grammatical cohesion is attained in the development of senior high academic texts.

Research Questions

The study aimed to analyze the use of grammatical cohesive devices in the academic texts of Senior High students.

Specifically, it sought to answer the following sub-problems:

1. What grammatical cohesive devices are used by Senior High students in their academic texts?
2. What conjunctions are utilized in the development of the academic texts?
3. What references are utilized in the development of the academic texts?

METHODOLOGY

Respondents and Site of Study

The subjects of the study were the Grade 12 students enrolled in the writing course English for Academic and Professional Purposes (EAPP) in the Senior High School Department for the Academic Year 2022 – 2023 at Saint Louis School of Don Bosco. Ten (10) students were taken as participants of the study taking the Science, Technology, Engineering, and Mathematics (STEM) academic track.

Research Design

This study utilized the research method of textual analysis. The purpose of textual analysis is to describe the content, structure, and functions of the messages contained in the text (Caulfield, 2019). This verbal analytical discussion is based on logical statements describing the connections between the academic writers and the texts, in this case are represented by the different sentences systematically obtained from the academic texts. Moreover, it is focused on descriptive analysis of the grammatical cohesion of the writers as mirrored in their academic texts.

This study also utilized the descriptive research design. This is used to describe the variables and use as basis to develop generalizations and formulate principles or theories based on its findings (Calmorin and Calmorin, 2007). Since this study concerned with the determination of the frequency of grammatical cohesive devices such as conjunction, references, ellipsis, and substitution, descriptive research was the most appropriate design.

Sampling Technique and Data-Gathering Procedures

This study used documentation method. Ten (10) academic papers written by senior high students were obtained as raw data. The critique papers were one of the writing activities in the English for Academic and Professional Purposes (EAPP) course. The students were tasked to write a critique on the televised address of Vladimir Putin regarding his plans of conducting a ‘special military operation’ for Ukraine.

The ten (10) critique papers were randomly selected. A total of 275 sentences were utilized as bases of the study. In content thematic analysis, when the researcher begins to hear the same comments again and again, data saturation is being reached. Once saturation is reached, the results must be capable of some degree of generalization (Boddy, 2016). It is believed that data saturation was already achieved with the sample size.

First, each of the sentences was analyzed. The grammatical cohesive devices were identified and classified as conjunction, references, ellipsis and substitution. Next, the conjunctions were categorized as appositive, clarification, additive, variation, spatio-temporal, manner, causal-conditional, or adversative, while the references were codified as personal, demonstrative, or comparative. Finally, the utilization of grammatical cohesive devices in students' writing was analyzed.

Statistical Analysis

Percentage is used to show how the part is related to a whole. It was used in presenting the frequency percentage of the different grammatical cohesive devices.

RESULTS

Table 1
Frequency Percentage of Grammatical Cohesive Devices

Types of Grammatical Cohesive Device	Frequency	Percent
Conjunction	637	43.36
References	822	55.96
Substitution	7	0.48
Ellipsis	3	0.20
Total	1469	100.00

Table 1 presents the frequency percentage of the grammatical cohesive devices utilized in the academic texts. The findings revealed that out of 1469 cohesive devices, 822 (55.96%) are references, 637 (43.36%) are conjunctions, 7 (0.48%) are substitution, and lastly, 3 (0.20%) are ellipsis. In general, the use of references and conjunctions is dominant in the senior academic texts.

Table 2

Frequency Percentage of Conjunctions

Types of Conjunction	Frequency	Percent
Appositive	173	27.16
Clarification	38	5.97
Additive	236	37.05
Variation	25	3.92
Spatio-Temporal	17	2.67
Manner	21	3.30
Causal-Conditional	82	12.87
Adversative	45	7.06
Total	637	100.00

Table 2 shows frequency percentage of conjunctions used in the senior high academic texts. Out of 637 conjunctions, the most commonly used ones are additives with a frequency of 236 (37.05%) followed by appositives with 173 (27.16%) and causal-conditional conjunctions with 82 (12.87%). Other types of conjunctions used were adversative with 45 (7.06%), clarification with 38 (5.97%), variation with 25 (3.92%), manner with 21 (3.30%), and spatio-temporal with 17 (2.67%).

Table 3

Frequency Percentage of References

Types of References	Subtypes	Frequency	Percent
Personal	*Existential*	232	28.22
References	*Possessive*	138	16.78
Demonstrative	*Selective*	80	9.73
References	*Non-Selective*	354	43.06
Comparative	*General*	10	1.21
References	*Specific*	8	0.10
Total		822	100.00

Table 3 showcases the number of the different types and subtypes of references used in the academic texts. Out of 822 references, the most utilized ones are non-selective demonstrative references with a frequency of 354 (43.06%) followed by existential personal references with a frequency of 232 (28.22%) and possessive personal references with a frequency of 138 (16.78%)

DISCUSSION

Utilization of Grammatical Cohesive Devices

The use of references and conjunctions is more dominant in the academic texts over ellipsis and substitution. The findings concurred with the study of Trisnaningrum et al. (2019) where the highest uses of grammatical cohesion devices were reference and conjunction. The data also pointed out that the respondents were more familiar with reference and conjunction use rather than substitution and ellipsis.

The same results are mirrored in the study by Akindele (2011). Based on her study of cohesive devices used in academic papers, it was determined that a meaningful text can only be realized if the different parts of the text are connected together as a unified whole or if it has cohesion with the use of cohesive devices. Two of the cohesive devices that are used frequently in the academic papers of senior high students are references and conjunctions.

References are used to refer to something within or outside a text. It can introduce a piece of new information and keep track of the given information in the text. Reference devices or referring expressions help in uniting the text. Also, it allows writers to avoid unnecessary repetition (Akindele, 2011).

On the other hand, Darweesh and Kadhim (2016) also cited the studies of Ferris (1994) and Field and Oi (1992), which show a positive link between the frequency of cohesive devices and the quality of writing. The studies of Jin (2001) and Liu and Braine (2005) show a significant relationship between the number of conjunctions and the quality of a text. According to Riadi et al. (2023), there is a notable relationship between the use of conjunctions and the writing quality. This is because conjunctions directly impact the clear understanding of the topic and the organization of ideas through logical connection.

Poudel and Dhankuta (2018) posit that cohesive devices contribute for maintaining unity in the paragraphs in academic writing. Texts with cohesive ties and coherence are more comfortable for the readers to comprehend and interpret the message of the writer.

Use of Conjunctions in the Development of Academic Texts

The high percentage of use of additives, appositives, and causal-conditional as cohesive devices can be attributed to the type of essay the students wrote. In argumentative texts, the purpose of the writer is to establish a claim and convince readers that the claim is valid through a set of supporting points. The writers also clearly take a stand and write as if they were trying to persuade readers to adopt new beliefs or behavior. The nature of additives, conditionals, and concessives makes it possible to

strengthen claims by establishing strong connection with their supporting premises (Alarcon & Morales, 2011).

As cohesive devices, additives operate in a succession of two sentences or independent units and establish additive relations while appositives serve to introduce an additional remark to give some examples of what has been said. On the other hand, causal-conditionals function to introduce a presupposing clause that expresses a cause (Tsareva, 2010). These conjunctions are imperative in establishing claims and connections within the text.

Tsareva (2010) notes that the conjunctions are used extensively to establish cohesive relations that hold between sentences. They establish various patterns for the organization of information in the essays. Thus, grammatical cohesion is not discerned only between two adjacent sentences. Cohesive links are often established by grammatical elements that occur in a sequence of sentences that are not adjacent.

In Halliday's (2004) concept of grammatical cohesion, conjunctions are cohesive elements not in themselves but by their specific meanings. They express certain meanings which presuppose the presence of other components in the discourse.

Utilization of References in the Development of Academic Texts

The most dominant references in senior high academic texts are non-selective demonstrative references and existential personal references.

As cited from the study of Maes et al. (2022), Levinson et al. (2018) posit that demonstratives including *this* and *that* are the most frequently used words in the languages of the world. These words help the writer make references within a text to the other portions of the text. Demonstratives give a clear connection between words, sentences, and paragraphs allowing cohesion to be achieved in a specific text.

Gray (2010) cited that style manuals discourage writers from using demonstratives such as *this, that, these, and those* to function as pronouns to attain cohesion. On the contrary, it was also stated that many linguistic investigations determined that demonstratives function as both determiners and pronouns in academic texts.

As asserted by Rustipa (2015), it is explained in the study of Zaki (2011) that demonstratives are essential since they direct the reader to keep the recognition of the intended referent (the word being referred to).

In the pragmatic sense, demonstratives are crucial in the logical organization of information in the text. With or without new information, they can revive the previously stated referents. In the same manner, demonstratives can also establish new referents in the text. In addition, they give a reference to what the writer is implicitly or explicitly writing (Zaki, 2011). There is a need for the careful use of demonstratives as the understanding of their meaning depends largely on context and inference (Rustipa, 2015).

Based on the case study of Rustipa (2015) on the use of demonstrative pronoun and demonstrative determiner *this* in upper-level student writing where she interviewed five graduate students on the use of demonstrative *this*, it was determined that they used demonstratives in their essays to make their text coherent and achieve a unified whole.

Another reason is to establish context for the text that would follow and to maintain the theme-rheme structure. Lastly, demonstratives were used to create a variation in the style of writing to develop a more interesting text.

Moreover, the dominance of existential personal references in the academic texts was crucial in establishing connections within the texts. In the case study of Msuya (2016) that explores the author visibility in academic writing, the impersonal pronouns are the most commonly used type of pronoun even for the sections that authors can be expressive such as acknowledgment. The study concluded that academic writers strictly abide by the norms and conventions of academic writing of being overly formal and restricting the use of first-person pronouns.

Based on the findings of the study of Nurhidayah (2019), personal reference was the reference cohesive device most commonly used by the students in their essays. Additionally, they have categorized these personal references into three types, namely personal pronouns, possessive pronouns, and possessive determiners. Out of the three types, personal pronouns were used the most, followed by the possessive pronouns.

The high frequency of use of reference as cohesive device can be attributed to the fact that types of reference are used grammatically as part of a sentence as either subject, modifier or object. The relationship between things or facts may also be established with the use of reference items. The low frequency of comparison both general and specific as cohesive device could suggest that there is no need to compare ideas or things in an argumentative text or the students might have used other devices to compare aside from *more*, *less*, *other* etc. (Alarcon & Morales, 2011).

Conclusions

Based on the analyses and the findings of the study, the following conclusions were drawn:

a.) As grammatical cohesive devices, conjunctions and references are more dominant in senior high academic texts compared to ellipsis and substitution as they establish connectedness among the different parts of the text and attain meaningful organization of ideas through logical connection.

b.) There is a high percentage of use of additives, appositives, and causal-conditional conjunctions in senior high academic texts. These cohesive devices were largely instrumental for the writers to take a stand and persuade their readers by strengthening their claims and establishing strong connection with their supporting premises.

c.) The most dominant references in senior high academic texts are demonstrative non-selective and personal existential, which are utilized to make references within an academic paper to the other portions of the text and provide a vivid connection among words, sentences, and paragraphs allowing cohesion to be achieved in a specific text.

Recommendations

Since the use of cohesive devices is indicative of the quality of academic writing of senior high students, there is a necessity to reinforce the teaching of grammatical cohesion in English classes in the junior high level. Further, there is a need to explore the lexical cohesion of the texts to further comprehend the challenges of the student writers in utilizing cohesion and coherence in academic texts. The results would supplement the findings of the present study.

Future researchers can extend the present study by using other forms of academic papers as bases of analyses such as research papers or concept papers. Future researchers may also concentrate on other types of texts such as creative, journalistic, or literary texts.

Compliance with Ethical Standards

The authors carefully evaluated all the necessary ethical considerations throughout the duration of the conduct of the study. Information consents were obtained from the participants allowing the researchers to utilize their papers as bases for textual analyses. The anonymity and confidentiality of the participants were also ensured. No conflict of interest existed in the conduct of the study. Furthermore, plagiarism was strictly and firmly avoided and respect for intellectual property was highly achieved. There was no prejudice in the analysis of the results and that, the findings were used purely for research.

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ANG INGAY AT LANGITNGIT NA TAGLAY SA LIKOD NG PAGLALARO NG LATÒ LATO

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ABSTRAK

Masiglang halakhakan, namimilog na mga pawis sa katawan at bungisngis na labi kasabay ang tawanan. Mga sámot-sarìng tagpo sa mundo ng mga Tradisyonal na Larong Pilipino na sumasalamin ng mayamang kultura at kasaysayan. Sa pag-usad ng panahon, may mga larong namamatay at mayroon ding ipinapanganak at iniluluwal lalong higit ng *mass media* at Kulturang Popular. Sa pag-aaral na ito, binigyang-tuon ang mga layuning bubuo ng ingay at langitngit sa metodong sikolohikal na pananaliksik; a) ano ang mga kadahilanan sa paglalaro ng latò lato ng ilang mga kabataan, b.) ano ang mga naging epekto ng paglalaro ng latò lato sa kanilang aspetong pisikal (pangangatawan), sosyal (pakikisalamuha), intelektuwal (paraan ng pag-iisip) at pakiramdam *(sense of satisfaction).* Ang pag-aaral na ito ay gumamit ng pamamaraang pagtatanong-tanong at pakikipagkuwentuhan na magiging lunsaran ng resulta at pag-alam sa ingay at langitngit na taglay ng paglalaro ng latò lato. Babaybayin din nito ang kasaysayan at implikasyon ng paglalaro ng latò lato sa ilang aspeto ng buhay ng tao. Tunay ngang, mabilis manganak ang *mass media* ng mga karanasan at kultura na ipinamamalas ng tao sa kani-kanilang komunidad. Pinatotohanan nito na ang paglalaro ng lato lato ay may malalim na kultura at kasaysayan. Sumasalamin ng tradisyon, pumapanday ng mga karanasan at humuhulma ng masasayang alaala tungo sa holistikong paghubog ng isang tao.

Mga Susing Salita: *Latò Lato, Kulturang Popular at Kasaysayan, Mass Media, Tradisyonal na Larong Pilipino*

INTRODUKSIYON

“Pagbilang kong tatlo nakatago na kayo, Isa, Dalawa, Tatlo nakatago na kayo?” Isa sa mga tanyag na pahayag kung pag-uusapan ang Tradisyonal na Larong Pilipino. Mga larong pumanday ng ating kultura, nagpaunlad ng ating mga tradisyon at patuloy na sumasalamin sa mayamang pagkakakilanlan ng ating bansa. Isa sa mga larong tumatak sa lahing Pilipino at patuloy na pumapanday ng mga karanasan ng mga murang kaisipan ng mga kabataang Pilipino na naging bahagi ng kanilang paglago at mga karanasang humubog sa kanilang pagkatao, ito’y isang patunay na naging kaulayaw ng panahon ang mga tanyag na larong Pilipino tulad ng Laro ng Lahi.

Ang "laro ng lahi" ay tumutukoy sa mga tradisyonal na laro o palaro na ipinasa mula sa henerasyon hanggang sa henerasyon sa isang partikular na kultura o lipunan. Ang mga larong ito ay may malalim na ugnayan sa kultural na identidad at kasaysayan ng isang bansa o rehiyon. Ang mga pagtalakay sa laro ng lahi ay nagbibigay-diin sa kahalagahan ng mga ito bilang bahagi ng kultural na pamanang pangkalahatan at sa mga benepisyo na hatid nila sa mga indibiduwal at komunidad. Hango sa *The Traditional Filipino Games Handbook ng Philippine Sports Commission*, hinimay-himay nila ang kahalagahan at implikasyon ng laro ng lahi bilang bahagi ng kulturang Pilipino. Una, Kultural na Identidad na kung ang mga Laro ng Lahi ay mahalaga dahil nagpapakita at nagpapanatili ng kultural na identidad ng isang bansa o komunidad. Ang mga ito ay bahagi ng pinagmulan at kasaysayan ng mga tao sa isang lugar, at naglalaro ng malaking papel sa pagpapahayag at pagpapanatili ng kanilang kultura, tradisyon, at paniniwala.

Ikalawa, Edukasyon at Pag-unlad na nagbibigay ng mga oportunidad para sa edukasyon at pag-unlad ng mga indibiduwal. Sa pamamagitan ng pagsali at paglalaro sa mga tradisyonal na laro, natututuhan ng mga manlalaro ang mga kasanayan tulad ng pagtutulungan, diskarte, pagpaplano, at iba pa. Ito ay maaaring magdulot ng pag-unlad sa pisikal, kognitibo, at sosyal na aspeto ng mga manlalaro. Ikatlo, ang Pananatili ng Malusog na Pamumuhay sapagkat ang mga Laro ng Lahi ay naglalayong mapalakas ang katawan at magbigay ng aktibong pamumuhay. Ito ay maaaring magdulot ng pisikal na paglago at magbigay ng benepisyo sa kalusugan tulad ng pagpapalakas ng mga kalamnan, pagsasanay ng katalinuhan ng *motor*, at pagtibay ng resistensiya.

Ikaapat, Pagpapaunlad ng Pakikipagkapwa na kung saan ang mga Laro ng Lahi ay nagbibigay ng mga pagkakataon para sa pakikipagkapwa at pagkakaisa sa komunidad. Sa pamamagitan ng pagsali sa mga laro, ang mga manlalaro ay natututong makipag-ugnayan, magkaisa, at magtulungan sa isang positibong paraan. Ito ay naglilikha ng magandang samahan at nagpapalakas ng mga ugnayan ng mga tao sa loob ng isang komunidad. At panghuli, ang Pagpapahalaga sa Tradisyon at Pamanang Kultural dahil ang mga Laro ng Lahi ay nagbibigay-diin sa pagpapahalaga at pangangalaga sa mga tradisyon at pamanang kultural ng isang bansa o lipunan. Sa pamamagitan ng paglalaro at pagpapasa ng mga laro sa mga susunod na henerasyon, nagpapatuloy ang mga tradisyon at nakikilala ang kanilang kahalagahan. Ito ay nagbibigay ng patuloy na pagpapalaganap at pagpapahalaga sa mga ito.

Ang mga tampok na laro na patuloy na pinahahalagahan ng mga Pilipino na naging bahagi na ng kanilang paglago at humubog sa kanilang pagkatao at humulma ng mga karanasan at alaala na minsan ng nagpangiti, nagpatawa, nagpaiyak, sumubok o kung minsan naging dahilan ng kanilang pagdapa at muling pagbangon. Ito ang Sungka na kung saan hinahati ng mga mangkakahoy na laruang hilaw sa isang malaking kahon. Ang layunin ng laro ay kunin ang pinakamaraming bato sa kalaban. Kasama rin ang piko na ginagamitan ng isang maliit na piko at isang malaking lupa na hinahati sa iba't ibang kahon. Ang layunin ay malagpasan ang mga hamon sa bawat kahon nang hindi maipatong ang paa sa lupa. Ang masayang paglalaro ng Patintero na kung saan ang mga manlalaro ay nagtatalo sa pamamagitan ng pagtawid sa mga guhit sa lupa na ginawa ng mga kalaban. Ang layunin ay magtagumpay sa pagtawid nang hindi mahawakan ng mga tagapaglaro ang mga guhit o masalubong ang mga kalaban.

Minsan na ding sumubok ang larong Luksong Tinik na kung saan ang mga manlalaro ay magpapalitan ng paglukso sa ibabaw ng mga tinik na nilalagay sa lupa. Ang layunin ay malagpasan ang mga antas ng pagtaas ng mga tinik nang hindi mahawakan o matamaan ang mga ito. Habulan at hiyawan sa larong tumbang preso na ang mga manlalaro ay magtatalo sa pamamagitan ng pagtapon ng tsinelas sa isang bote o lata na ginagawang "preso." Ang layunin ay matamaan ang bote o lata upang manalo.

Kung kayat, sa pag-aaral na ito iinog ang pagtuklas sa mundo ng paglalaro ng latò lato at ang ingay na dulot nito sa tao at komunidad. Ang pahayag na "Ang Ingay at Langitngit na Taglay sa Likod ng Paglalaro ng Latò Lato" ay naglalayong bigyang-pansin ang malalim na kahulugan o epekto ng paglalaro ng Latò Lato na maaaring hindi gaanong napapansin o naiintindihan sa unang tingin. Ang pahayag na ito ay nagmumungkahi na sa likod ng simpleng paglalaro ng Lato Lato, may mga aspeto o kahulugan na nagdudulot ng ingay at langitngit.

Ang "ingay" na tinutukoy ay maaaring tumutukoy sa tunog at kasiyahan na naidudulot ng paglalaro ng Latò Lato. Ang ingay na ito ay maaaring nangangahulugan ng enerhiya, saya, at sigla na nararamdaman ng mga manlalaro habang sila'y naglalaro. Ito ay nagpapahayag ng aktibong pakikilahok at ang pagpapalaganap ng kasiyahan sa mga bata.

Sa kabilang banda, ang "langitngit" ay maaaring tumutukoy sa ingay na nagmumula sa paghampas o pagkilos ng mga lato (tinik na nakapaligid sa bola) kapag ito'y tinatamaan o sinusundan ng mga manlalaro. Ang langitngit na ito ay maaaring magdulot ng tunog o kalabog na nagpapalakas ng kasiyahan at nagpapataas ng antas ng kumpetisyon sa pagitan ng mga manlalaro.

Ang Latò Lato Bilang Isang Tradisyonal Na Larong Pilipino

Ang tradisyonal na larong Pilipino ay tumutukoy sa mga laro na matatagpuan sa kultura at kasaysayan ng mga Pilipino. Ipinapahayag ni Ramos na ito ay mga laro na nagmula at nagpatuloy na nilalaro ng mga Pilipino mula pa noong mga naunang panahon. Ang mga tradisyonal na laro ay bahagi ng kulturang Pilipino at nagpapahayag ng mga kaugalian, tradisyon, at paniniwala ng mga mamamayan (Ramos, 1990). Samakatuwid,

bahagi na ng kalinangan ang pagkakaroon ng mga laro na sumasalamin sa gawi at kilos ng tao maging ng kulturang kanyang kinalakihan. Ito ay nagpapakita ng mayamang tradisyon ng mga Pilipino at pagka-malikhain sa mga bagay na nasa kanilang paligid tungo sa pagkakaroon ng mga libangan tulad ng mga tradisyonal na larong Pilipino.

Hindi maikakaila sa kasaysayan ng tradisyonal na larong Pilipino ang mga larong isports o pampalakasan. Ito ay mga larong patuloy na namamayagpag at humuhulma sa pisikal, *mental,* sosyal at holistikong anyo ng isang manlalaro. Ang Arnis ay isang tradisyonal na *Filipino Martial Art* na nagiging laro rin. Ito ay kilala rin bilang Eskrima o Kali na kinikilala sa ngayon bilang pambansang laro sa Pilipinas. Ang kasaysayan at pagpapakahulugan ng larong Arnis bilang larong Pilipino ay may malalim na kaugnayan sa kasaysayan at kultura ng bansa. Ang Arnis ay hindi lamang isang laro o labanan, ito ay isang komprehensibong sistema ng pagsasanay na naglalaman ng iba't ibang mga teknik at patakaran. Ang mga manlalaro ng Arnis ay tinuturuan ng iba't ibang mga galaw, pagkilos, at pamamaraan ng paggamit ng mga sandata, kadalasang mga maliliit na patpat, tabak, o espada.

Bilang isang laro, ang arnis ay nagbibigay-diin sa mga kasanayan sa paggalaw, katalinuhan, diskarte, at taktika. Ito ay nagpapalawak ng kamalayan sa kapaligiran, nagpapalakas ng katawan at kaisipan, at nagpapalawak ng abilidad sa pag-unawa at pagtugon sa mga sitwasyon. Ito ay naglalayong mapanatili at ipasa ang Pilipinong kultura at kaalaman sa mga susunod na henerasyon. Sumasang-ayon si Cruz, na ito ay isang pagsasama-sama ng kasaysayan, tradisyon, at pagsasanay sa pagtatanggol na nagpapakita ng katapangan, disiplina, at pagiging handa (Cruz, 2018). Isang laro na tumatak na sa pagkakakilanlan ng mga Pilipino at patuloy na humuhulma ng mga panibagong karanasan.

Gayundin, kung pag-uusapan ang mga Isports, hindi mawawala ang sepak-takraw. Ang Sepak Takraw ay isang tradisyonal na laro na nagmula sa mga bansa sa Timog-Silangang Asya, kabilang ang Pilipinas, Thailand, Malaysia, at Indonesia. Ito ay isang kombinasyon ng paglalaro ng bola ng paa (sepak) at takraw na tumutukoy sa mga malalaking pako o bao na ginagamit bilang bola. Ang mga manlalaro ay gumagamit ng kanilang mga paa, tuhod, dibdib, at iba pang bahagi ng katawan upang paluin ang bola, at layunin nilang itapon ito sa kabilang panig ng *court* na may isang *net* sa gitna. Ang laro ay nagtataglay ng bilis, kasanayan sa pagtalon, pagsipa, at iba pang mga aksyon na nangangailangan ng malasakit, pagkakasundo, at kahusayan. Ang Sepak Takraw ay itinuturing bilang isang popular na larong pampalakasan sa Timog-Silangang Asya. Ito ay kadalasang nilalaro sa mga pampublikong lugar, paaralan, at mga palaruan. Ang larong ito ay hindi lamang isang palaro, ngunit nagiging bahagi rin ng kultura at tradisyon ng mga bansa kung saan ito lumaganap (Aleon, Rowena, et. al, 2012).

Sipatin naman natin ang isa sa mga napapahon, tanyag, popular at kilalang laro, ang larong latò lato ay maituturing na isang tradisyonal na laro na pinapaglaruan ng mga bata sa mga komunidad at pamilya sa Pilipinas nang maraming henerasyon. Sinusuportahan ni Bautista na ito ay kadalasang orihinal na laro na ipinapasa mula sa mga nakatatanda sa mga kabataan. Ang mga tradisyunal na laro ay naglalarawan ng

kulturang Pilipino, mga kaugalian, mga tradisyon, at mga pang-araw-araw na pamumuhay (Bautista, 2015). Ang Latò Lato ay isang tradisyunal na laro sa Pilipinas na kadalasang nilalaro ng mga bata. Ito ay isang laro ng paghabol kung saan ang mga manlalaro ay naglalaro gamit ang isang bola na gawa sa mga tinik ng punong lato (latό) na pinupulupot sa pamamagitan ng mga hibla o sinulid.

Ang paglalaro ng Latò Lato ay nagbibigay ng iba't ibang benepisyo at kasiyahan sa mga manlalaro. Ito ay nagpapalakas ng kanilang kasanayang pangkatawan at kinakailangang gumamit ng mga estratehiya at taktika upang maabot at mabunot ang bola ng kalaban. Bukod dito, ito ay isang paraan ng pagkakaroon ng aktibong pamamahayag ng kulturang Pilipino at pagpapasa ng tradisyong ito sa mga susunod na henerasyon (Pamilya ni Aning at Seling Suarez, 2006). Tunay ngang, malaki ang mabuting naidudulot ng paglalaro lalong higit ang paglalaro ng latò lato dahil bukod sa ito ay isang libangan, ito rin ay humahasa ng isipan ng isang manlalaro sa paggamit ng mga Teknik at estratehiya sa paglalaro maging ang pagkamalikhain sa pagbuo ng lato lato mula sa mga kagamitang makikita sa kanilang kapaligiran.

Pagsipat Sa Pinagmulan Ng Paglalaro Ng Latò Lato

Ang tradisyonal na mga laro tulad ng Latò Lato ay nakalipas na mula sa maraming henerasyon at karaniwang inaangkin ng kultura ng isang lipunan. Hango sa nailathala sa *youtube channel* na Kasaysaysan Pinoy, sinasabing ang paglalaro ng latò lato ay unang nagsimula sa Estados Unidos noong 1960’s at tinawag nilang clackers na gawa sa *tempered glass o acrylic*. Lumaganap at naging sikat din ito sa bansang Indonesia kung kaya’t sila ay nagkaroon din ng taunang kompetisyon sa paglalaro ng lato lato. Maging sa bansang Italia ay naging tanyag din ang paglalaro ng lato lato mula sa mga raw material na gawa sa kahoy na hugis bilog at *nylon* na kanilang ginamit bilang tali ng lato lato.

Sinasabi ni Ramos na ang mga lokal na komunidad sa Pilipinas, kung saan ang Latò Lato ay malawakang nilalaro, ay nagkaroon din ng kanilang sariling mga kuwento at paniniwala tungkol sa pinagmulan ng laro. Ang mga oral na tradisyon at mga salaysay sa mga komunidad sa Pilipinas ang nagbigay ng iba't ibang mga paliwanag o mga alamat tungkol sa pinagmulan ng Latò Lato. Maaaring mabanggit ang mga kuwento ng mga ninuno o mga diyos-diyosan na kaugnay sa laro na ito (Ramos, 1990). Pinatutunayan nito na ang paraang pasalindila ay naging epektibong pamamaraan upang lumaganap ang impluwensiya at paglalaro ng lato lato hanggang sa modernong panahon.

Sa mga lokal na perspektibo at mga pagsasaliksik, mayroong ilang mga posibleng pinagmulan ng paglalaro ng Latò Lato, kasama na rito ang Likas na Kapaligiran na kung saan ito ay nagmula sa pangangailangan ng mga bata na maghanap ng mga bagay na magagamit bilang laro. Ang mga tinik ng punong lato (latό) ay maaaring napansin ng mga bata bilang isang magandang materyal na maaaring gawing bola, na naging hudyat ng paglalaro ng Latò Lato, gayundin ang Tradisyonal na Pagsasaka. Sinasabi nito na ang Latò Lato ay maaaring may kaugnayan sa mga tradisyonal na gawain sa pagsasaka, kung saan ang mga tinik ng punong lato ay maaaring nakuha o natitira mula sa mga puno

na ginagamit sa pagsasaka. Ang mga bata ay maaaring naisipang gamitin ang mga ito bilang mga palamuti o bola para sa kanilang mga laro. Kasama rin ang Rituwal at Mga Alamat sapagkat ang iba't ibang mga ritwal at mga alamat na may kaugnayan sa mga puno o kakahuyan ay maaaring maglaman ng mga pagsasalarawan o kahalagahan ng mga laro na may kinalaman sa Latò Lato. Ang mga alamat na ito ay maaaring naglalaman ng mga paliwanag ukol sa pinagmulan at kahalagahan ng laro sa lokal na kultura. Mahihinuha ang mayamang kultura ng mga Pilipino na mula sa mga kapaligiran, uri ng pamumuhay at mga ritwal na isinasagawa ay maaaring masalamin ang pinagmulan ng paglalaro ng latò lato bilang isang libangan at pampalipas oras.

Ang paglalaro ng Latò Lato ay lumaganap at nag-*evolve* sa iba't ibang paraan sa loob ng mga komunidad sa Pilipinas. Bagaman hindi masyadong dokumentado ang proseso ng paglalaganap nito, narito ang ilang mga posibleng salik na nakaimpluwensiya sa pag-unlad ng larong ito: a.) Paglaganap sa mga Komunidad na kung saan ang paglalaro ng Latò Lato ay nakalaganap sa pamamagitan ng tradisyonal na sistema ng pagpapasa ng mga kasanayan at laro mula sa mga nakatatanda patungo sa mga kabataan. Sa pamamagitan ng mga pamilya, mga kaibigan, at mga komunidad, ang laro ay naipasa at naging bahagi ng pang-araw-araw na aktibidad ng mga bata, b.) Interaksiyon sa iba't ibang Komunidad sapagkat ang paglalaro ng Latò Lato ay maaaring lumaganap at nag-*evolve* dahil sa mga interaksiyon ng mga komunidad at ang palitan ng mga laro at karanasan. Sa mga pagsasama-sama ng mga komunidad sa mga pagtitipon, mga selebrasyon, o mga paligsahan, ang Latò Lato ay maaaring maging daan para sa mga manlalaro na matuto at magbahagi ng iba't ibang bersyon, patakaran, o estilo ng paglalaro, c.) Modernisasyon at Globalisasyon, kasama rito ang tradisyonal na mga laro, ang paglalaro ng Latò Lato ay maaaring naapektuhan ng modernisasyon at globalisasyon.

Sa pagdating ng mga modernong teknolohiya at mga palaruan, maaaring may pagbabago sa interes at pagpili ng mga bata sa kanilang mga aktibidad. Gayunpaman, ang paglalaro ng Latò Lato ay maaaring patuloy na ipinapasa at pinahahalagahan ng ilang mga komunidad bilang isang bahagi ng kanilang kultura at tradisyon.

Kahit na may mga aspeto ng pagbabago at modernisasyon, mahalaga rin ang pagpapanatili ng mga tradisyunal na pamamaraan at kahalagahan ng paglalaro ng Latò Lato. Ang mga lokal na komunidad at mga indibidwal ay patuloy na nagpapanatili at nagtataguyod ng laro bilang isang paraan ng pagpapahayag ng kanilang kultura at pagpapasa ng mga tradisyon sa mga susunod na henerasyon.

Sangkap Sa Paglalaro Ng Latò Lato

Ang paglalaro ay isang aktibidad na ginagawa ng mga tao, lalo na ng mga bata na may layunin na magkaroon ng kasiyahan, pag-unlad ng kasanayan, pagpapalakas ng samahan, at pagsasagawa ng imahinasyon. Ito ay isang proseso ng pagsasagawa ng mga patakaran o istruktura sa isang laruang konteksto na maaaring may mga layunin o tungkulin na dapat gampanan ng mga manlalaro (Smith, 1990). Ibig sabihin nito, ang paglalaro ng latò lato ay may tunguhin, isang aktibidad na maaaring magbigay ng iba’t

ibang benepisyo sa manlalaro nito gayundin may mekanismo na kailangang sundin upang maging maayos ang pagmamanipula ng latò lato.

Ang layunin ng paglalaro ng Latò Lato ay karaniwang ang magkaroon ng kasiyahan, pagpapalakas ng samahan, pagpapalakas ng mga motorikong kasanayan, o pagpapakita ng katalinuhan at kasanayan sa paglaro. Ang laro ay maaaring may elementong kompetisyon o simpleng pagsasaya at pagbibigay-kasiyahan sa mga manlalaro. Ang Latò Lato ay karaniwang nilalaro ng mga bata, kahit na maaari rin itong laruin ng mga kabataan at matatanda. Maaaring maglaro ng Latò Lato ang isang maliit na grupo ng mga manlalaro, na maaaring binubuo ng dalawa o higit pang mga indibidwal. Ang bilang ng manlalaro ay maaaring magbago depende sa lokasyon, karanasan, at tradisyon ng mga manlalaro.

Sa paglalaro ng Latò Lato, ang mga manlalaro ay gumagamit ng isang bola na gawa sa mga tinik ng punong lato (latό). Ang bawat manlalaro ay may tungkulin na ihagis, saktan, o hulihin ang bola gamit ang iba't ibang mga kasanayan at pamamaraan. Maaaring ito ay may kasamang mga patakaran o pag-uusapan ng mga manlalaro bago magsimula ang laro. Ang Latò Lato ay kadalasang gumagamit ng iba't ibang mga bahagi o elemento sa paglalaro. Ito ay kinabibilangan ng bola na gawa sa mga tinik ng lato, mga hibla o sinulid na ginagamit upang pagsama-samahin ang mga tinik, at mga iba't ibang mga galaw at teknik na ginagamit sa paghabol, paghampas, o pag-iwas sa bola. Upang mabuo ang bola ng Latò Lato, kinakailangan ng mga hibla o sinulid na ginagamit upang pagsama-samahin ang mga tinik ng lato. Ang mga sinulid na ito ay nakakapalibot sa mga tinik at nagbibigay ng anyo at katatagan sa bola.

Tulad ng ibang mga laro, ang paglalaro ng Latò Lato ay maaaring may kasamang mga patakaran o mga kasunduan na sinusunod ng mga manlalaro. Ito ay maaaring magtakda ng mga limitasyon sa galaw, mga papel o tungkulin ng bawat manlalaro, o mga regulasyon upang panatilihing patas at maayos ang laro. Ayon kay Santiago, ang kasiyahan at interaksyon ng mga manlalaro ay mahalagang bahagi ng paglalaro ng Latò Lato. Ito ay naglalaman ng pagtatawanan, pagbibiruan, at pakikipagkompetisyon o pakikipagtulungan sa iba pang mga manlalaro upang maging kasiya-siya at magkaroon ng magandang karanasan sa laro (Santiago, 2014). Samakatuwid, kinakailangang malinaw sa manlalaro ang proseso ng paglalaro at ang layon sa pagsasagawa nito. Gayundin, napapaunlad din nito ang aspetong sosyal sa pamamagitan ng interaksiyon at pakikisalamuha sa iba tulad ng paglalaro, pagtatawanan, pakikipagkompetisyon sa kapwa manlalaro.

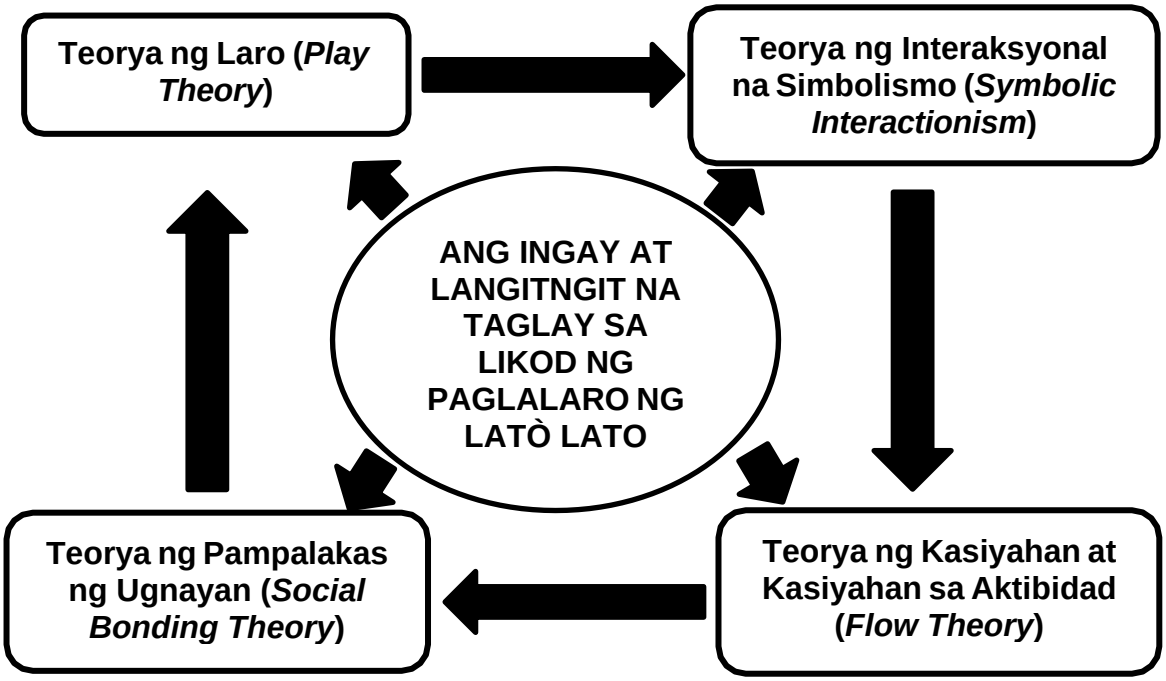
Balangkas Teoretikal

Sa pagpapatibay at pagpapaunlad ng konsepto at daloy ng pag-aaral, gumamit ng mga batayang teorya na may malaking kinalaman sa daloy at sakop ng pag-aaral. Makikita rin ang ugnayan ng mga teorya para sa mas lalong matatag na pag-aaral.

Ang unang teorya ay ang Teorya ng Laro *(Play Theory)* ni Johan Huizinga na nagbibigay-diin sa kahalagahan ng laro sa kultura at lipunan. Ayon kay Huizinga, ang laro

ay hindi lamang isang *pastime* kundi isang mahalagang bahagi ng pagkatao ng tao at nakapaglilinang ng mga kakayahan at pag-unawa sa mundo. Maaaring gamitin ang teoryang ito upang maunawaan ang papel ng Latò Lato bilang isang tradisyunal na larong Pilipino. Ikalawa, ang teorya ng Interaksyonal na Simbolismo *(Symbolic Interactionism)* ni George Herbert Mead na nagpapakita kung paano nakikipag-ugnayan ang mga tao sa pamamagitan ng mga simbolo at kung paano ang mga simbolo ay nagbibigay-kahulugan at nakakaapekto sa mga karanasan at pag-uugali ng mga indibidwal. Sa konteksto ng Latò Lato, ang teoryang ito ay maaaring gamitin upang suriin ang mga simbolikong kahulugan at mga interaksyon ng mga manlalaro habang naglalaro ng Latò Lato maging ang epekto ng simbolo sa ilang aspeto sa buhay ng isa manlalaro.

Ikatlo, ang teorya ng Kasiyahan at Kasiyahan sa Aktibidad *(Flow Theory)* batay sa teorya ni Mihaly Csikszentmihalyi na naglalarawan ng karanasan ng flow o kaligayahan sa pagganap ng isang aktibidad na may sapat na kahusayan at kahirapan. Sa pamamagitan ng teoryang ito, maaaring suriin ang mga karanasan ng mga manlalaro ng Latò Lato at kung paano nila nararamdaman ang kaligayahan at kasiyahan sa pamamagitan ng laro. Panghuli, Teorya ng Pampalakas ng Ugnayan *(Social Bonding Theory)* ni Marko Radenovic na nagpapakita ng kahalagahan ng pampalakas ng ugnayan sa pagitan ng mga tao. Sa pag-aaral ng paglalaro ng Latò Lato, maaaring gamitin ang teoryang ito upang suriin kung paano nakapagpapalakas ng ugnayan at samahan ang laro, lalo na sa komunidad o pangkat na naglalaro nito maging ang mga nabubuong ugnayan at sosyal na pag-unlad sa pagitan ng bawat manlalaro. Ito rin ay magpapatibay ng pag-aaral hinggil sa nabubuong magandang ugnayan ng mga manlalaro at paraan ng kanilang pakikipagkapuwa-tao bilang bahagi ng koordinasyon sa paglalaro ng latò lato.



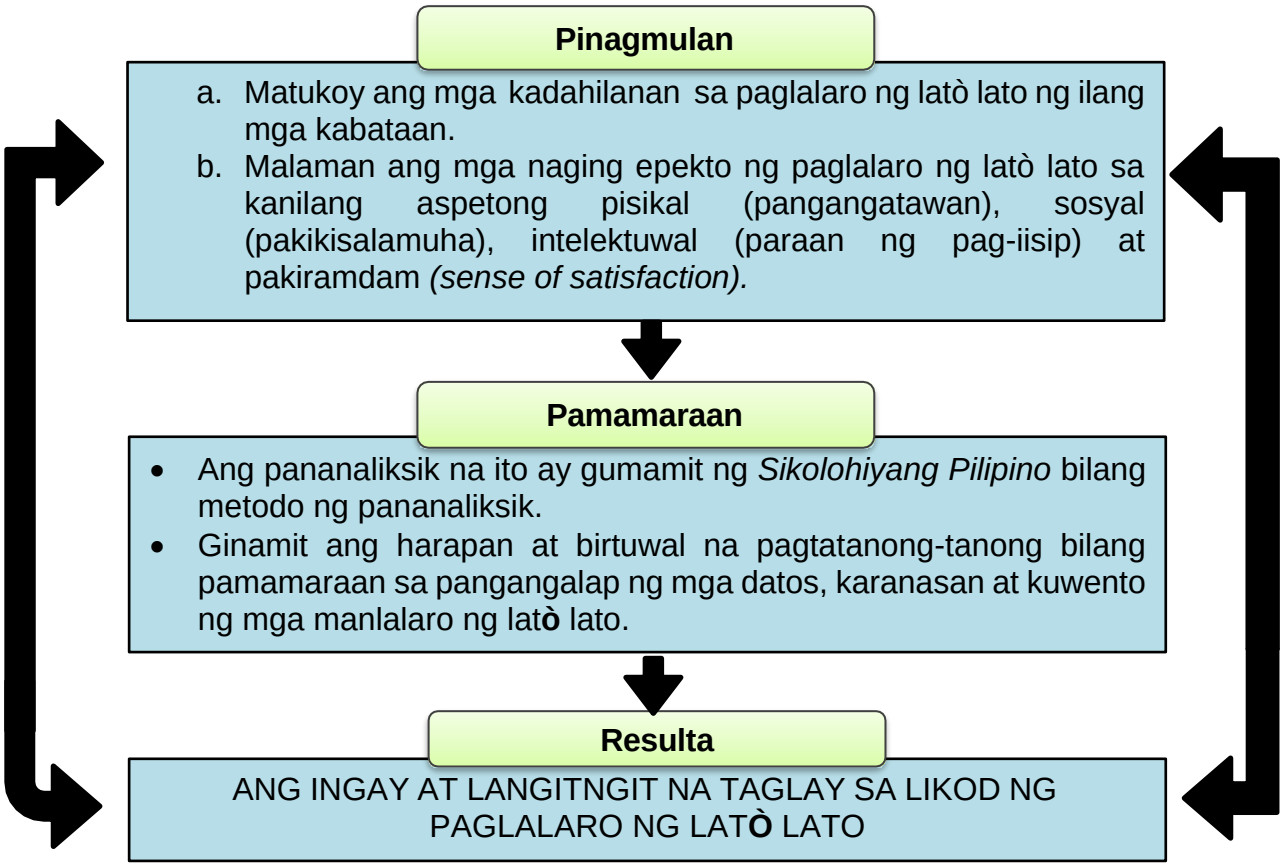
Pigura 1: Balangkas Teoritikal

KONSEPTUWAL NA BALANGKAS

Nakalahad sa unang kahon ang **Pinagmulan** kung saan ito ang bahaging nagsasabi ng pinag-ugatan ng pagsasagawa ng pananaliksik at mga naging tuon sa mga datos at impormasyong nilalayong makuha. Binibigyang-pansin sa pag-aaral na ito ang mga sumusunod; a.) matukoy ang mga kadahilanan sa paglalaro ng lato lato ng ilang mga kabataan, b.) malaman ang mga naging epekto ng paglalaro ng lato lato sa kanilang aspetong pisikal (pangangatawan), sosyal (pakikisalamuha), intelektuwal (paraan ng pag-iisip) at pakiramdam *(sense of satisfaction).*

Ikalawa, ang kahon ng **Pamamaraan** ay naglalaman ng mga hakbang na ginawa ng mga mananaliksik upang maisakatuparan ang mga kahingian sa kahon ng pinagmulan. Ginamit ang metodong sikolohiyang Pilipino bilang metodo ng pananaliksik sa pagsasagawa ng isang kwalitatibong pag-aaral. Ang pamamaraan ng harapan at birtuwal na pagtanong-tanong ay nakatulong sa pangangalap ng mga impormasyon at mga karanasan ng mga kalahok ng pag-aaral.

Ikatlo, ang kahon ng **Resulta o Kinalabasan** na nagsisilbing tugon sa suliranin ng pananaliksik. Dito natukoy ang mga kadahilanan sa paglalaro ng lato lato, maging ang epekto nito na tumutukoy sa ingay at langitngit na taglay sa likod ng paglalaro ng latò lato maging ang mga posibleng kahinatnan sa patuloy na paglalaro ng latò lato.



Pigura 2: Konseptuwal na Balangkas

Mga Suliranin ng Pag-aaral

1. Ano ang mga kadahilanan sa paglalaro ng latò lato ng ilang mga Kabataan?
2. Ano ang mga naging epekto ng paglalaro ng latò lato sa kanilang aspetong pisikal (pangangatawan), sosyal (pakikisalamuha), intelektuwal (paraan ng pag-iisip) at pakiramdam (*sense of satisfaction*)?

METODOLOHIYA

Ang ginamit na metodo ng pananaliksik ay Sikolohiyang Pilipino. Ang Sikolohiyang Pilipino ay isang perspektibang sikolohikal na naglalayong pag-aralan at maunawaan ang karanasan, kaisipan, at kultura ng mga Pilipino mula sa loob mismo ng kanilang konteksto. Ito ay isang pambansang paraan ng pag-aaral ng sikolohiya na nagtataglay ng mga Pilipinong pagpapahalaga, konsepto, at pamamaraan (Javier, 2016). Sa ilalim ng metodong ito, ginamit ang paraang pagtatanong-tanong bilang paraan ng pangangalap ng mga datos at impormasyong kakailanganin sa pag-aaral.

Ang pagtatanong-tanong at pakikipagkuwentuhan ay mga pamamaraan ng pagkalap ng mga datos na may pakikipagkapuwa. Sa pagsasagawa ng pananaliksik ginagamit ang mga ito dahil gamay na natin ang mga paraang ito ng pagbatid sa nais malaman, matuklasan o matutuhan ((Javier, 2016). Hindi isang salita lamang na tanong ang ginamit sa pagtatanong-tanong, inuulit ang katagang tanong. Ang isang salita na tanong ay pasibo samantalang ang tanong-tanong na may pag-uulit ay aktibo. Isinagawa ang paraang pagtatanong-tanong ng mga posibleng naglalaro ng lato lato mula sa ilang mga kabataan.

Gayundin, nalaman na rin ang iba pang posibleng kapanayamin tungkol sa kanilang karanasan at ang epekto sa kanila ng paglalaro ng lato lato. Sa pagsasagawa ng pagtatanong-tanong, inihanda ang ilang katanungan na nakatuon sa suliranin ng pananaliksik; 1.) Ano ang nagtulak sa iyo sa paglalaro ng latò lato? 2.) Ano ang epekto ng paglalaro ng lato lato sa iyong aspetong pisikal (pangangatawan), sosyal (pakikisalamuha), intelektuwal (paraan ng pag-iisip) at pakiramdam *(sense of satisfaction)?* Ito ang binigyang-pansin sa pangangalap ng mga kuwento hinggil sa kanilang karanasan sa paglalaro ng latò lato at ang mga epekto nito sa kanilang pisikal, sosyal, emosyonal at intelektuwal. Nagkaroon din ng mga impormal na pakikipagkuwentuhan na kung saan ang mga mananaliksik ay hinayaan lamang magkuwento ang mga kalahok tungkol sa kani-kanilang mga karanasan na hindi isinasaalang-alang ang ilang katanungang binuo upang malayang makapagbahagi ang ilang kabataan ng kani-kanilang mga personal na karanasan. Isa rin sa mga pamamaraang isinagawa ay mismong ang mga mananaliksik ang sumubok na maglaro ng nasabing lato lato upang pasukin ang kultura ng paglalaro ng latò lato at magkaroon ng pansariling analisis sa naging implikasyon nito sa ilang ulit na pagsubok sa paglalaro ng latò lato.

RESULTA AT PAGTALAKAY

Lumalabas sa pitong kalahok na tinanong at nakakwentuhan ng mga mananaliksik hinggil sa kadahilanan sa paglalaro ng latò lato. Karamihan sa mga naglalaro ay may pare-parerhong kadahilanan ng paglalaro ng latò lato. Inilahad ang kanilang mga palayaw matapos nilang bigyang-pahintulot ang mananaliksik para sa mas epektibong pagtalakay sa nilalaman ng pag-aaral. Batay sa kanilang mga naging salaysay, sila ay madalas naglalaro lalo na sa mga bakanteng oras bilang pampalipas oras, pantanggal ng pagod o *stress* at bahagyang paglilibang. Narito ang talahanayan ng mga naging kasagutan ng mga kalahok.

Tanong bilang 1: Ano ang nagtulak sa iyo sa paglalaro ng latò lato?	
KALAHOK	**KASAGUTAN**
Kulot	*“Dahil walang magawa sa bahay ha ha at maraming bata ang naglalaro ng lato lato kaya sinubukan ko ito at nagustuhan ko kahit hindi man ako magaling dito at least I tried. Keme!”*
Lance	*“Dahil sa pagsikat ng laruang ito tsaka yun’ ang palaging na pop-up sa notif ko eh.”*
Hanny	*“Dala po ng aking kuryosidad mula sa mga mag-aaral sa elementarya na nakikita kong naglalaro rin nito. Mukha itong madali kapag pinapanood ko ang mga batang naglalaro ng lato lato, ngunit noong ako na po ang nakasubok, napagtanto ko na mahirap pala kaya mas lalo po akong na-challenge na laruin ito”.*
Gab	*“Nakikita ko ito na nilalaro ng mga bata at mag-aaral kaya nahikayat rin ako na subukin ang laruang ito.”*
Russel	*“Nakita ko ang aking pinsan tapos inaya niya akong i-try ang latò lato”*
Tin-tin	*“Marami pong nagtitinda sa aming paaralan, halos lahat po ng kaklase ko ay naglalaro ng latò lato.”*
Alliyah	*“Nakita ko lang po na maraming bata ang naadik sa larong ito kaya po sinubukan ko rin.”*

Talahanayan 1: Mga Kadahilanan sa Paglalaro ng Lato Lato

Mahihinuha mula sa mga naging kasagutan ng mga kalahok na popularidad o napapahon ang isa sa mga pangunahing dahilan ng kanilang paglalaro ng lato lato. Sinuri ni McLuhan (1964) sa kanyang akda na “*Popular Culture and the Mass Media”* ang epekto ng popular na kultura at *media* sa mga tao. Sa kanyang akda, ipinakita niya na ang mga media na nagpapalaganap ng mga popular na kultura, tulad ng mga pelikula, musika, at telebisyon, ay maaaring magdulot ng malaking impluwensiya sa kaisipan at pagkilos ng

mga tao. Ipinapakita ni McLuhan na kapag ang isang tema o produkto ay naging uso at sikat sa *media*, ito ay mas malamang na tatangkilikin ng masa. Gayundin, kahalintulad ng pagsikat ng mga *eGames* kinatigan ni T.L. Taylor (2017) sa kanyang lathala na "*The Rise of eSports: A New Era of Competitive Gaming*" na naglalarawan ng pag-unlad ng eSports bilang isang pamosong industriya ng laro. Ipinapakita niya kung paano ang mga larong tulad ng *Dota 2, League of Legends*, at iba pang kompetisyon ay nakakakuha ng libu-libong manonood at tagahanga sa buong mundo. Ipinapakita rin niya ang pagdami ng mga patimpalak, mga premyo, at ang komunidad ng mga manlalaro na sumusuporta sa mga laro na ito na nagiging daan upang tangkilikin at maging tanyag sa panlasa ng masa.

Sinasang-ayunan din ng pananaliksik nina Ortiz de Gortari at Griffiths (2015) ang pagkakaroon ng *social media* bilang isang pangunahing dahilan ng paglaganap ng mga laro at pagkakaroon ng interes ng masa. Ipinapakita nila kung paano ang pagbabahagi ng mga larong *online* at mga karanasan sa *social media* ay nakaaapekto sa pagiging sikat at kinahihiligan ng isang laro. Kung kaya malaking salik ang *social media* sa pagkakaroon ng kuryosidad ng mga kabataan sa pagdiskubre ng isang laro. Sila ay naeengganyo na subukin ang isang bagay dahil ninanais nilang tuklasin at aktuwal na danasin ang mga ginagawa sa kanilang mga napapanood sa *social media*. Ito rin ay isang mabisang materyal upang hatakin ang interes ng mga manonood o manlalaro lalong higit ang paglalaro ng lato lato. Madaling makuha ang atensiyon ng mga tao kapag aktuwal nila itong nakita o napanood tulad na lamang ng paglathala sa sikat na estasyon na GMA 7 ang Kapuso mo- Jessica Soho (KMJS) ang pagtutok nila sa *segment* na may pamagat na "Bata, nagkapasa-pasa ang braso dahil sa laruan na latò lato? Itinampok dito ang ilang mga kabataang naglalaro ng lato lato sa mga kalsada at iskinita mapa bata man o matanda ay umalingawngaw ang tunog ng latò lato o tinatawag ding *toy cracker*. Dahil sa epekto ng ganitong panoorin mas marami pa rin ang patuloy na naglalaro ng latò lato kahit na sinasabi ng ilang eksperto na ito ay may kaakibat na peligro.

Tanong bilang 2: Ano ang epekto ng paglalaro ng lat**ò** lato sa iyong aspetong pisikal (pangangatawan), sosyal (pakikisalamuha), intelektuwal (paraan ng pag-iisip) at pakiramdam *(sense of satisfaction)*?	
KALAHOK	**KASAGUTAN**
Kulot	*"Actually, nagkaroon ako ng mga pasa sa braso bunga ng pagtama ng lato lato, pero feeling ko mas napagtibay ang aking pakikisalamuha at pakikisama sa kapwa ko gumagamit ng lato lato lalo na sa mga bata, kasi parang bonding ba? mas napapagana ko ang aking isipan sapagkat kinakailangan ko ng presence of mind at nagkaroon ng kakaibang satisfaction sa aking kalooban sa tuwing ako ay nakakagamit ng laruan na ito. "*

Lance	*“Ano ng aba? Tingin ko sa pisikal na aspeto po, masasabi kong negatibo ang naging epektibo nito sapagkat nagkaroon ako ng isang mahaba at malaking pasa sa aking kanang braso dala ng paulit-ulit na pagtama ng laruang ito. Sa sosyal na aspeto naman po, masasabi kong tunay na nakaeengganyo ang paglalaro nito kaya naman nagkasundo kami ng aking mga kaklaseng naglalaro rin nito. Sa intelektuwal na aspeto naman po, tunay na na-challenge ang aking isip sa kung paano ko mapapatagal ang pagtunog ng lato lato lalo na dahil iyon ang pinaka-challenging na parte sa paglalaro nito. Kung sa aspetong pakiramdam naman po, talagang nakararamdam ako ng saya sa tuwing napapatagal ko sa pagtunog ang lato lato na siyang nagtutulak sa akin upang mas laruin pa ito.”*
Hanny	*“It really hurts talaga sir, nagkaroon ako ng maliliit na pasa sa aking wrist mula sa mga nabigong pagsubok sa paglalaro ng lato-lato, wala itong masyadong epekto sa sosyal maliban sa madaliang kasiyahan ng aming kasamahan kapag tuloy tuloy ang tunog ng lato lato. Sa aking kakahayan sa pag obserba sa kadahilanan na dito ko natutunan ang pagpapatunog at pagpapanatili na paggalaw ng laruan, mataas naman ang natatamo ko na satisfaction sa paglalaro ng lato-lato”.*
Gab	*“Marami akong natamong mga pasa sa aking kamay, sa pakikitungo naman sa mga tao, nagawa kong ipagyabang ito dahil marami ang nahihirapang laruin ang lato lato, ang epekto naman ng lato lato sa aking pag-iisip, naging mas matiyaga ako at maingat, sa aking pag-iisip, at noong magaling na akong maglaro ng lato lato, nakaramdam ako ng ginhawa dahil nga marami ang nahihirapang laruin ang lato lato.”*
Russel	*“Sa pisikal naman nagkaroon ako ng mga pasa sa aking kamay at sa sosyal naman, nakisama ako sa mga bata sa aming barangay at naglaro rin ng lato-lato. At sa intelektuwal naman, natuto ako hanapin ang center of mass para ang lato-lato ay malaro ng maayos at sa aking pakiramdam, kapag ako nakakalaro ng lato-lato hindi ko mapigilin ang aking sarili na hindi maglaro kahit nagkakaroon akong mga pasa”*

Tin-tin	*“Nagkaroon po ako ng pasa sa kamay ‘yun lang po sa ngayon.”*
Alliyah	*“Nagkaroon po ng bukol sa braso, pinagalitan po ako, wala po, wala na po.That’s all. Bye”*

Talahanayan 2: Epekto ng Paglalaro ng Latò Lato

Mahihinuha mula sa mga kasagutan ng mga kalahok ang iba’t ibang epekto ng paglalaro ng latò lato na hinati-hati sa ilang aspeto. Sa aspetong pisikal, isa sa mga tinitingnan ng ilang mga pag-aaral at iskolar na ang larong lato lato ay nagdudulot ng mga pasa o sugat sa ilang bahagi ng katawan lalong higit sa kamay at pulso ng manlalaro. Ayon kay Tabago (2014), ang ilang laro ay maaaring pumukaw ng matinding damdamin at pagpapalakas ng kamalayan sa mga kalahok, kaya maaaring magresulta sa mga pasa at sugat dahil sa pagiging aktibo at masigla sa paglalaro. Maaaring maging anyo rin palakasan o kompetisyon kung saan kailangang ipakita ng mga kalahok ang kanilang lakas, tibay, at abilidad sa paglalaro ng latò lato na humahantong sa mga hindi inaasahang marka sa kanilang katawan partikular sa kamay, pulsuhan at daliri.

Isa rin sa mga nakikitang dahilan ni Tabago ay ang kagamitang ginagamit na mula sa mga simpleng materyales tulad ng kahoy, bato, tsinelas at iba pa. Ang mga ito ay maaaring maging sanhi ng mga pasa at sugat kapag nagsusumikap ang mga kalahok na gawin ang mga hamon na kasama sa laro. Subalit, sa positibong pananaw naman makikita ang iba’t ibang magagandang naidudulot ng paglalaro ng latò lato. Isa na rito ang, *Physical Fitness* sapagkat ang paglalaro ng Latò Lato ay isang aktibong laro na nangangailangan ng paggalaw, pagtakbo, pag-akyat, at paglusong.

Sa pamamagitan ng regular na paglalaro ng laro, nagiging mas aktibo at mas malakas ang katawan ng isang manlalaro. Ang aktibidad na ito ay nagpapalakas ng mga kalamnan, nagpapabuti sa *cardiovascular health*, at nagpapababa ng timbang. Ang Latò Lato rin ay nagpapabuti sa mga motorikong kasanayan tulad ng paggalaw, paglusong, at pag-balanse. Ang mga manlalarong naglalaro nito ay kailangang maging maalisto at mabilis sa pagtakbo at pag-igting upang maiwasan ang pagkakabagsak o pagiging "tumbang preso." Sa paglipas ng panahon, nagiging mas magaling at mas matatas ang mga manlalaro sa kanilang motorikong kasanayan. Karagdagan pa, ang Latò Lato ay isang laro na nangangailangan ng mabilis na mga kilos at agarang mga desisyon. Dahil dito, nagiging mas alerto at mabilis ang mga *reflexes* ng mga manlalaro sa pagsagot sa mga sitwasyong nagtatakda ng kanilang pagtakbo, pag-atras, o pagtalon at higit sa lahat ang regular na paglalaro ng Latò Lato ay nagpapalakas sa resistensya at *stamina* ng mga manlalaro. Sa paglipas ng panahon, mas nagiging matagal at mas madaling makayanan nila ang pisikal na mga hamon ng laro (Caluza, 2013).

Sa usaping sosyal naman pagdating sa pakikitungo at pakikisalamuha ng mga manlalaro, naging maayos at kasiya-siya ang naging resulta at impak ng paglalaro ng latò lato. Dahil sa nauuso na rin ang “latò lato *challenge*” sa ilang *social media platforms* tulad ng *tiktok, reels* at *facebook* maging ang mundo ng kulturang popular ay pinasok na rin ng mundo ng latò lato kung kaya’t higit na mas napapaunlad nito ang iba’t ibang kasanayan ng tao sa aspetong sosyal. Una, ang Latò Lato ay kadalasang nilalaro ng isang grupo na kung saan kinakailangan ang kooperasyon ng mga manlalaro upang

tumagal ang paglalaro at pagtunog ng latò lato. Sa pamamagitan ng paglalaro ng Latò Lato, natututo ang mga manlalaro kung paano magtrabaho sa isang grupo, paano makipag-ugnayan sa kanilang kapwa, at paano magtulungan upang makamit ang isang layunin.

Ang mga kasanayang ito ay mahalaga hindi lamang sa larong ito kundi pati na rin sa tunay na buhay at sa iba pang *social settings*. Ikalawa, sa Latò Lato, ang mga manlalaro ay kailangang magkaisa at magkaintindihan upang maiwasan ang mga pagkakamali. Ang mga manlalaro ay nag-uusap at nagbibigay ng mga direksyon sa isa't isa upang maisakatuparan ng maayos ang kanilang mga hakbang. Ang pagsasanay sa pakikinig at pagpapahayag ng kanilang mga ideya ay nagpapabuti sa kanilang abilidad na mag-ugnayan at magkaroon ng malinaw na komunikasyon sa ibang tao. Ikatlo, ang Latò Lato, tulad ng iba pang laro, ay nagtuturo ng pagiging mabuting kalaban at paggalang sa kapwa manlalaro. Kapag naglalaro ng Latò Lato, ang mga manlalaro ay natututong maging mapagpakumbaba sa tagumpay at maging mapagbigay-kaya sa kabiguan. Ang pag-unawa at pagtanggap ng mga limitasyon ng bawat isa at ang respeto sa mga kalahok ay mahalagang aspeto ng *sportsmanship* na nagpapalakas sa pagkakaisa ng grupo at pagpapahalaga sa pakikitungo sa kapwa.

Panghuli, ang mga manlalaro ay nakakaranas ng pakikipag-ugnayan sa iba't ibang tao, kahit na hindi nila kilala nang lubusan. Ito ay nagpapalawak ng kanilang *social circle* at nagbibigay-daan sa kanila na maging mas komportable at kumpiyansa sa pakikipag-usap at pakikitungo sa iba. Ang mga *social skills* na ito ay mahalaga sa personal at propesyonal na aspeto ng buhay (Almo, et.al 2018). Sa kabuoan, ang Latò Lato ay nagpapaunlad ng mga kakayahang *interpersonal* ng mga manlalaro, tulad ng *teamwork, communication, sportsmanship,* at *social skills*. Ito ay nagbibigay-daan sa kanila na maging mas maligaya at matagumpay sa kanilang mga pakikipag-ugnayan sa kapuwa. Ngunit, mahalagang tandaan na ang pag-unlad ng mga kakayahang ito ay hindi lamang bunga ng laro mismo, kundi ng paraan ng pagtuturo at paglalaro ng mga guro at mga magulang. Kaya't ang aktibong pakikilahok at paggabay ng mga matatanda ay mahalaga upang mapalawak ang benepisyo ng Latò Lato at iba pang larong tradisyonal sa pagpapaunlad ng *social skills* ng mga kabataan.

Sa kabilang banda, malaki ang hatak ng paglalaro ng Latò Lato sa aspetong intelektuwal ng mga manlalaro. Ang mga elemento tulad ng diskarte, pag-iisip, at pakikipag-ugnayan sa kapuwa ay isa sa mga pundasyong kognitib sa paglalaro ng latò lato. Isa na rito ang pagpapalakas ng paggamit ng memorya at mga *cognitive skills* tulad ng pagsasalita, pagbasa, at pagbibilang. Ang mga manlalaro ay maaaring gumamit ng mga taktika at mga numerong kasanayan upang matagumpay na mapagtulungan ang laro. Gayundin, ito ay nagbibigay-daan sa mga manlalaro na maging mas intelehensiyang emosyonal. Ang paglalaro ng laro ay nagpapalawak ng kanilang mga karanasan at pakikipag-ugnayan sa iba, kaya't natututo silang mag-unawa at magpakiramdam sa damdamin ng ibang tao. Ito ay nagpapalakas ng kanilang pagiging sensitibo at empatiya sa kapuwa.

Karagdagan pa, ang Latò Lato ay isang mabilis na laro na nangangailangan ng mabilisang reaksyon at pagtugon sa mga pangyayari. Sa pamamagitan ng madalas na

paglalaro nito, natututo ang mga manlalaro na maging *focused* at mas maalam sa pagtutok sa aktuwal na sitwasyon ng laro. Ito ay nagpapabuti sa kanilang kakayahang mag-*concentrate* at makapag-isip nang mabilis sa iba pang mga larangan ng buhay. Sinasabi rin na ang paglalaro ng Latò Lato ay nagpapalakas ng *spatial awareness* o pagkaalam sa paligid at kamalayan sa posisyon at galaw ng mga kasamahan at kalaban. Ang mga manlalaro ay kailangang maging sensitibo sa paligid upang maiwasan ang pagkabagsak o pagtama sa ibang manlalaro. Bukod dito, ayon kay Gonzales, binabanggit niya na kinakailangan din ang kakayahang mabilis na mag-*adjust* at mag-desisyon batay sa mga pangyayari sa laro, kaya't nagpapalakas ito ng *cognitive flexibility* o pagiging madaling bumuo at magpalit ng mga ideya o plano (Gonzales, 2018). Pinatutunayan na lubhang napakaraming mabubuting epekto sa aspetong intelektuwal ang paglalaro ng lato lato subalit ito rin ay humantong sa adiksyon dulot ng labis na pagkahumaling sa paglalaro nito. Inaasahan din ang patnubay at gabay ng mga magulang lalong higit sa mga batang naglalaro nito upang magkaroon ng limitasyon at disiplina sa paglalaro nito.

Nakakabawas ng *stress*, nakakatuwa at nakakalibang. Ilan lamang sa mga naging kabuoang *satisfaction* o kasiyahang naranasan ng mga manlalaro ng lato lato. Ito ay maaaring nag-ugat sa iba’t ibang dahilan. Una, ang Latò Lato ay isang laro ng grupo na nagpapakilos sa mga manlalaro upang makipag-ugnayan sa isa't isa. Ito ay nagbibigay ng pagkakataon sa mga manlalaro na makipag-interaksyon, makipaglaro, at makipagkaibigan sa iba. Ang mga *social interactions* na ito ay nagbibigay ng kasiyahan at pagkakaroon ng koneksyon sa ibang tao. Ikalawa, ang paglalaro ng Latò Lato ay nagbibigay ng pagkakataon sa mga manlalaro na maipakita ang kanilang mga kasanayan at kakayahan sa laro. Ang pagkamit ng mga tagumpay at pagpapaunlad ng kanilang mga abilidad ay nagdudulot ng kasiyahan sa kanilang sarili. Ikatlo, ito ay isang tradisyonal na laro ng Pilipino na may malalim na kasaysayan at kultura. Ang paglalaro ng larong ito ay nagbibigay ng kasiyahan sa mga manlalaro dahil sa pagpapahalaga at pag-alala sa mga tradisyon ng kanilang bansa. Panghuli, ayon kay Lamug, ito ay sumusubok ng kakayahan ng manlalaro na mas lalong nagpapasidhi sa kanya upang pagbutihin ang kanyang paglalaro na nagiging dahilan upang sila ay malibang, kagyat na malimot sa oras at mabawasan ang *stress* na kanilang nararanasan (Lamug, 2005).

Samakatuwid, ito ay isang mabisang paraan ng pagkawala ng *stress* ng isang tao at magkaroon ng kagyat na kasiyahan sa pakiramdam lalo na kapag napapakinggan nila ang sunod-sunod na tunog ng lato lato na kanilang pinag-uumpukan.

Kongklusyon

“Nakakairita, masakit sa tenga at nakakainis pakinggan”. Iyan ang paulit-ulit na ibinabato ng komunidad sa mga manlalaro ng latò lato. Kung hindi minsan, madalas din silang itinataboy sa matataong lugar sapagkat sila raw ay nakakaistorbo sa mga taong nagpapahinga at ang masaklap pa ay nagdudulot ng *noise pollution*. Ito ang mga paratang na mas masakit pa sa pasa at sugat na tinamo dulot ng paglalaro ng latò lato.

Sa kabilang anggulo, sinipat ang ingay at langitngit ng paglalaro ng latò lato kung saan ito ay may malaking implikasyon sa iba’t ibang aspeto sa buhay ng isang tao lalong

higit sa mga manlalaro. Tinitingnan ng pag-aaral na may malaking impluwensiya ang *social media* at kulturang popular upang hatakin ang madla sa saglit na pagtapon ng paningin sa mga *videos* at *challenge* na ginawa ng mga manlalaro ng lato lato sa iba't ibang panig ng Pilipinas maging sa buong mundo. Tunay ngang, mabilis manganak ang mass media ng mga karanasan at kultura na ipinamamalas ng tao sa kani-kanilang komunidad. Pinatotohanan nito na ang paglalaro ng lato lato ay may malalim na kultura at kasaysayan. Sumasalamin ng tradisyon, pumapanday ng mga karanasan at humuhulma ng masasayang alaala tungo sa holistikong paghubog ng isang tao. Ngayon natin sabihin na nakakairita, nakakainis at nakakaistorbo ang paglalaro ng latò lato kung ito ay hitik sa magagandang bunga. Napagtanto ng pag-aaral na;

1. Ito ay may malaking hatak sa mundo ng *mass media* kung kaya muling nabuhay ang paglalaro ng lato lato at madaling kumalat ang impluwensiya nito lalong higit sa mga kabataan sa milenyal na panahon.
2. Kapana-panabik ang bawat salpukan na humahantong sa kagyat na kasiyahan ng mga manlalaro na nagbibigay sa kanila ng sukdulang *satisfaction* lalo na kung ito ay latò lato *challenge.*
3. Pokus at talas ng memorya na isa sa mga sangkap sa matagumpay na paglalaro ng lato lato na humuhubog din ng personalidad ng isang manlalaro dahil sa inilalaang konsentrasyon at talas ng pag-iisip at mahusay na taktika sa mga kilos at gawi na kinakailangang gawin upang mapanatili ang salpukan ng lato lato sa mahabang oras o panahon.
4. Nagpipreserba ng kasaysayan, pinapayaman ang kultura at muling ipinapanganak ang mga nangyari sa kasaysayan sa makabagong panahon.
5. Pinatatatag ang koordinasyon at pakikipagkapuwa-tao na humahantong sa matibay na koneksyon, ugnayan at pakikisalamuha sa iba.

Mula sa mga nabuong paglalagom ay mahihinuha na talagang malayo na narating ng ingay at langitngit na dulot ng paglalaro ng latò lato.

Rekomendasyon

Batay sa mga natuklasan at sa mga kongklusyong nabuo ng pananaliksik, iminumungkahi ng mga mananaliksik na magkaroon pa ng mga ipapanganak na pag-aaral na maaaring saklawin ang mga reaksyon ng komunidad sa paglalaro ng latò lato. Gayundin, maaaring pasukin ang hatak ng *mass media* sa pagpapaunlad ng mga tradisyunal na larong Pilipino tulad ng latò lato na minsan ng tinalikuran ng lipunan at natabunan ng mga *online* at *e-games* na umakit sa milenyal na panlasa.

Etikal na Pagsasaalang-alang

Ang pananaliksik na ito ay sumunod sa mga etikal na pamantayan at alituntunin. Bago sinimulan ang pag-aaral, lahat ng mga kalahok ay nagbigay ng kanilang pahintulot para sa kanilang partisipasyon. Ipinaalam sa mga kalahok ang layunin ng pag-aaral, at

ang mga datos na makakalap ay magiging kumpidensyal at isaalang-alang ang isyung etikal gayundin nabanggit na gagamitin lamang para sa nasabing pananaliksik.

Gayundin, ang pagsasagawa ng pananaliksik ay may pagsang-ayon at koordinasyon sa mga kinauukulan sa paaralan, partikular sa mga namumuno gayundin ang pahintulot ng mga magulang at mag-aaral na kalahok sa isinagawang panayam. Sa ganitong paraan, ang pananaliksik na ito ay isinagawa nang may integridad, pagsunod sa mga etikal na pamantayan, at pagbibigay ng paggalang at proteksyon sa mga kalahok at kanilang impormasyong ibinahagi sa panayam na isinagawa.

Pasasalamat

Labis ang aming pasasalamat sa Panginoong Diyos na nagbigay sa amin ng liwanag at lakas upang matagumpay na maisakatuparan ang pananaliksik na ito.

Sa aming pamilya at mga tapat na kaibigan, nagpapasalamat kami sa walang sawang suporta at pagbibigay inspirasyon sa amin sa bawat hakbang ng aming pananaliksik. Hindi matatawaran ang inyong pagmamahal na nagsilbing lakas at gabay sa bawat pagsubok na aming napagtagumpayan.

Sa aming tagapayo, Ma’am Rose Ann DP. Aler na siyang naging gabay at tanglaw sa bawat hakbang ng aming pag-aaral. Ang inyong karunungan at pagmamalasakit ay nagturo sa amin ng tamang landas at nagbigay ng kumpiyansa upang harapin ang anumang hamon sa panahon ng aming pananaliksik.

At higit sa lahat, sa mga kalahok sa aming pananaliksik na hindi nag-atubiling magbigay ng kanilang oras, kaalaman, at pananaw upang mapalalim ang aming pag-unawa sa napiling paksa. Ang inyong pagtitiwala at pagiging bahagi ng aming pag-aaral ay nagdagdag ng bagong perspektiba at karagdagang kaalaman sa aming paksa. Isa kayo sa naging daan upang maisakatuparan ang pag-aaral na ito.

Sa lahat ng ito, taos-pusong pasasalamat ang aming ipinaabot sa bawat isa. Hindi namin mararating ang tagumpay na ito nang hindi dahil sa inyong pagmamahal, suporta at tulong. Ang inyong kontribusyon ay labis na pahahalagahan at iingatan.

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A QUALITATIVE STUDY ON THE SLANG WORDS AND SOCIO-CULTURAL EXPRESSIONS OF THE PAMPANGOS

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ABSTRACT

This study is designed to find out the commonly used slang words and socio-cultural expressions of the Pampangos. The Pampangos or Kapampangan people are settling at the heart of Central Luzon in the Philippines. They are considered to be one of the largest ethnolinguistic groups in the country and are also known for their diverse cultures and practices. The research is intended to know how the language users use the slang words and the sociocultural usage of such words in their communicative settings. Thus, the researcher managed to form a conclusion supported by the theories and principles of language. This paper also provided information regarding the formation, evolution and adaptation of the Pampango socio-cultural expressions. The researcher applied the principle and strategy of thematic analysis as a method of qualitative research where in actual interview with the participants was applied and the process of transcribing the interview was also utilized. The study has identified the slang words and socio-cultural expressions of the Pampangos such as pu or opu, patawas me, bari-bari apu, tawu, taksyapo, dyandirit, misdan a yatut, pasirkulatuk, borbolen, o-jo, alang-atdo, arya, keni, diyablus, salibatbat and atin yang ditak. The said terminologies and expressions were also analyzed using the principles of language. The researcher presented in the result of the study the determined socio-cultural expressions using Austin's theories of illocutionary acts, Searle's principles of speech acts and Halliday's principles of the functions of language.

Keywords: *Pampangos, Slang, Socio-cultural, Expressions, Principles, Language*

INTRODUCTION

Language is said to be the most effective and powerful tool of communication. Hymes (1964) pointed out that one may view language as a powerful and essential means of human communication. It is through language that every person is bound by common objectives and norms. Language plays an important role in understanding people, their social and cultural environment. Halliday (1975) also added that Language is used to ensure social maintenance. In a wider sense, this function refers to all uses of language which help to define and maintain groups: teenage slang, family jokes, professional jargon, ritualistic exchanges, social and regional dialects.

It is through language that the culture of a certain speech community is inculcated. Hence, Language and Culture are always related. Culture pertains to the general views of a people in their society. These general views are based on their beliefs, traditions and socioeconomic living which unite them through common goals and perceptions. Every individual belongs to a culture that helps and molds him about his role in the society. Moreover, this culture serves as his foundation in attaining quality of life. The essence of culture is being passed through generations with the use of a dynamic code called “language”. While the child learns his native tongue, he also acquires his culture. The words which were included in the lexical context of a language are strong indicators of the kind of practices people apply in their social settings which replicate their cultural identities.

The lexical context of a Language involves the things that the respective speaking communities value in their own means. For instance, the Filipinos have various terminologies on the different types of rice like palay, bigas, kanin, lugaw and sinangag. There are also more terminologies on its kind like malagkit, denorado, wagwag and sinandomeng while in the American setting the only term for bigas is rice. That’s why they also have the terminologies like rice grain and fried rice and more. The Filipinos don’t’ have native word for “snow” but we only adapt the Spanish word “nieve” to refer to it. Therefore, Language is the one that crafts the essence of a certain culture. It is also the one that connects one culture to another.

Every society has a native language. A society is composed of a speech community which involves people with different social orientation based on their socioeconomic status, ethnicities and roles that they play. One of the bases of language variations is the differences of the group of people which are embodied in the structure of a society. This variation is called “sociolect”. Such examples are differences between the vocabulary of children to the adults, gay lingos or secret gay codes called “argot” which are commonly used in the mainstream and the language differences between males and females. In relation to this, every person in the society has his own way of language use and this is called “idiolect”. This is influenced by the setting where he grew up with and the place where he belongs. Another language variation is the “register” which is defined according to its use in social situation. As what Halliday points out that this pertains to the level of formalities of language and a complex scheme of communicative behavior. Such examples are the formal speech, non-formal speech, slang and vulgar speech.

This study is focused on the slang words and socio-cultural expressions that are widely and commonly used by Pampangos. The Kapampangan people or Pampangos live in the provinces of Pampanga, Tarlac and some parts of Zambales. The paper attempted to give justifications on how socio-cultural words are commonly used, adapted or formed. Moreover, it also aimed to find out the cultural use of those words among language users.

Cultural word is a word that only exists in a particular language. It is supported by Baker (1992) who said that “cultural word may express a concept which is totally unknown in other culture”. In addition, cultural word means a word that involves culture in which culture itself, according to Hornby (1995) is “art, literature, music, or other intellectual expression of a particular society or time”. To conclude, cultural word is a specific word for special kinds of “things”, “events” or “customs”, which only exist in one language that cannot be translated literally, because it will distort its meaning.

Agoncillo (1990) stated that the ancient Filipinos, which include the Kapampangans had a culture that was basically Malayan in culture and form. They had written languages that traced their origin to the Austronesion parent-stock and used them as media of daily communication and as a vehicle of their expression of their literary moods. Among the Philippine languages, Tagalog and Pampangan show a close affinity to the Malay language, whether Bahasa Indonesia or that of Malaya.

Salitang kalye (from Spanish, calle or "street"), salitang kanto (street corner) and salitang balbal are the Tagalog terms for "slang". Kalye means "street", thus salitang kalye implies that "slang" is pedestrian language. Kanto means "street corner" where most bums while their time away. Dumas & Lighter (1978) defined slang as the use of highly informal words and expressions that are not considered standard in the speaker's dialect or language. Even within a single language community, slang tends to vary widely across social, ethnic, economic, and geographic strata. Slang sometimes grows more and more common until it becomes the dominant way of saying something, at which time it is regarded as mainstream, acceptable language (e.g. the Spanish word caballo), while at other times it may fall into disuse. Numerous slang terms pass into informal mainstream speech, and sometimes into formal speech, though this may involve a change in meaning or usage.

Filipinos were the ones who coined informal terms such as yosi (cigarette), syota (girlfriend), and sosi (social). The gay community is also proud of its own contributions to the Pinoy slang dictionary: Words such as bagets (young), chika (chat), tsimay (housemaid), and jowa (partner) among others. Pinoy slang is also formed by giving new meaning to already existing Filipino words. Examples of these include ahas (snake, for traitor) and ube (color violet, to mean 100 pesos). In general, Filipinos are fond of inventing words and borrowing foreign terms and use them to add spice to their spoken language. The value of slang in the society will show the dynamicity of language specifically at modern times. It involves and shows culture of language speakers in many walks of life. As what Taylor (1985) said “the range of human desires, feelings, emotions and hence, meanings is bound up with the level and type of culture, which in turn is inseparable from the distinctions and categories marked by the language which people

speak”. The researcher believes that slang processing is a linguistic phenomenon that needs to be considered and must be a subject for academic study.

There are ways regarding the formation of street words in the Philippine setting. Some street words are adapted from the native dialects like gurang (Bicol), bayot (Cebuano) and dako (bisaya). Others are formed by borrowing from foreign languages like the words pikon (pick on, English), tong (Chinese) and Chika (Spanish). Filipinos also are fond of giving new meaning on the tagalog words like hiyas or gem (which may mean virginity) and damo or grass (which may mean marijuana). There are also shortened words like munti (muntinlupa) and Kano (Amerikano).

Partridge (1979) indicated in his study that slang also has its purpose. He said the people use street words as and exercise of wit and ingenuity. People are fond of making things funny out of words. In addition, street words are ways of enhancing positivity and reducing negativity. In some aspects it falls as motivation to overcome life’s problems. Slang can also be a reference of a person in building contacts with his colleagues and develop the sense of belongingness. He even reiterated on the essence of showing that one belongs to a certain school, trade, or profession, artistic or intellectual set or social class.

Kemmer (2001) explained that it is part of the cultural history of language speakers that they have always adopted loanwords from the languages of whatever cultures they have come in contact with. For example, the word “Para” which is a term always used by Filipinos to stop a jeepney, comes from the Spanish word “Parar” which means to stop. Historically based, Philippines had been colonized by Spain, and the 400 years of Spanish supremacy in the country has its eternal influence to the Filipino language. For example, the Spanish word for table, which is "la mesa" has the same usage in Tagalog. Time keeping in Tagalog is also Spanish, like, “a la una y media,” which is 01:30.

Coulmas (1989) pointed out that Language Adaptation examines the process by which a speech community is forced to adopt an active role in making its language suitable for changing functional requirements. He further exemplified that Language Adaptation is a particular aspect of language change, and thus establishes a link between the social and historical study of language. He added that the concept of language adaptation assumes that the speech community is capable of changing its language to meet new communicative needs.

According to Coulmas (1989), the concept of language adaptation assumes that the speech community is capable of changing its language to meet new communicative needs, as German, English, Japanese, and others have. He explained that Language adaptation is usually a gradual and continuous process that goes almost unnoticed by the speech community that can occur by conscious intervention in a linguistic crisis and this can become a political goal involving cultural and linguistic values. Behaviorists view the process of language acquisition as a building process that results from interaction with the environment. (Austin, 1975)

Skinner (1957) also believed that language is acquired through principles of conditioning, including association, imitation, and reinforcement. On the other hand, Hoffer (2002) defined borrowing as the process of importing linguistic items from one linguistic system into another, a process that occurs any time two cultures are in contact over a period of time. Speakers may adopt the item or idea and the source language word for each. Thus, it is believed then that when mindset of the language is acquired, adapted, imitated in a society, the language is being accepted and being integrated in the people, then it becomes already cultural.

Research Questions

The main purpose of this study is to identify and analyze the slang words and socio-cultural expressions of the Pampangos applying the processes and principles of Thematic Analysis. Specifically, the study sought to answer the following questions:

1. What are the commonly used slang words and socio-cultural expressions of the Pampangos?

2. What are the meanings and the formation processes of the Pampango slang words and socio-cultural expressions?

METHODOLOGY

This study applied qualitative research design. Kirk and Miller (1986) mentioned that qualitative research is a distinct tradition in social science that is based on observations of people in their own region and communication with these individuals in their own language and dialect. The researcher used the interview method with the help of linguistic research. The data were gathered through interview and were treated and discussed qualitatively.

The participants of this study constitute 15 informants who are native residents of Tarlac city, Tarlac in Central Luzon. The participants were asked to articulate words and sentences using their native dialect. Those words and sentences were based on the questions being asked about the slang words and socio-cultural expressions of the Pampango language users. The data were listed and analyzed using the method of thematic analysis.

The prepared questions for face-to-face communication served as the primary instrument in gathering the required data. The researcher conducted the interview with the participants' permission in order to get correct and accurate data. The approach guaranteed confidentiality during the interviews. The researcher also explained what is the study all about and how the interview will be kept confidential. In order to answer the above problems, the questions were carefully asked. Data gathered through the interview

were also analyzed and interpreted with the help of language concepts and theories. The use of underlying principles of language added consistency to the research findings.

To make sure that the data gathered are accurate and complete, the researcher reviewed the results of the interview. Transcribing was done simultaneously while the interview is on-going; however, further validation was also done during the review. After which, a thorough analysis of the data was done for categorization of words and expressions. Lastly, as an output of this study, detailed data about the slang words and socio-cultural expressions of the Pampango language users was determined and tabulated.

RESULTS AND DISCUSSION

This chapter presents the results and discussion on the study about the slang words and socio-cultural expressions of the Pampango language users. The commonly used terminologies were identified through the interview with the respondents.

Determined Commonly Used Slang Words and Socio-Cultural Expressions of the Pampangos

Opu/pu

Based on the respondents' answers, it is an expression that is similar with the Tagalog words *"opo"* and *"po"*. These two words are considered in the Kapampangan communities as the most civilized forms of address specifically when the young ones are talking to the elders.

This terminology is commonly used to show respect and obedience towards the elders as they are really given so much value or importance in the community. These two famous words would literally mean yes when somebody acknowledges or answers the question with gratitude.

Meyatu

The Kapampangan community is rich in old beliefs and traditions. Many of the people still believe on the primitive or traditional way of healing sickness. The word *"meyatu"* (nabati in Tagalog) means "being harmed by a certain supernatural force". There are believers who used to go with the albularyos (faith healers) to seek healing for their illnesses. The healers are the ones who declare what particular supernatural force is responsible for one`s suffering or sickness. Based on the said conversation, someone is said to be harmed by a supernatural being called *"tikbalang"* and it is responsible for the sickness. In this case, the one who is sick is then advised to do the *"atang"* or offering for him to get healed. This is a common practice not only in the Pampango community but also in other places in the Philippines.

Patawas me

This term would also mean *"ipatawas mo"* in Tagalog. This is done when someone suffered from a serious sickness and is brought to the albularyo (faith healer) to detect the cause of such sickness. *"Patawas"* is a common word in the community because many of the Pampangos still believe in it. They also believe that someone has this extraordinary power to detect pain or sickness. Faith healers are still present in many communities in Pampanga and Tarlac.

Bari-bari apu

This word is a cultural expression of those people who bare respect when it comes to the unseen beings that can harm humans. This is being uttered whenever somebody walks along along the road at night or any private locations which have no lights. The Kapampangans believe that the unseen beings are just out there and they have to be respected. If not, this will cause problems or chaos such as curse, sickness or even deaths.

Tawu

This word is common among Pampangos during festivities and other social and cultural celebrations. There are religious festivities designed for the saints and patrons of different social groups. In the province of Tarlac for example, the well-known patrons such as Maria Corazon, Lourdes, Santa Catalina and Imaculada Concepcion are among patrons which are annually celebrated through fiestas (festivities).

During these occasions, the Kapampangan culture is being showcased by having different foods and delicacies to serve. These are called "tawu" or "handa" in Tagalog. People recognize Pampanga as the Food capital of the Philippines. This is the reason why food preparation is culturally attributed especially during significant occasions. Even Undas (All Souls Day) and Mahal na Araw (Lenthen Season) are significant days where in the folks prepare for "tawu" or food.

Taksyapo/taknaydo

It is other known as *"hayup"* (*bitch*) that is mostly used in a very funny tone. This has various usages according to the intention of the speakers. This terminology could either be taken seriously or a form of joke.

Dyandirit

This expression is commonly used by the young ones especially those who are always out of the house. A Pampango slang word which expresses that something will not be done or accomplished by a person. This means affirmation that somebody will not be able to do or finish a thing.

Misdan a yatut

This is an expression which means “naïve” or *“tatanga-tanga”*. It has another Pampango counterpart called *“mulala”* which also means “tanga”. When somebody commits mistake, the person will say *“misdan a yatut”* or naïve. This word might really mean negative if the context is negatively serious. But most of the time, this expression is taken as a joke.

Pasirkulatuk

The term is specifically referred to a child whose nickname needs to be changed because the elders believe that it is not a good name. Many people believe in superstition and it is evident in the Pampango setting. If a child keeps on suffering from severe illness, the elder would advise the parents to change his name. The elders also agree that replacing or changing the child’s nickname would mean that they also intend to stop the curse.

Borbolen

This word is a negative expression when somebody did something wrong. The word *“Borbolen”* means “crazy” or “out of his mind”. Other people use the words like “*baliw”* and “*bugok”* to mean crazy.

O-jo

It was derived from the tagalog slang expression which is *“Oh Jowa*” which means *“Oh honey”* or *“Oh my love”*. This expression is used as a form of endearment between two lovers. This is simply an expression of love or liking.

Alang-atdo

This term is the other version for *“alang atdong mapait”* or *“walang mapait na apdo”* (walang isip) in the Pampango setting. This is used to show that someone is not doing well with something because of his negative attitude. This expression is mostly used by the elders to make their children realize their mistakes.

Arya

This is the Pampango word for *“pamahiin”* or superstitious belief. Pampango community is rich in superstitious belief that even the present generation of the Kapampangan youth was able to inherit.

Such word has strong impact on the socio-cultural beliefs that the language users are portraying. The sense of being superstitious is the one that is being preserved or maintained. This belief according to the elders of the community is also evident in other regions or communities in the Philippines.

Keni/Mekeni

When people call out their group of friends, they use the word *"mekeni"* to address them. In other setting, words like *"keni*" , "pards *"mekeni"* or *"dabarkads mekeni*" are also being used to mean friends come with me or come with us. The word *"mekeni"* is often associated to an "individual" or a "group" that is known in Pampanga as bound by friendships and acquaintances.

Diyablus

It refers to a word that is generally understood by the people as a "bad person" or "bitch". It is said to be adapted from another word "*diyablo*" which means Satan or demon. In general, this word is used to refer to someone who is not doing good to others. A person who manifests an evil act or a not so favorable attitude.

Salibatbat

This is the Pampango way of penitence (*penitensya*) that is usually being done during Holy week or *Mahal na araw*. Many people express religiousness during this special occasion and some of them join the group of those who will be having *pamagsalibatbat* or penitence. The performers intentionally hurt themselves believing that it will reduce their sins. The devotees have different way of portraying "*Salibatbat*".

Atin yang ditak

The Filipino translation of this word is "*meron siyang konti*" (he has a little). In Pampango expression, this word is used to refer to someone who is mentally retarded or Psychotic. This expression is used to refer to describe that somebody is suffering from psychological problem or mental illness.

Meanings and Formation Processes of the Pampango Slang Words and Socio-Cultural Expressions

The language Users and their Slang Words and Socio-cultural Expressions.

Austin (1975) pointed out illocutionary acts which are manifested through the use of language. The value of act is always associated with the words that people use. Slang words are parts of the language that people use in conveying intention of speech and utterances of feelings. These words have expressive functions to persuade and convince the listeners.

Table 1 presents the words or expressions which were analyzed based on the categories of speech acts. The types of interlocutors and utterance were also indicated for interpretation. It can also be noted that the researcher was able to show the distinctions of such Pampango terminologies and expressions according to their functions or usages.

Table 1. Based on Searle (1969) five categories of speech act and Halliday's function of language.

Word/ Expression	Category	Interlocutor/s	Utterance	Function
Opu/pu	Declaratives	Young Ones	"Makilabas kami pu" (Can we pass by)	Informing
Meyatu	Declaratives	Elder	"Meyatu ya". (Nabati siya/He was harmed by an unseen being)	Informing
Patawas me	Imperatives	Elder	"Nung masakit ya, patawas me" (Bring him to the faith healer if he is sick)	Advising
Baribari apu	Expressives	Children/Elders	Bari-bari apu, makilabas ke pu (Asking permission. We will just pass by)	Informing
Tawu	Interrogatives	Elder	Nanong tawu yu (What food did you prepare?)	Asking
Taksyapo	Expressives	Elder/ Student	Taksyapo, ot e minta? (Oh my goodness, why he did not come?)	Questioning
Dyandirit	Expressives	Student	Dyandirit e na gawan ita eh! (Oh whatever happens, he will not do that)	Declaring
Misdan a yatut	Informatives	Student	Kamulalan na ne.Misdan a yatut. (He is so naive)	Informing
Pasirkulatok	Imperatives	Elder	Pasirkulatok ye ba yang e sasakit (Please ask to have his name changed so that he will not get sick anymore)	Commandin g
Borbolen	Declaratives	Student	A borbolen. E mo balu ing gagawan mo. (You're crazy. You don't know what you are doing)	Informing
O-jo	Expressives	Elder	O-jo kaluguran daka (Moh Hon, I love you.)	Declaring
Alang atdo	Informatives	Elder	Ala yang atdong mapait ing anak a ini	Informing

			(This child is not doing good)	
Arya	Informatives	Elder	Karakal da arya. (They have a lot of superstitions)	Declaring
Keni	Commissives	Student	Keni tol, mangan tana (Come on brother, let`s eat).	Convincing
Diyablus	Declaratives	Elder	Ala neng gewang masanting ing diyablus (He did not do anything good.)	Informing
Salibatbat	Declaratives	Elder	Megsalibatbat ya. (He did it as form of penitence)	Informing
Atin yang ditak	Informatives	Elder	Atin yang ditak ing kapatad na. (His brother is psychotic)	Informing

The general functions of language according to Halliday (1975) are the instrumental, regulatory, representational, interactional, personal, heuristic and imaginative functions. The instrumental function of language is the “I want function” which is used for suggesting, demanding, persuading, commanding and directing. Regulatory function is for approving and disapproving, answering phone and addressing an action. The representational is used for informing, explaining and making statements while interactional function is for inviting, accepting and joking. The actions like exclaiming, expressing anger and apologizing are under the personal function of language. When a person argues, defines and concludes, heuristic function is applied. On the other hand, the words expressed in literary works and philosophical systems are all imaginative functions of language.

The table below also showcased the words and expressions identified according to language users. Also, presented are the formation processes of the determined Pampango slang words and socio-cultural expressions. The meanings of the determined socio-cultural expressions were also indicated. Based on the analysis of data, the selected Pampango expressions have relevant meanings in the conversation and the words have different formation processes such as word adaptation, borrowing, language blending, coining, word association and connotation. Other terminologies were given other meanings or interpretations that are quite far from their literal meanings.

Table 2. Pampango Slang Words and Socio-cultural Expessions

Pampango Slang Words and Socio-Cultural Expressions	**Meaning of Word for the Language Users**	**Formation Process**
Opu/pu	Yes (in civilized form of address, respectful word)	Adaptation (from the Tagalog word po at opo)
Meyatu	Harmed by an unseen being (nabati in Tagalog)	Definite
Patawas me	Bring to the faith healer/traditional healer	Borrowing from other word /Connotation(word association)
Baribari apu	Tabi tabi po in Tagalog (sorry for the disturbance. We`ll just pass by)	Definite
Tawu	Handa (Food prepared during fiesta)	Definite
Taksyapo/Taklnaydo	What the hell/bitch	Indefinite
Dyandirit	What ever happens	Indefinite
Misdan a yatut	Naïve	Word association/connotation
Pasirkulatok	Change nick name	Definite
Borbolen	Crazy	Indefinite
O jo	Oh my love	Language blending
Alang atdo	Walang apdo (Without bile)	Connotation/putting other meaning to the expressions
Arya	Superstitious belief (Pamahiin)	Definite
Keni	Come with me	Definite
Diyablus	Bad person	Coining
Salibatbat	Penitence	Definite
Atin yang ditak	Psychotic	Word association

It appeared that words "*po"* at "*opo"* in Tagalog are also being used in the Kapampangan dialect as a respectful response to the elders in the community. Other words and expressions such as "*taksyapo", "misdan a yatut", "borbolen", "alang atdo", "dyablus"* and *"atin yang ditak"* are negative expressions which could have serious or funny meanings depending on the contexts.

Some terminologies were just coined or adapted to give lights and twists to words like "*diyablus"* and "*o-jo"*. There are words which are products of word association, connotation, blending and borrowing like "*patawas me", "misdan a yatut", "o jo", "alang atdo"* and *"atin yang ditak".* Other expressions are said to have indefinite formations such as "*taksyapo", "dyandirit"* and "*borbolen"* while the words "*arya", "keni", "meyatu", "bari-*

bari apu", "tawu", "pasirkulatok" and "*salibatbat"* are considered to be definite Pampango words.

Conclusions and Recommendations

The selected slang words and socio-cultural expressions of the Pampangos are evident based on the result of the qualitative study. These socio-cultural words are definitely part of the Pampango sociolects that reflect how rich the Kapampangan language is in terms of culture and tradition. In addition, those words and expressions have value and functions in a speech community with a unique tradition and heritage.

Pampango slang words and socio-cultural expressions have varied meanings depending on the contexts in which the words are used. The words which appeared in the study are strong proofs that Kapampangan being one of the languages in Central Luzon is truly a living language that exists.

The different formation processes of the Pampango slang words and socio-cultural expressions would show the dynamicity and inventive minds of the Pampangos. Words are being borrowed, adapted and formed because that is the nature of language. The dynamicity of Pampango dialect can lead to even broader research on Pampango idiolect and sociolect. Consistent study on Pampango terminologies will give language committee a reason to adapt words which have value for formalization and may be added in the lexicon of the Pampango language and this will serve as a guide in crafting a Pampango socio-cultural dictionary.

Extensive research on the origin, adaptation and formation of the Pampango slang words and socio-cultural expressions may give clearer explanations or justifications on their grammatical structures. Moreover, further analysis on the use of slang may lead to the understanding of this linguistic phenomenon with the focus on preserving local culture and values. Having a deep understanding of the sociolect might justify even more the strong influence of changes in the society as contributory factors to language development.

Compliance with Ethical Standards

Prior to the gathering of data, the researcher prepared the designed materials. Most importantly, the researcher has prepared for the interview questions which served as the primary tools of the research. There was also an appointment set and he also asked permission from the respondents following an ethical form of address. The researcher considered as well the rules in terms of handling confidential information, proper procedure and documentation.

Moreover, the respondents were also advised or informed regarding the mechanics in answering the research questions. The researcher also made sure that the respondents' answers were used strictly for research purposes and not for personal gains

or interest. It was also rest assured that the sources were properly acknowledged or duly cited.

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ASSESSING THE CAPABILITY OF COAST GUARD DISTRICT CENTRAL VISAYAS IN MARITIME SEARCH AND RESCUE OPERATIONS

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ABSTRACT

This study examines the capability of the Coast Guard District Central Visayas in conducting maritime search and rescue operations, focusing on personnel capability, training, operations, assets, and policies and standards. The findings from the demographic and professional analysis reveal a diverse workforce composition. The age distribution shows a mix of early-career professionals and experienced personnel, with a notable male majority (92%). The rank distribution indicates a structured hierarchy essential for effective management. Most personnel hold college degrees, highlighting the emphasis on educational attainment. Years of service show a balanced mix of new talent and experienced staff, with strategic geographical distribution aligning with operational priorities. Respondents' performance in SAR scenarios reveals a readiness to deploy resources swiftly, coordinate with relevant authorities, and utilize specialized assistance. Scenario-based responses demonstrated strategic decision-making and effective utilization of available assets. Significant relationships were found between demographic factors and performance assessments. Age, gender, rank, educational attainment, years of service, and current assignment all correlated with performance, highlighting the influence of these factors on operational effectiveness. Training programs showed a negative correlation with performance, suggesting a need for better alignment between training content and real-world challenges. Challenges identified include deficiencies in qualified maintenance personnel, financial and logistical constraints affecting training, and the need for modernized assets and updated policies. Recommendations focus on enhancing personnel capabilities, improving training programs, optimizing operations, modernizing the fleet, and developing clear policies and SOPs. These initiatives aim to enhance the Coast Guard's operational readiness, efficiency, and response capabilities, ensuring maritime safety and security in the Central Visayas region.

Keywords: *Personnel Capability, Training, Operations, Assets and Policies and Standards*

INTRODUCTION

The Philippines' extensive maritime history and its increasing reliance on marine transportation for international trade underscore the critical importance of maritime search and rescue (SAR) operations. Various technologies and tactics have been developed to enhance SAR operations, including the utilization of unmanned aerial vehicles (UAVs) and advanced communication systems. The Philippine Coast Guard (PCG), established in 1980, has maintained a record of maritime SAR occurrences involving response assets and personnel stored in the Search and Rescue Program Information Management System (SISAR) (Stoddard & Pelot, 2020). This database provides valuable historical data that analysts use to support decision-making for SAR operations. Technological advancements have increasingly incorporated UAVs in maritime SAR operations due to their potential in identifying missing persons during missions. Reliable communication channels, such as Long Term Evolution (LTE) and the Multipath TCP (MPTCP) protocol, have been explored to enhance UAV communication dependability in maritime SAR missions (Güldenring et al., 2019).

Recent years have seen a focus on enhancing mission-critical communication (MCC) networks and devices for SAR operations at sea. The 5G network, artificial intelligence, and edge computing are being researched to improve maritime SAR operations (Paladin et al., 2023). Inter-organizational simulation has been utilized as a training tool for marine SAR operations, allowing organizations to learn from past incidents and improve joint mission performance. The use of historical data has been investigated for dynamically routing post-disaster assessment UAVs, showing potential for creating artificial scenarios to test and develop tools for disaster response (Grogan et al., 2023).

Under Republic Act 9993, also known as the "Philippine Coast Guard Law of 2009," the PCG is mandated to perform Maritime Search and Rescue, Maritime Law Enforcement, Maritime Safety, Maritime Environmental Protection, and Maritime Security (R.A. No. 9993, 2023, as cited by Batalla 2023). The PCG's primary role in SAR operations involves aiding individuals and vessels in distress within the Philippines' maritime jurisdiction. The PCG operates with assistance from other government agencies and the commercial marine fleet (Agbissoh, 2019). The PCG maintains 24-hour distress monitoring and response activities, saving numerous lives and properties over the years.

The Coast Guard Command Center (CGCOMCEN) at the PCG National Headquarters in Manila coordinates all SAR operations. The 15 Coast Guard districts serve as Maritime Rescue Coordination Centers (MRCCs) in their respective areas, supported by 90 Coast Guard stations and 464 sub-stations acting as Maritime Rescue Sub-Centers (MRSCs). Each MRCC is equipped with a Coast Guard District Auxiliary and a Deployable Response Team for swift SAR operations. The Coast Guard District Central Visayas (CGDCV), established on 17 October 1967, plays a significant role in SAR operations in a region considered the central hub for domestic shipping in the Philippines. The CGDCV covers the maritime areas of Cebu Province, Bohol, Siquijor,

and Negros Oriental, with its headquarters located in Cebu City. The region's busy maritime activities and vulnerability to natural disasters necessitate a well-equipped and capable Coast Guard

Assessing the CGDCV's capabilities is critical for ensuring readiness, effectiveness, and identifying opportunities for improvement. This evaluation aims to enhance preparedness, response, and overall effectiveness in handling marine emergencies, thereby contributing to safer maritime operations in Central Visayas. The literature underscores the importance of operational readiness and preparedness in successful maritime SAR operations. Highly skilled personnel, well-maintained resources, and clear procedures are essential for prompt and coordinated responses (Theodosopoulou et al., 2021; Mateus et al., 2020). Operational readiness involves resource allocation, inter-agency coordination, rescuer safety, and continuous improvement through exercises and evaluations (Agbissoh et al., 2019). However, there are gaps in translating these concepts into standardized, quantifiable frameworks applicable to various marine scenarios.

The importance of training procedures and skill development for SAR personnel is increasingly evident. Continuous hands-on training with specialized equipment is crucial for developing practical competencies and adapting to evolving challenges (Altavilla et al., 2020; Ford & Clark, 2019; Rogers et al., 2020; Ababat, 2023). Innovative training methods, such as automated evaluations (Gomathy, 2019), immersive virtual reality (Miyusov et al., 2022), and team training simulations (Radojević & Kresojević, 2020), have been proposed, but their practical efficacy and scalability need further assessment, especially in resource-limited settings.

Efficient coordination and collaboration among maritime stakeholders enhance safety and SAR efficacy. Human and organizational factors, data-sharing programs like CISE (Paladin et al., 2022), digitalization, interoperability (Lind et al., 2020), and ontological risk management (Pileggi et al., 2020) are significant. Rapid response times are vital for reducing mortality, supported by research on emergency IoT systems (Zhang et al , 2022), fleet deployment optimization (Chen et al., 2021), and coded response protocols (Kang et al., 2021). However, comprehensive frameworks integrating collaboration, coordination, and time-critical response are lacking.

This study aims to address these gaps by proposing a comprehensive and collaborative approach to improve operational readiness, training efficacy, and coordinated rapid response capabilities in maritime SAR operations. Drawing on studies by Yu (2020) and (Zhang et al , 2022), which emphasize the importance of utilizing established marine networks and local resources for timely support, this research seeks to enhance SAR operations' efficiency. Kosmas (2022) highlights the significance of prompt intervention and resolute action, underscoring the critical nature of rapid response times in SAR missions. Furthermore, Nasso (2024) and Abdul (2024) propose the implementation of comprehensive emergency response frameworks and sophisticated vessels equipped for rescue operations.

Studies by Özşeker (2022) and Yadav (2020) suggest that younger personnel may exhibit higher enthusiasm and adaptability, influencing more favorable assessments of SAR capabilities. Gutterman (2023), Gabrielli (2019), and Tulkunovna (2020) emphasize the role of seniority and education in shaping evaluations of organizational

success. Additionally, Sharma et al (2023) discuss how technological advancements outpace training capacities, leading to skills gaps in the marine sector.

This study aims to propose a comprehensive and collaborative approach to improve operational readiness, training efficacy, and coordinated rapid response capabilities in maritime SAR operations.

Research Questions

This study was conducted to assess the capability of Coast Guard District Central Visayas in the conduct of maritime search and rescue operations. Specifically, it attempted to address the following problems:

1. What is the profile of the respondents in terms of:
    - 1.1 Age
    - 1.2 Gender
    - 1.3 Highest Educational Attainment
    - 1.4 Number of Years in Service
    - 1.5 Current Assignment/ Station
    - 1.6 Trainings Attended
2. What is the performance of the Coast Guard District Central Visayas personnel in selected maritime search and rescue operations?
3. Is there a significant relationship between the profile of the respondents and their performance?
4. What are the challenges of Coast Guard District Central Visayas in performing maritime search and rescue operations in terms of?
    - 4.1 Personnel Capability
    - 4.2 Training
    - 4.3 Operations
    - 4.4 PCG Assets
    - 4.5 Policies and Standard Operating Procedures
5. Based on the findings, what can be recommended to improve the capability of Coast Guard District Central Visayas in maritime search and rescue operations?

METHODOLOGY

This study used a descriptive mixed-method approach with a concurrent triangulation design, enhancing credibility by collecting both quantitative and qualitative data. According to Birden (2022), this method boosts trustworthiness and validity. Quantitative data was gathered through a survey questionnaire, while qualitative data was collected via a situational exam and document review. The study was conducted within the Coast Guard District Central Visayas (CGDCV), including its Headquarters and 8 Coast Guard Stations and 80 Substations. The population consisted of 821 personnel, with 420 responding to the instruments. The Raosoft sampling method ensured a statistically valid sample size, improving the generalizability of the findings. Ethical considerations included obtaining informed consent, maintaining confidentiality, and ensuring voluntary participation with the right to withdraw at any time. Data was securely preserved, and findings were reported in aggregate form.

Ethical approval was obtained from relevant review boards. Instruments included a validated survey questionnaire and a situational written exam, developed with expert input and pilot tested on 18 respondents. Cronbach's Alpha (0.85) and a Split-half test (Pearson Coefficient of 0.923) indicated high reliability and validity. Data was collected using Google Forms for the survey, exam, and checklists. The procedure involved obtaining approval, securing informed consent, and encoding responses. Descriptive statistics summarized demographic data, while qualitative data from interviews was transcribed and analyzed through coding and interpretation. Triangulation of quantitative and qualitative data provided a comprehensive view of the research issues. Checklist data was systematically analyzed to assess maritime search and rescue operations, resulting in actionable insights and recommendations for enhancing operational effectiveness in CGDCV.

RESULTS AND DISCUSSION

Profile of the Respondents

In terms of profile of the respondents includes the academic qualifications, training, rank, and gender distribution of Coast Guard personnel involved in maritime search and rescue operations. It aims to assess whether higher education levels correlate with improved operational proficiency and identify potential gaps. The study also examines the participants' participation in specialized training programs related to search and rescue operations. The rank of the personnel provides insight into the hierarchical structure and distribution of responsibilities within the Coast Guard. The study also examines the representation of different genders in maritime search and rescue operations, aiming to understand whether gender-related factors impact operational performance and identify potential barriers to inclusivity.

Table 1

Profile of Respondents According to Age

Age	Frequency	Percentage
23 – 27 years old	98	24%
28 – 32 years old	162	39%
33 – 37 years old	82	19%
38 – 42 years old	53	13%
43 years old and above	20	5%
Total	**415**	**100%**

Table 1 shows the distribution of the respondents' ages within the Coast Guard District Central Visayas, highlighting how different age groups are represented among the personnel involved in maritime search and rescue operations. The table is divided into five age categories, with corresponding frequencies and percentages.

The age group of 23-27 years old comprises 98 respondents, representing 24% of the total sample. This indicates that nearly a quarter of the personnel are relatively young, possibly in the early stages of their careers. The largest age group, 28-32 years old,

includes 162 respondents, accounting for 39% of the total. This significant proportion suggests that a substantial number of personnel are in their late twenties to early thirties, likely possessing a blend of youth and some level of professional experience.

The age category of 33-37 years old includes 82 respondents, making up 19% of the sample. These individuals are in their mid-thirties, often a period where many have gained considerable experience and expertise in their roles. The age group of 38-42 years old consists of 53 respondents, representing 13% of the total. This smaller percentage indicates a gradual decrease in the number of personnel as age increases, reflecting a possible shift towards more senior roles or other career paths. The smallest group, 43 years old and above, includes 20 respondents, constituting 5% of the total. This indicates that only a few personnel are in the older age bracket, potentially due to retirement or advancement to higher, non-operational positions. The total number of respondents is 415, with the percentages summing up to 100%, providing a complete overview of the age distribution within the district.

The data indicates a balanced mix of young and moderately experienced personnel, with the majority falling into the 28-32 and 23-27 age ranges. This balance suggests that the district benefits from both the energy and new perspectives of younger personnel and the developing expertise of those slightly older. Given the significant proportion of respondents in their late twenties and early thirties, there may be a need for ongoing training and professional development to ensure that these individuals continue to enhance their skills and operational proficiency. The smaller percentages in the older age groups (38-42 and 43+) highlight the importance of succession planning. Ensuring that knowledge and expertise are passed on from more experienced personnel to younger members is crucial for maintaining operational effectiveness.

Hence, Table 1 shows a diverse age distribution among the Coast Guard District Central Visayas personnel, with a concentration in the younger to middle age ranges, indicating a dynamic and potentially adaptable workforce poised for growth and development.

Table 2

Profile of Respondents According to Gender

Gender	Frequency	Percentage
Male	382	92%
Female	33	8%
Total	**415**	**100%**

Table 2 presents the distribution of the respondents within the Coast Guard District Central Visayas according to gender, highlighting the representation of males and females among the personnel involved in maritime search and rescue operations. The data indicates a significant gender disparity, with 382 respondents identified as male, constituting 92% of the total sample. This overwhelming majority suggests that the maritime sector, particularly in search and rescue operations, is predominantly male dominated. The substantial representation of males may be reflective of traditional

gender roles and the physically demanding nature of maritime and rescue work, which historically has been associated with male personnel.

In contrast, there are 33 female respondents, accounting for only 8% of the total. This minority representation of women highlights the gender imbalance within the district. Despite the smaller number, the presence of female personnel in search and rescue roles is crucial, as it indicates a gradual shift towards inclusivity and diversity within the workforce. The involvement of women in these operations can bring unique perspectives and skills that are valuable for comprehensive search and rescue efforts. The total number of respondents is 415, with the percentages summing up to 100%, providing a complete overview of the gender distribution within the district.

The significant gender disparity underscores the need for initiatives aimed at promoting gender inclusivity and encouraging more women to pursue careers in maritime search and rescue operations. This can involve targeted recruitment efforts, gender-sensitive training programs, and policies that support a more balanced representation.

Moreover, the presence of female personnel, though limited, suggests a potential for increased diversity in operational perspectives and decision-making processes. Leveraging the strengths and insights of both male and female personnel can enhance the effectiveness and adaptability of search and rescue missions. Ensuring a supportive and inclusive workplace environment is essential for retaining and empowering female personnel. Addressing any potential challenges related to gender dynamics in the workplace can contribute to a more harmonious and productive workforce.

Hence, Table 2 reveals a predominantly male workforce within the Coast Guard District Central Visayas, with a small but important representation of female personnel. This gender distribution highlights the need for continued efforts towards gender inclusivity and the potential benefits of a diverse workforce in enhancing the operational proficiency of maritime search and rescue operations.

Table 3

Profile of Respondents According to Rank

Rank	Frequency	Percentage
ASN/ASW (Apprentice Seaman/Apprentice Sea Woman)	59	14%
CPO (Chief Petty Officer)	6	1%
ENS (Ensign)	13	3%
PO1 (Petty Officer 1st Class)	28	7%
PO2 (Petty Officer 2nd Class)	74	18%
PO3 (Petty Officer 3rd Class)	47	11%
SCPO (Senior Chief Petty Officer)	3	1%
SN1/SW1(Seaman 1st Class/Sea Woman 1st Class)	89	22%
SN2/SW2 (Seaman 2nd/Sea Woman 2nd)	96	23%
Total	**415**	**100%**

Table 3 shows the respondents' ranks within the Coast Guard District Central Visayas, illustrating how different ranks are represented among personnel involved in maritime search and rescue operations. The table categorizes respondents into nine distinct ranks, with corresponding frequencies and percentages.

The *ASN/ASW (Apprentice Seaman/Apprentice Sea Woman) rank*, an entry-level position, comprises 59 respondents, representing 14% of the total sample. This indicates a significant presence of personnel who are likely in the initial stages of their Coast Guard careers, gaining foundational skills and experience. The rank of *CPO (Chief Petty Officer)* includes 6 respondents, accounting for 1% of the total. This small percentage reflects the relatively limited number of personnel at this senior enlisted rank, often associated with advanced leadership responsibilities and extensive experience.

There are 13 respondents at the *ENS (Ensign) rank*, making up 3% of the sample. Ensigns, as junior officers, typically have some leadership roles and responsibilities, indicating a modest representation of emerging leaders within the district. The *PO1 (Petty Officer 1st Class)* rank includes 28 respondents, constituting 7% of the total. Petty Officers 1st Class are senior non-commissioned officers who have acquired significant experience and play crucial roles in both operational and supervisory capacities.

The *PO2 (Petty Officer 2nd Class)* rank has 74 respondents, representing 18% of the sample. This substantial proportion suggests that a notable number of personnel hold mid-level non-commissioned officer positions, balancing operational duties and leadership roles. There are 47 respondents at the *PO3 (Petty Officer 3rd Class)* rank, accounting for 11% of the total. These individuals are junior non-commissioned officers, often responsible for specialized tasks and supporting higher-ranking officers.

The rank of *SCPO (Senior Chief Petty Officer)* includes 3 respondents, making up 1% of the sample. This very small percentage indicates the presence of a few highly experienced and senior enlisted personnel within the district. The *SN1/SW1 (Seaman 1st Class/Sea Woman 1st Class)* rank has the second-highest frequency with 89 respondents, representing 22% of the total. Seamen 1st Class are typically seasoned junior enlisted personnel with substantial operational experience. The largest group, *SN2/SW2 (Seaman 2nd Class/Sea Woman 2nd Class),* with 96 respondents, constitutes 23% of the sample. This indicates a strong representation of Seamen 2nd Class, who are relatively early in their careers but have progressed beyond the apprentice level. The total number of respondents is 415, with the percentages summing up to 100%, providing a comprehensive overview of the rank distribution within the district.

The data reveals a diverse range of ranks, indicating a workforce with varied levels of experience and responsibilities. The significant proportions of junior ranks (SN2/SW2 and SN1/SW1) suggest a focus on developing personnel through early career stages. The presence of senior ranks (CPO, SCPO) in smaller percentages highlights a structured hierarchy where advanced leadership roles are held by a limited number of highly experienced individuals. This structure ensures that seasoned leaders are available to guide and mentor junior personnel. The substantial numbers in the middle ranks (PO2, PO3) emphasize the need for continuous training and professional

development to prepare these personnel for future senior roles and to enhance their operational effectiveness.

Hence, Table 3 illustrates a well-distributed mix of ranks among the Coast Guard District Central Visayas personnel, with a concentration in the junior and mid-level ranks. This rank distribution indicates a dynamic workforce with a balance of new recruits and experienced personnel, essential for maintaining strong search and rescue operations.

Table 4

Profile of Respondents according to Highest Educational Attainment

Highest Educational Attainment	Frequency	Percentage
High School Graduate	4	1%
College Undergraduate	113	27%
College Graduate	291	70%
Technical Course	4	1%
With Master's Unit	3	1%
Total	**415**	**100%**

Table 4 shows the educational backgrounds of respondents within the Coast Guard District Central Visayas, categorizing them into five distinct educational categories with corresponding frequencies and percentages. The data highlights a predominantly well-educated workforce, with significant implications for maritime search and rescue operations. Specifically, 70% of respondents are college graduates, indicating a strong foundation in higher education likely beneficial in maritime operations and related disciplines. Another 27% have completed some college coursework, demonstrating a commitment to educational advancement. Smaller groups include high school graduates (1%), individuals with technical training (1%), and those pursuing Master's degrees (1%), underscoring a focused recruitment strategy that prioritizes higher educational qualifications and specialized skills relevant to Coast Guard responsibilities. This distribution emphasizes the importance of academic preparation and ongoing professional development in enhancing the operational capabilities and adaptability of personnel during maritime emergencies. The findings highlights a predominantly well-educated workforce within the Coast Guard District Central Visayas, has significant implications for the efficacy of marine search and rescue (SAR) operations.

Table 5

Profile of Respondents According to Years of Service

Years of Service	Frequency	Percentage
Below 5 years	204	49%
6 – 10 years	97	23%
11 – 15 years	66	16%
16 years and above	48	12%
Total	**415**	**100%**

Table 5 provides a detailed overview of the respondents' years of service within the Coast Guard District Central Visayas, illustrating the distribution of service durations among personnel involved in maritime search and rescue operations. The table categorizes respondents into four distinct groups based on their years of service, with corresponding frequencies and percentages.

The largest proportion of respondents falls into the "Below 5 Years" category, with 204 individuals representing 49% of the total sample. This significant percentage indicates that nearly half of the personnel are relatively new to the Coast Guard, bringing fresh perspectives and recent training but possibly lacking extensive field experience. The "6 – 10 Years" category includes 97 respondents, accounting for 23% of the total. These individuals have accrued a moderate level of experience, likely balancing a mix of practical skills and operational knowledge gained over their service duration. The "11 – 15 Years" group consists of 66 respondents, making up 16% of the sample. These personnel have a considerable amount of service time, indicating a deeper familiarity with Coast Guard operations and likely holding positions that require significant responsibility and expertise. The smallest group, "16 Years and Above," includes 48 respondents, representing 12% of the total. These individuals have extensive experience, reflecting long-term commitment and advanced knowledge of maritime search and rescue operations, often holding senior or specialized roles within the organization.

The total number of respondents is 415, with the percentages summing up to 100%, providing a comprehensive overview of the service duration distribution within the district. The data reveals a diverse range of service durations, indicating a balanced workforce with a mixture of new recruits and seasoned personnel. The high percentage of respondents with below 5 years of service suggests a focus on recent recruitment and the influx of new talent into the Coast Guard District Central Visayas. This influx can introduce new skills and modern training methodologies, which can be beneficial for the organization. The presence of personnel with 6 – 10 years of service and 11 – 15 years of service underscores the importance of retaining experienced individuals who have developed substantial operational knowledge and expertise. These mid-level service groups are critical for maintaining continuity and providing mentorship to newer recruits. The smaller percentage of respondents with 16 years and above highlights the role of highly experienced personnel in leading and managing complex operations. Their long-term commitment and depth of knowledge are invaluable for strategic decision-making and high-level operational planning.

Hence, the distribution of years of service within the Coast Guard District Central Visayas indicates a dynamic and balanced workforce, combining the energy and new perspectives of recent recruits with the seasoned expertise of long-term personnel. This composition is essential for maintaining effective and efficient maritime search and rescue operations, ensuring both innovation and continuity in the organization’s capabilities.

Table 6

Profile of Respondents According to Current Assignment/Station

Current Assignment/Station	Frequency	Percentage
CGS Southern Cebu	87	21%
CGS Camotes	47	11%
CGS Central Cebu	42	10%
CGS Eastern Bohol	60	14%
CGS Central Oriental	62	15%
CGS Siquijor	52	13%
CGS Western Bohol	63	15%
Headquarters Coast Guard District Central Visayas (HCGDCV)	2	1%
Total	**415**	**100%**

Table 6 provides an overview of the respondents' current assignments or stations within the Coast Guard District Central Visayas, offering insights into the distribution of personnel across various stations involved in maritime search and rescue operations. The table categorizes respondents into eight distinct stations, with corresponding frequencies and percentages.The current Assignment/Station Distribution, in CGS Southern Cebu: This station has the highest number of respondents, with 87 individuals, representing 21% of the total sample. This indicates that a significant portion of the personnel are assigned to Southern Cebu, potentially reflecting the region's operational demands or strategic importance.

In CGS Camotes, there are 47 respondents assigned to Camotes, making up 11% of the total. This suggests a moderate presence of Coast Guard personnel in this area, likely due to its geographical and operational needs. While CGS Central Cebu, this station has 42 respondents, accounting for 10% of the sample. The personnel distribution here indicates a considerable Coast Guard presence in Central Cebu, which may be central to regional operations.

In CGS Eastern Bohol with 60 respondents, representing 14% of the total, Eastern Bohol has a substantial number of Coast Guard personnel. This suggests that this area has significant operational requirements necessitating a larger workforce. On the other hand, CGS Central Oriental, this station has 62 respondents, constituting 15% of the sample. The notable number of personnel here indicates a key operational area within the district.

While CGS Siquijor, has 52 respondents, making up 13% of the total. This reflects a substantial allocation of personnel, potentially due to specific operational needs or geographic considerations.

CGS Western Bohol has 63 respondents, representing 15% of the sample. The distribution suggests that Western Bohol is an important area requiring a significant Coast Guard presence and Headquarters Coast Guard District Central Visayas (HCGDCV) with only 2 respondents, or 1% of the total, are stationed at the headquarters. This small percentage is typical for administrative or strategic command centers where fewer personnel are needed. The total number of respondents is 415,

with the percentages summing up to 100%, providing a comprehensive overview of the distribution of personnel across different stations within the district.

The data from Table 6 reveals a well-distributed workforce across various Coast Guard stations within the Central Visayas region. The highest concentration of personnel is in CGS Southern Cebu, reflecting its strategic importance and possibly higher operational demands. The distribution of personnel in other stations such as CGS Camotes, CGS Central Cebu, CGS Eastern Bohol, CGS Central Oriental, CGS Siquijor, and CGS Western Bohol suggest a balanced allocation based on regional needs and geographic considerations.

The presence of only a small number of personnel at the headquarters indicates that most of the workforce is deployed in operational roles across the different stations, ensuring a strong field presence necessary for effective maritime search and rescue operations. This distribution supports a decentralized operational model where personnel are strategically positioned to respond swiftly to maritime emergencies throughout the region.

Hence, the distribution of personnel across various assignments and stations within the Coast Guard District Central Visayas underscores the importance of strategic deployment and resource allocation in enhancing the effectiveness of maritime search and rescue operations.

Table 7

Profile of Respondents According to Trainings Attended

Years of Service	Frequency
Basic Life Support (BLS)	248
Water Search and Rescue (WASAR)	344
Self-Contained Underwater Breathing Apparatus (SCUBA)	17
Rescue Swimmer Course	4
Advanced Seamanship Package Course	25
Boat Captains Course (Enlisted)	11
Incident Command System (ICS)	49
Others	44
Total	**742**

Table 7 shows the training programs attended by respondents within the Coast Guard District Central Visayas, detailing the variety and frequency of training courses completed. The data highlights the emphasis on diverse training areas critical for effective maritime search and rescue operations.

The distribution of training programs shows that Basic Life Support (BLS) is one of the most attended courses, with 248 participants. This fundamental course equips personnel with essential life-saving skills necessary during emergencies, emphasizing the importance placed on basic medical preparedness in SAR operations. Water Search and Rescue (WASAR) has the highest number of attendees, with 344 participants, reflecting the Coast Guard's primary operational focus on water-based rescue missions.

In contrast, specialized training such as Self-Contained Underwater Breathing Apparatus (SCUBA) is attended by only 17 respondents, highlighting the specialized nature of underwater rescue operations requiring specific expertise. Similarly, the Rescue Swimmer Course has only 4 attendees, indicating its specialized and selective nature for specific roles within the Coast Guard.

The Advanced Seamanship Package Course, attended by 25 respondents, focuses on developing advanced navigation and maritime operation skills, signifying a targeted approach to enhancing seamanship among select personnel. The Boat Captains Course for enlisted personnel, with 11 attendees, aims to build leadership and command capabilities, essential for vessel operations.

The Incident Command System (ICS) training, attended by 49 respondents, underscores the need for effective command and control during emergencies, facilitating coordinated and efficient SAR operations. Additionally, 44 respondents have participated in various other training programs not specified in the main categories, indicating the Coast Guard's commitment to addressing a wide range of specialized training needs to enhance overall operational capability. Table 7 shows that most respondents have attended Water Search and Rescue (WASAR) training, which aligns with the Coast Guard's primary responsibility in maritime search and rescue missions.

Performance of The Coast Guard District Central Visayas Personnel in Maritime Search and Rescue Operations

Table 8

Assessments of Respondents on their Performance in selected Maritime Search and Rescue Operations Scenarios in terms of Scenario 1

Scenario 1	Frequency	Percentage
1. Upon verification, I immediately look and enlist the services of a Tugboat in my area to render assistance to the distress vessel. Subsequently, I will request to the Headquarters Coast Guard District Central Visayas the availability of a PCG Vessel to render necessary assistance to the distress vessel.	110	27%
2. I will continue to communicate and monitor the distress vessel and wait for their company to arrange for the boat to render assistance to the said vessel.	12	3%
3. I will coordinate and communicate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and request their services to render necessary assistance.	72	17%
4. I will assemble our rescue team in the station and onboard our rubber boat and go immediately to the distress vessel and will render necessary assistance. Subsequently, I will request to the Headquarters Coast Guard District Central Visayas the availability of a PCG Vessel to render necessary assistance to the distress vessel.	221	53%
Total	**415**	**100%**

Table 8 shows the evaluation of the respondents on their Performance in Maritime Search and Rescue Operations in terms of Scenario 1: Your station received a distress call from a domestic cargo vessel with 10 crew including the master, carrying cement and is about 10 nautical miles off the coast of Eastern Cebu. Based on the initial information received, the said vessel is experiencing engine malfunction (total shut down of main engines) and subsequently conducting trouble shooting of their main engines but with negative results. Further, they are requesting immediate assistance. Your station is the closest to the distress vessel and you were directed by the Higher Headquarters to act.

Overall, the findings revealed that 53 percent or 221 of the respondents will assemble our rescue team in the station and onboard our rubber boat and go immediately to the distress vessel and will render necessary assistance. Subsequently, will request to the Headquarters Coast Guard District Central Visayas the availability of a PCG Vessel to render necessary assistance to the distress vessel.

On the other hand, 27% or 110 of the respondents believed that upon verification, they must immediately look and enlist the services of a Tugboat in the area to render assistance to the distress vessel. Subsequently, they will request to the Headquarters Coast Guard District Central Visayas the availability of a PCG Vessel to render necessary assistance to the distress vessel.

Furthermore, some 17% or 72 respondents believed that they would coordinate and communicate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and request their services to render necessary assistance. And only 3% or 12 of the respondents see it necessary that they will continue to communicate and monitor the distress vessel and wait for their company to arrange for the boat to render assistance to the said vessel.

This implies that majority of the respondents believed that whenever scenario 1 would arise in a distress situation, they will immediately assemble their rescue team in the station and onboard our rubber boat and go immediately to the distress vessel and will render necessary assistance. Subsequently, will request to the Headquarters Coast Guard District Central Visayas the availability of a PCG Vessel to render necessary assistance to the distress vessel.

This proactive approach to providing aid on-site is in accordance with well-established best practices in maritime search and rescue operations. The research conducted by Punnengattu Padi Subramanian (2022) underscores the need of prompt and immediate action in emergency circumstances at sea, emphasizing the crucial need to minimize reaction times to enhance the likelihood of successful rescue operations. In addition, 27% (110 responses) of the participants stated that they would promptly confirm the situation and promptly hire a tugboat nearby to offer rapid assistance to the stranded vessel. This approach highlights the significance of utilizing local resources and adjacent assets for timely support, as proposed by Zhang (2024). Their study highlights the efficacy of employing nearby resources to accelerate rescue operations and ensure prompt response.
Conversely, 17% (72 participants) of the respondents suggested collaborating with neighboring ships passing through the distressed vessel's location to ask for their help. This collaborative method exemplifies the ideals of interoperability and

cooperation in marine emergency response operations, as emphasized by Yu (2020). Their study highlights the need of utilizing established marine networks and partnerships to improve response capabilities and optimize resource use during emergency scenarios.

Only a small percentage, 3% (12 respondents), suggested continuing to monitor the distressed vessel while awaiting assistance arrangements from their company. While this approach may prioritize safety and strategic coordination, it could potentially prolong response times, increasing the risks to the distressed vessel and its crew.The answers given by the participants in Scenario 1 highlight the significance of taking proactive and decisive measures in marine search and rescue missions. The preferred approaches prioritize the urgent requirement for prompt action, allocation of resources, and cooperation to provide efficient aid to troubled ships in crisis scenarios.

Table 9

Assessments of Respondents on their Performance in selected Maritime Search and Rescue Operations in terms of Scenario 2

Scenario 2	Frequency	Percentage
1. Assess the situation, mobilize our rescue team/s in the station and onboard our rubber boat and go immediately to the location of the F/V and conduct search and rescue operations. Further, I will issue notice to all vessels transiting near the location of the search area to be on the lookout and to possibly help in the search and rescue, and if sighted, inform the PCG immediately.	340	82%
2. Mobilize our rescue teams from the station personnel, coast guard auxiliaries under our stations, and other fishermen in the area to help in the conduct of the search and rescue operations.	21	5%
3. I will continue to communicate with the boat captain of the F/V and monitor the progress of their search and rescue operation until further notice, and I will issue notifications to all vessel transiting near the location to be on the lookout and to possibly help in the search and rescue. If sighted, the PCG will be informed immediately.	37	9%
4. I will coordinate and communicate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and request their services to render search and rescue operations.	17	4%
Total	**415**	**100%**

Table 9 shows the evaluation of the respondents on their Performance in Maritime Search and Rescue Operations in terms of Scenario 2: Your Station received information from the Boat Captain of a Fishing Vessel (F/V) that while they are conducting fishing venture at vicinity waters 5 Nautical Miles from your station, one of their crew fell onboard their F/V and went missing. They endeavor to conduct search and rescue operations for already 2 hours from the time of their call to your station,

but still, they cannot locate the missing fisherman. Further, they are requesting the PCG to help in the search and rescue.

Overall, the findings revealed that 82 percent or 340 of the respondents assess the situation, mobilize our rescue team/s in the station and onboard our rubber boat and go immediately to the location of the F/V and conduct search and rescue operations. Further, I will issue notice to all vessels transiting near the location of the search area to be on the lookout and to possibly help in the search and rescue, and if sighted, inform the PCG immediately.

On the other hand, there were 9% or 37 respondents believed that they would continue to communicate with the boat captain of the F/V and monitor the progress of their search and rescue operation until further notice, and I will issue notifications to all vessel transiting near the location to be on the lookout and to possibly help in the search and rescue. If sighted, the PCG will be informed immediately.

Also, 5% or 21 respondents would mobilize their rescue teams from the station personnel, coast guard auxiliaries under our stations, and other fishermen in the area to help in the conduct of the search and rescue operations. While 4% or 17 respondents believed that would coordinate and communicate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and request their services to render search and rescue operations.

This implies that majority of the respondents believed that whenever scenario 2 would arise in a distress situation, they need first to assess the situation, mobilize their rescue team/s in the station and onboard our rubber boat and go immediately to the location of the F/V and conduct search and rescue operations. Further, they will issue notice to all vessels transiting near the location of the search area to be on the lookout and to possibly help in the search and rescue, and if sighted, inform the PCG immediately.

This response plan is consistent with the ideals of prompt intervention and resolute action in marine emergencies, as proposed by Kosmas (2022). Their research underscores the significance of prompt reaction times in search and rescue missions, emphasizing that delays in deployment can greatly diminish the likelihood of good results, particularly in situations involving individuals who are lost at sea.

In contrast, a minority of respondents, accounting for 9% (37 individuals), expressed a desire to stay in contact with the boat captain of the fishing vessel, oversee the search and rescue operations, and notify other vessels. This technique demonstrates a prudent and systematic approach to responding, with a focus on continuous coordination and sharing of information to enhance search efforts, as recommended by Gutterman (2023).

An alternative viewpoint put forth by 5% (21 respondents) of the participants suggests the utilization of not just station personnel but also coast guard auxiliary and local fisherman to mobilize rescue teams for the purpose of assisting in search and rescue operations. The significance of community engagement and pooling of resources to improve search efforts is emphasized by Chen (2019). Their study highlights the advantages of utilizing varied networks and specialized knowledge within marine communities to enhance response capabilities and improve the chances of achieving successful outcomes in search and rescue operations.

Ultimately, a small percentage of the participants (4%, or 17 responders) proposed the idea of collaborating with neighboring vessels that are passing through the same area, and seeking their aid in conducting search and rescue operations. This collaborative approach prioritizes the utilization of existing resources and maritime networks to enhance search efforts and achieve maximum coverage in the designated search region, as emphasized by Lind et al., (2020). Their research highlights the importance of collaboration across different sectors in improving the efficiency of maritime search and rescue operations.

The replies given by the participants in Scenario 2 demonstrate a variety of viewpoints regarding the most effective approach to dealing with emergency circumstances at sea. Although most people support a proactive and immediate intervention approach, other tactics prioritize continuous coordination, community involvement, and collaborative efforts to enhance search and rescue operations and improve the chances of achieving good outcomes.

Table 10

Assessments of Respondents on their Performance in Maritime Search and Rescue Operations in terms of Scenario 3

Scenario 3	Frequency	Percentage
1. Upon receipt of information, the Station's immediate action will be the following: immediately inform the HCGDCV, mobilize the rescue teams from our station personnel and coast guard auxiliaries under our stations to conduct search and rescue operations.	24	6%
2. Upon receipt of information, the Station's immediate action will be the following: Immediately inform the HCGDCV and subsequently request the services of MRRV-4408 to be deploy in the location of M/V COOKS to combat the fire and render necessary assistance. All vessels transiting near the location of M/V COOKS will be notified to help in the search and rescue operations. Further, I will mobilize the Station Search and Rescue Team with medical personnel, and enlist the services of a Tug Boat to render necessary assistance to the distress vessel.	343	83%
3. Upon receipt of information, the Station's immediate action will be the following: I will immediately inform the HCGDCV and mobilize the rescue teams from our station personnel, and coast guard auxiliaries under our stations to conduct search and rescue operations. All vessels transiting near the location of M/V COOKS will also be notified to help in the search and rescue operations.	28	7%
4. Upon receipt of information, the Station's immediate action will be the following: I will immediately inform the HCGDCV and coordinate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and requests their services to render search and rescue operations.	20	4%
Total	**415**	**100%**

Table 10 shows the evaluation of the respondents on their Performance in Maritime Search and Rescue Operations in terms of Scenario 3: At about 1 A.M. your Station received a distress call from the Master of a RORO Passenger Vessel, M/V COOKS that they are currently combating fire on board. Accordingly, the fire is in the cargo hold area where most of the vehicles are stacked. Further information revealed that there are 4 light vehicles, 20 passengers and 15 crew onboard, including the Master, and their present location is at vicinity waters 5 NM east of your Station. Furthermore, the Headquarters Coast Guard District Central Visayas (HCGDDCV) is just 40 kms away from your Station and 1 PCG Multi-Role Response Vessel (MRRV) MRRV-4408

is docked near the said District. With the said incident and information what will be your immediate best courses of action?

Overall, the findings revealed that 83 percent or 343 of the respondents upon receipt of information, the Station's immediate action must be: Immediately inform the HCGDCV and subsequently request the services of MRRV-4408 to be deploy in the location of M/V COOKS to combat the fire and render necessary assistance. All vessels transiting near the location of M/V COOKS will be notified to help in the search and rescue operations. Further, they will mobilize the Station Search and Rescue Team with medical personnel, and enlist the services of a Tug Boat to render necessary assistance to the distress vessel.

Additionally, there were 7% or 28 respondents who upon receipt of information, the Station's immediate must immediately inform the HCGDCV and mobilize the rescue teams from our station personnel, and coast guard auxiliaries under our stations to conduct search and rescue operations. All vessels transiting near the location of M/V COOKS will also be notified to help in the search and rescue operations.

While, 6% or 24 of the respondents believed that upon receipt of information, the Station's immediate action must immediately inform the HCGDCV, mobilize the rescue teams from our station personnel and coast guard auxiliaries under our stations to conduct search and rescue operation. And 4% or 20 respondents believed that Upon receipt of information, the Station's immediate action should have to immediately inform the HCGDCV and coordinate with the nearest vessels if there is any transiting near the vicinity of the location of the distress vessel and requests their services to render search and rescue operations.

This indicates that majority of the respondents thought that incase a Scenario 3 would occur, the PCG Team must upon receipt of information, the Station's immediate action to immediately inform the HCGDCV and subsequently request the services of MRRV-4408 to be deploy in the location of M/V COOKS to combat the fire and render necessary assistance. All vessels transiting near the location of M/V COOKS will be notified to help in the search and rescue operations. Further, they must mobilize the Station Search and Rescue Team with medical personnel and enlist the services of a Tugboat to render necessary assistance to the distress vessel.

Upon examining the average evaluations of participants regarding their effectiveness in maritime search and rescue operations in Scenario 3, it becomes clear that a comprehensive strategy is necessary to tackle the intricate difficulties presented by emergencies at sea. The prevailing approach, preferred by 83% of participants, emphasizes prompt communication with the Headquarters Coast Guard District Central Visayas (HCGDCV) and the dispatch of specialized resources, such as the PCG Multi-Role Response Vessel (MRRV) MRRV-4408, to address the onboard fire and offer essential aid. This strategy, based on the concepts of swift intervention and efficient allocation of resources, is consistent with current research that highlights the crucial significance of prompt response in marine situations. Nasso's (2022) studies emphasize the crucial importance of sophisticated vessels that are equipped for firefighting and rescue operations in reducing risks and assuring the safety of passengers and crew in similar situations.

Moreover, the prioritization of deploying the Station Search and Rescue Team, in addition to medical staff, demonstrates a thorough strategy for addressing situations on board. This approach effectively combines medical aid and rescue operations. This comprehensive response plan aligns with the suggestions made by Abdullah (2023), who propose the implementation of all-encompassing emergency response frameworks that tackle both immediate safety issues and long-term rescue operations. In summary, the answers given by the participants in Scenario 3 emphasize the need of taking preemptive and coordinated measures. They also demonstrate the efficiency of comprehensive tactics in achieving successful results during maritime emergencies.

Results revealed in Scenario no. 1, there are 221 respondents or 53% of the total respondents chose the best and correct answer while in Scenario no. 2, there are 340 respondents or 82% of the total respondents chose the correct and best answer, and in Scenario no. 3, there are 343 respondents or 83% chose the correct and best answer. With these results, the over-all assessment of performance of CGDCV personnel with the Three (3) scenarios are very high and impressive.

Significant Relationship Between the Performance of The Respondents and Their Demographic Profile

Table 11

Significant Relationship of Assessments to Respondents' Profile

Variables	Computed r – Value	Computed *t – Value*	Critical *t – Value*	Interpretation
Age	-0.17 (negative low correlation)	71.25	1.97	Significant
Gender	-0.02 (negative low correlation)	8.26	1.97	Significant
Rank	0.04 (positive low correlation)	16.53	1.97	Significant
Highest Educational Attainment	0.02 (positive low correlation)	8.26	1.97	Significant
Years Of Service	-0.16 (negative low correlation)	66.94	1.97	Significant
Current Assignment/Station	0.07 (positive low correlation)	28.98	1.97	Significant
Trainings Attended	-0.03 (negative low correlation)	12.40	1.97	Significant

Degree of Freedom = 413 Level of Significance = 0.05

Table 11 presents the results of analyzing the relationship between respondents' performance assessments and various demographic variables. Each row in the table corresponds to a different demographic factor, including age, gender, rank, highest educational attainment, years of service, current assignment or station, and training attended. The computed r-values indicate the strength and direction of correlation,

with negative values suggesting an inverse relationship (where higher indicated variable correspond to lower values of the other), and positive values indicating a direct relationship.

For instance, age demonstrates a negative low correlation (-0.17), implying that older respondents tend to receive slightly lower performance assessments. Similarly, gender shows a negative low correlation (-0.02), indicating a slight tendency for male respondents to receive slightly lower assessments compared to females. On the other hand, variables like rank (0.04), highest educational attainment (0.02), years of service (-0.16), current assignment/station (0.07), and trainings attended (-0.03) exhibit positive or negative low correlations, suggesting modest associations between these factors and performance assessments.

The computed t-values are compared against critical t-values to determine significance. In all cases, the computed t-values exceed the critical t-value of 1.97, indicating statistically significant relationships between each demographic variable and performance assessments at the 0.05 level of significance. This suggests that while the correlations are low in magnitude, they are statistically meaningful within the context of the study's sample size (Degree of Freedom = 413). These findings underscore the importance of considering demographic profiles when interpreting performance assessments among respondents.

Based on Table 11, which explores the relationship between respondents' performance assessments and various demographic variables, several insights can be drawn that resonate with existing literature. The findings reveal consistent but modest correlations between demographic factors and performance assessments among respondents. For instance, age demonstrates a negative correlation (-0.17), suggesting that older respondents tend to receive slightly lower performance assessments. This aligns with Özşeker's (2022) and Yadav's (2020) studies, which indicate that younger employees often exhibit higher enthusiasm and adaptability, potentially influencing more favorable assessments compared to their older counterparts who may bring a more critical perspective based on extensive experience.

Gender, showing a slight negative correlation (-0.02), indicates that male respondents tend to receive slightly lower assessments compared to females. This finding is supported by Dwiri (2021) and Bridges (2020), highlighting gender disparities in perceptions of organizational efficacy, influenced by different workplace experiences and expectations.

Rank (0.04) and highest educational attainment (0.02) both show positive correlations, suggesting that individuals in higher ranks and those with higher educational achievements tend to rate organizational capabilities more positively.

This resonates with Gutterman (2023), Gabrielli (2019), and Tulkunovna (2020), who emphasize the influence of seniority and education in shaping perceptions of organizational success and competence.

Years of service (-0.16) and current assignment/station (0.07) also show significant correlations, indicating that longer tenures and specific job contexts can impact performance assessments. Singh (2020) and Gerritsen-van Leeuwenkamp (2019)

insights into how experience and immediate work environments shape evaluations of organizational capabilities, emphasizing the need to consider contextual factors in performance assessments.

Lastly, trainings attended (-0.03) exhibit a negative correlation, suggesting that while training programs are valuable, mismatches between training content and real-world challenges can lead to lower performance assessments. This finding aligns with Gutterman (2023) and Faisal (2024), underscoring the importance of relevant, high-quality training programs tailored to organizational needs.

Hence, Table 11's results underscore the nuanced interplay between demographic variables and performance assessments, reflecting broader insights from existing literature on organizational behavior and human resource management. These findings highlight the importance of considering diverse demographic profiles when evaluating organizational capabilities, emphasizing the need for targeted strategies to enhance workforce effectiveness and satisfaction.

Challenges of Coast Guard District Central Visayas In Performing Maritime Search and Rescue Operations in Terms of Personnel Capability, Training, Operations, PCG Assets, and Policies and Standards

Table 12

Mean Assessments on the challenges of Coast Guard District Central Visayas in performing Maritime Search and Rescue Operations in Terms of Personnel Capability

Elements	Mean	SD	Interpretation
1. Safety and well-being of the PCG personnel is not given priority;	2.76	0.81	Disagree
2. Lack enough qualified maintenance personnel and technicians to rectify any derangement of PCG floating assets during the search and rescue operations;	2.10	0.61	Agree
3. Maintenance personnel of PCG are not knowledgeable in their work assignments;	2.56	0.67	Disagree
4. Lack of necessary skills and confidence in overcoming obstacles;	2.56	0.65	Disagree
5. No provision of training and development opportunities;	2.49	0.65	Agree
6. PCG personnel are incapable to efficiently perform their task due to inadequate/ unavailability of equipment's and materials, needed in search and rescue operations.	2.22	0.72	Agree
Over-all Weighted Mean	***2.45***	***0.07***	***Agree***

Legend: 1.00-1.74 Strongly Agree (SA), 1.75-2.49 Agree (A), 2.50-3.24 Disagree (D), 3.25-4.00 Strongly Disagree (SD)

Table 12 shows the assessment of the challenges encountered by the Coast Guard District Central Visayas in conducting Maritime Search and Rescue Operations, focusing specifically on personnel capability. The table synthesizes data on mean

scores, standard deviations (SD), and interpretations derived from responses across six key elements.

Among the findings, Element 2 emerges with the highest mean score of 2.10 ± 0.61, indicating a consensus among respondents regarding the inadequacy of qualified maintenance personnel and technicians to address issues with PCG floating assets during operations. This underscore concerns over technical expertise within maintenance roles, potentially affecting operational efficiency and asset maintenance.

Conversely, Elements 4 and 5 show the lowest mean scores of 2.56 ± 0.65 and 2.49 ± 0.65, respectively, signaling disagreement among respondents. Element 4 reveals a perceived confidence in overcoming operational obstacles, suggesting a level of assurance in personnel's problem-solving abilities despite challenges. Element 5 indicates disagreement regarding the availability of training and development opportunities, reflecting a belief among respondents in accessible avenues for skill enhancement within the organization.

Overall, the weighted mean across all elements is 2.45 ± 0.07, categorizing responses within the "Agree" range. This indicates a collective acknowledgment of existing challenges in personnel capability for maritime operations while suggesting optimism that these challenges can be addressed effectively. The consistency in ratings across different elements highlights a balanced perspective, acknowledging both areas needing improvement and strengths within the organization's operational framework.

Additional noteworthy findings include Element 1's score of 2.76 ± 0.81, indicating disagreement with the notion that safety and well-being of PCG personnel are neglected, underscoring a strong commitment to safety practices. Element 6's score of 2.22 ± 0.72 reflects agreement that equipment and material shortages hinder efficient task performance, emphasizing a tangible operational hurdle requiring attention.

The findings from Table 12 align closely with existing literature on the critical factors influencing the operational efficiency of maritime search and rescue organizations. Bosak and Scullen (2018) highlight that insufficient training and development opportunities can significantly hinder worker performance and organizational efficiency. The mean score of 2.49 in Table 12, indicating agreement among respondents on the lack of training and development possibilities, underscores the resonance of this issue within the Coast Guard District Central Visayas. This aligns with Bosak and Scullen's findings, suggesting that inadequate training resources may impede the readiness and effectiveness of personnel during maritime operations.

Similarly, Ivankevich (2019) emphasizes the importance of having skilled maintenance staff and technicians for maintaining operational efficiency in maritime settings. The high mean score of 2.10 in Table 12, indicating agreement on the deficiency of qualified maintenance personnel, supports Ivankevich's observations. This shortage of technical expertise can potentially lead to delays in addressing maintenance issues with PCG floating assets, thereby impacting operational readiness and response capabilities during rescue operations.

Furthermore, the agreement among respondents regarding the insufficiency of equipment and materials (mean = 2.22) in Table 12 echoes the findings of Heij and

Knol (2018). Heij and Knol emphasize the critical role of adequate resources in facilitating effective maritime rescue operations. Insufficient equipment and materials can compromise the ability of personnel to perform tasks efficiently and safely, thereby affecting overall operational outcomes.

Together, these studies underscore the urgent need for maritime organizations to enhance training and development programs, ensure an adequate supply of skilled personnel, and provide sufficient resources to optimize operational capabilities. Addressing these challenges identified in Table 12 aligns with broader recommendations from the literature, aiming to bolster the readiness and effectiveness of maritime search and rescue teams in fulfilling their vital roles. Integrating these insights into strategic planning and resource allocation, organizations can strive towards improving overall operational performance and achieving enhanced outcomes in maritime emergency response scenarios.

Table 13

Mean Assessments on the challenges of Coast Guard District Central Visayas in performing Maritime Search and Rescue Operations in Terms of Training

Elements	Mean	Sd	Interpretation
1. There is no training program for conduct of search and rescue operations;	2.82	0.72	Disagree
2. Training is not properly conducted by the Trainor;	2.94	0.62	Disagree
3. Training in search and rescue operations are limited to selected personnel only;	2.60	0.69	Disagree
4. There are only limited slots for PCG personnel regarding cross training in search and rescue operations in foreign countries;	2.18	0.60	Agree
5. Introduction of new updated technology in search and rescue operations training is quite challenging for PCG personnel due to unfamiliarity of these technology;	2.12	0.53	Agree
6. Due to logistical and financial constraints, most of the training in search and rescue for PCG personnel is theoretical and less actual exercises.	2.25	0.59	Agree
Over-all Weighted Mean	***2.48***	***0.07***	***Agree***

Legend: 1.00-1.74 Strongly Agree (SA), 1.75-2.49 Agree (A), 2.50-3.24 Disagree (D), 3.25-4.00 Strongly Disagree (SD)

Table 13 shows a detailed assessment of the challenges encountered by the Coast Guard District Central Visayas in conducting Maritime Search and Rescue Operations, focusing specifically on training aspects. The table consolidates mean scores, standard deviations (SD), and interpretations derived from respondent evaluations across six key elements.

Among the key highlights, Element 2 emerges with the highest mean score of 2.94 ± 0.62, indicating significant disagreement among respondents regarding the effectiveness of training conducted by trainers. This suggests a perception among

personnel that training sessions are well-managed, underscoring the importance of effective training management in fostering quality skill development for search and rescue operations.

Conversely, Elements 5 and 4 demonstrate the lowest mean scores of 2.12 ± 0.53 and 2.18 ± 0.60, respectively, indicating agreement among respondents. Element 5 highlights challenges associated with introducing new technology in training due to unfamiliarity among PCG personnel, while Element 4 underscores the limited availability of slots for cross-training abroad. These findings underscore areas where enhancements in technology integration and international training opportunities are needed to enhance operational capabilities.

The overall weighted mean across all elements is 2.48 ± 0.07, categorizing responses within the "Agree" range. This indicates a collective acknowledgment of existing challenges in training for search and rescue operations. While challenges are recognized, the overall agreement suggests opportunities for improvement through targeted interventions and strategic enhancements in training programs.

Additional significant findings include Element 1's score of 2.82 ± 0.72, indicating disagreement with the absence of a structured training program for search and rescue operations, affirming the presence of organized training initiatives within the Coast Guard District Central Visayas. Element 6's score of 2.25 ± 0.59 reflects agreement that logistical and financial constraints contribute to training being more theoretical than practical, highlighting a practical challenge in translating theoretical knowledge into actionable skills.

In summary, Table 13 provides a comprehensive overview of perceived training challenges within the Coast Guard District Central Visayas for maritime search and rescue operations. It identifies critical areas such as training program effectiveness, technology integration, and international training opportunities where improvements can be targeted. These insights are pivotal for enhancing personnel competency and readiness, thereby elevating overall operational effectiveness in critical maritime rescue scenarios. Addressing these challenges through targeted interventions and resource allocations can lead to substantial improvements in training quality and operational preparedness within the organization.

These findings align with existing literature, such as Sharma (2023), who discusses how technological advancements outpace training capacities, leading to skills gaps in marine sectors. They emphasize the benefits of international training collaborations in enhancing maritime safety and operational effectiveness. Additionally, logistical and financial limitations affecting practical training underscoring the importance of addressing these barriers to improve the preparedness and proficiency of maritime search and rescue operations.

These insights underscore the critical need for strategic interventions to enhance training quality, technological integration, and international collaboration, ultimately bolstering the capabilities of personnel in conducting effective maritime search and rescue operations. Addressing these challenges will be crucial for ensuring enhanced operational readiness and response capabilities in critical maritime scenarios.

Table 14

Mean Assessments on the challenges of Coast Guard District Central Visayas in performing Maritime Search and Rescue Operations in Terms of Operations

Elements	Mean	SD	Interpretation
1. Operations during adverse weather conditions (high winds and rough seas) impede search and rescue operations efforts of the PCG;	1.89	0.62	Agree
2. Maritime incidents often occur far from the shore or isolated areas making it challenging for the conduct of search and rescue operations of Coast Guard personnel;	1.84	0.49	Agree
3. Poor inter-agency coordination due to the absence/ unavailability of offices of these agencies in near your Station affects the operations of PCG when conducting search and rescue operations;	2.15	0.63	Agree
4. Oceans vastness requires extensive resources and time to cover potential search areas making it challenging for operations of your station to conduct search and rescue;	1.90	0.42	Agree
5. Technology and equipment's limitations in detection of the distress or incidents in the conduct of search and rescue operations affects the operations of the PCG;	**1.87**	**0.53**	Agree
6. Search and rescue operations are sometime costly thus, budget limitations can affect the conduct of operations of the PCG.	**2.04**	**0.61**	Agree
Over-all weighted mean	***1.95***	***0.55***	***Agree***

Legend: 1.00-1.74 Strongly Agree (SA), 1.75-2.49 Agree (A), 2.50-3.24 Disagree (D), 3.25-4.00 Strongly Disagree (SD)

Table 14 provides a comprehensive assessment of the challenges faced by the Coast Guard District Central Visayas in performing Maritime Search and Rescue Operations, focusing on operational aspects. The table presents mean scores, standard deviations (SD), and interpretations based on respondent evaluations across six critical elements.

Elements 1 and 4 stand out with the highest mean scores of 1.89 ± 0.62 and 1.90 ± 0.42, respectively, indicating agreement among respondents. Element 1 highlights challenges posed by adverse weather conditions such as high winds and rough seas, which impede search and rescue efforts. Element 4 underscores the vastness of the ocean, necessitating extensive resources and time to cover potential search areas. These findings emphasize significant operational hurdles related to natural conditions and geographical challenges.

Elements 2 and 5 exhibit the lowest mean scores of 1.84 ± 0.49 and 1.87 ± 0.53, respectively, also indicating agreement among respondents. Element 2 points out the

difficulty of maritime incidents occurring far from shore or in isolated areas, complicating search and rescue operations. Element 5 highlights limitations in technology and equipment for detecting distress or incidents, further impacting operational effectiveness. These aspects underscore areas where advancements in technology and operational strategies could potentially enhance response capabilities. The overall weighted mean across all elements is 1.95 ± 0.55, categorizing responses within the "Agree" range. This suggests a general consensus among respondents regarding the operational challenges faced by the Coast Guard District Central Visayas in conducting search and rescue operations. While acknowledging these challenges, the overall agreement also indicates a recognition of the feasibility of overcoming these obstacles through strategic planning and resource allocation.

Furthermore, other significant findings, Element 3 (2.15 ± 0.63) indicates agreement regarding poor inter-agency coordination due to the absence or unavailability of offices near the station. This highlights a systemic challenge in coordinating efforts with other agencies, potentially affecting the efficiency of search and rescue operations. While Element 6 (2.04 ± 0.61) reflects agreement that budget limitations can impact the conduct of search and rescue operations. This underscores the financial constraints faced by the organization in executing its operational mandates. In summary, Table 14 provides a detailed overview of the operational challenges encountered by the Coast Guard District Central Visayas in maritime search and rescue operations. These findings are crucial for strategic planning and decision-making, emphasizing the need for improved technological capabilities, enhanced inter-agency coordination, and adequate resource allocation to bolster operational efficiency and effectiveness. Addressing these challenges will be instrumental in strengthening the Coast Guard's capability to respond swiftly and effectively to maritime incidents and emergencies.

Moreover, Elements 1 and 4 highlight the highest mean scores of 1.89 ± 0.62 and 1.90 ± 0.42, respectively, indicating agreement among respondents. Element 1 emphasizes the impediments posed by adverse weather conditions such as high winds and rough seas, which significantly hinder search and rescue operations. Element 4 addresses the vastness of ocean areas, necessitating extensive resources and time to cover potential search zones. These findings align with literature emphasizing the logistical challenges and extended response times faced by marine agencies in adverse conditions (Mansor, 2020; Wagner, 2021).

In terms of Technological and Equipment Limitations, Elements 2 and 5 exhibit the lowest mean scores of 1.84 ± 0.49 and 1.87 ± 0.53, respectively, indicating agreement among respondents. Element 2 highlights the difficulty of responding to maritime incidents occurring far from shore or in isolated areas, complicating rescue operations due to accessibility issues. Element 5 underscores limitations in technology and equipment for detecting distress signals or incidents, further hampering operational effectiveness. These challenges resonate with literature discussing outdated or inadequate detection technologies impacting response capabilities (Smith & Rothberg, 2018).

While, Financial and Inter-agency Coordination Challenges, Element 6 (mean = 2.04 ± 0.61) reflects agreement regarding budget limitations affecting search and rescue operations. This finding is consistent with research highlighting the expensive nature

of maritime operations and the constraints imposed by financial resources (Larsson & Holmgren, 2017). Element 3 (mean = 2.15 ± 0.63) underscores challenges in inter-agency coordination due to the absence or unavailability of nearby offices, which can hinder collaborative efforts during rescue operations. Literature supports the critical role of enhanced inter-agency collaboration and infrastructure in improving maritime safety and rescue efforts (Johnson et al., 2020).

Hence, the weighted mean of 1.95 ± 0.55 across all elements categorizes responses within the "Agree" range, indicating a consensus on the operational challenges faced by the Coast Guard District Central Visayas. These findings highlight the necessity for improved technological capabilities, enhanced inter-agency coordination, and adequate resource allocation to enhance operational efficiency and effectiveness in maritime search and rescue operations. Addressing these challenges is crucial for strengthening the Coast Guard's capability to respond promptly and effectively to maritime emergencies and incidents.

Table 15

Assessments of Respondents on the Challenges of Coast Guard District Central Visayas in Performing Maritime Search and Rescue Operations in terms of PCG Assets

Units/ Stations	Rubber Boat	Aluminum Boat	Jetski	Speed Boat	Rigid Hull Inflatable Boat	Ambulance	Unmanned Aerial Drones & Underwater Vehicle
CGS Central Cebu	1- Svc	3- Svc 1- Usvc	1- Ucvc	1- Usvc	Nil	Nil	Nil
CGS Western Bohol	Nil	2- Svc 1- Usvc	1- Svc 1- Ucvc	Nil	Nil	Nil	Nil
CGS Eastern Bohol	Nil	1- Svc 2- Usvc	Nil	1-Svc	Nil	Nil	Nil
CGS Northern Cebu	Nil	3- Svc	Nil	Nil	Nil	Nil	Nil
CGS Southern Cebu	1- Serv	1- Svc 1- Usvc	Nil	Nil	Nil	Nil	Nil
CGS Siquijor	Nil	2- Svc	Nil	Nil	Nil	Nil	yes
CGS Camotes	Nil	1- Svc	Nil	Nil	Nil	Nil	yes
CGS Negros Orriental	1- Svc	2- Svc 1- Usvc	Nil	Nil	Nil	Nil	Nil

HCDCV	Nil	Nil	Nil	Nil	1-Usvc	2-Svc	Nil
Units/ Stations	**Search and Rescue Vessel (SARV)**	**Multi Role Response Vessel**	**Diesel Fast Craft (DF)**	**Commu-nication Equipment**	**Standby Rescue Plane**	**Standby Helicopters**	**Unmanned Remote Underwater Vehicle**
CGS Central Cebu	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Western Bohol	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Eastern Bohol	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Northern Cebu	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Southern Cebu	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Siquijor	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Camotes	Nil	Nil	Nil	yes	Nil	Nil	Nil
CGS Negros Orriental	Nil	Nil	Nil	yes	Nil	Nil	Nil
HCDCV	Nil	1-Svc	1-Usv	yes	Nil	Nil	Nil

Legend: Svc - Serviceable *Nil- None*
Usvc – Unserviceable *Yes- has adequate supply*

In Table 15, the findings revealed the following major challenges encountered by Coast Guard District Central Visayas in Performing Maritime Search and Rescue Operations in terms of the PCG Assets:

1. Most stations have no issuance of Rubber Boats in their stations/ Sub-stations.
2. No issuance of Unmanned Aerial Vehicle (UAV) or drones and Unmanned Underwater Vehicle (UUV) use for SAR operations.
3. No Provision of ambulance.
4. Non-Issuance of Unmanned Aerial Vehicle (UAV) or drones use for SAR operation.
5. No provision of Rigid Hull Inflatable Boats to stations.
6. Most stations don't have standby PCG Search and Rescue Vessel or Multi Role Response Vessel deployed for SAR operations.
7. Most stations have no issuance of Rubber Boats in their stations/ Sub-stations

Most stations have no issuance of Rubber Boats in their stations/ Sub-stations
The limitations in PCG assets that the Coast Guard District Central Visayas encounters while conducting maritime search and rescue (SAR) operations are consistent with the worldwide problems about insufficient resources in maritime safety organizations. The lack of crucial resources such as backup aircraft, unmanned underwater vehicles, and ambulances, as mentioned in Table 15, greatly impairs the

efficiency and effectiveness of search and rescue operations. These limits align with the results of research conducted internationally. According to Miętkiewicz (2023), the absence of sophisticated technology resources, such UAVs and UUVs, limits the capacity of maritime organizations to carry out comprehensive and prompt search operations. In addition, the lack of essential equipment, such as rigid hull inflatable boats, significantly limits operational capabilities. Brunet (2022) emphasizes that sufficient and specialized equipment is crucial for the effectiveness of search and rescue missions. The lack of essential medical equipment and first aid supplies presents significant dangers to the safety of both rescuers and victims. This highlights the importance of allocating resources comprehensively to improve operational preparedness and response effectiveness (Ben-Noun, 2023). Hence, it is imperative to tackle these asset-related obstacles to enhance the overall search and rescue (SAR) capability of the Coast Guard District Central Visayas.

Challenges of Coast Guard District Central Visayas In Performing Maritime Search and Rescue Operations in Terms of Policies and Standard Operating Procedures

The researcher conducted document review of the existing Philippine Coast Guard (PCG) policies and standard operating procedures for PCG units in the conduct of Search and Rescue (SAR). The researcher contacted the Station Commanders of Coast Guard District Central Visayas and ask if there are existing policies that their Stations are using in relation to the conduct of SAR operations. Accordingly, they are using the PCG SAR Manual series of 2011 as its guide/ reference in the conduct of SAR operations in their area of responsibility. The researcher interviewed the Station Commanders of CGDCV and checked if other than the PCG SAR Manual if there are other existing SAR related policies that they are using as reference and accordingly they don't have any other than the mentioned PCG SAR manual. The researcher conducted cross checking and validation to the Higher Headquarters in Manila by interviewing the Commanding Officer of the Coast Guard Search and Rescue Unit under Maritime Safety Services Command and confirmed that aside from the PCG SAR manual they don't have any updated SAR policies and that they still crafting a Memorandum Circular policy regarding SAR.

Further, the documentary review revealed that in the Implementation and monitoring of maritime incidents prior conducting SAR operations, the PCG has a standardized format of reporting and monitoring, to include the dissemination of information's and strictly follows the chain of command. The PCG SAR manual also contains the standard procedures in conducting SAR operations and different search patterns commonly used internationally. The researcher believes that to have an effective and efficient in SAR responses there must be a clear and updated policies that can upkeep in the present time depending on the different situations that may arise. The researcher also believes that the policies and procedure in SAR operations should be always be updated in comparable to the current situation in advent of the introduction of new SAR technologies and the effects of climate change.

Furthermore, the absence of standardized operating procedures (SOPs) for different situations highlights the difficulties identified by Gavel et al., (2021), who assert that

SOPs are essential for efficiently organizing search and rescue efforts and maintaining uniformity in response tactics. In addition, there are concerns about obsolete policies, ineffective dissemination, and awareness initiatives that align with broader discussions in the literature emphasizing the importance of conducting regular policy reviews and implementing improved communication methods within search and rescue (SAR) organizations. It is crucial to address these challenges in order to improve the effectiveness and efficiency of search and rescue (SAR) operations.

Conclusions

In view of the findings of the study, the following conclusion was drawn:

1. The demographic and professional characteristics analysis provides a strong foundation for understanding the Coast Guard District Central Visayas' workforce composition and readiness for maritime search and rescue operations. By leveraging the strengths identified in age diversity, educational attainment, rank distribution, and comprehensive training programs, the Coast Guard is poised to strengthen its operational capabilities and effectively respond to maritime emergencies in the Central Visayas region. Continued emphasis on professional development and strategic deployment will further enhance organizational resilience and readiness, ensuring maritime safety and security in the area.

2. Based on the findings, the Coast Guard personnel's readiness, proactive decision-making, and effective utilization of resources across different distress scenarios. Their strategic approach ensures swift deployment of assets, coordination with relevant authorities, and utilization of specialized assistance, enhancing the overall effectiveness of response and rescue operations in the Central Visayas region. Looking forward, continued emphasis on training, scenario-based drills, and inter-agency coordination will further strengthen the Coast Guard District Central Visayas' capabilities in maritime search and rescue operations. Leveraging these strengths and addressing identified areas for enhancement, the Coast Guard is well-positioned to uphold maritime safety, respond effectively to emergencies, and safeguard maritime interests in the Central Visayas district and beyond.

3. Based on the findings hypotheses of no correlation are rejected for each case due to the computed t-values exceeding the critical t-value at a significance level of 0.05. This indicates that there are indeed significant relationships between age, gender, rank, highest educational attainment, years of service, current assignment/station, trainings attended, and performance assessments among Coast Guard personnel in the Central Visayas district.

4. Addressing challenges through strategic interventions in personnel development, training enhancement, operational optimization, asset provisioning, and policy refinement, Coast Guard District Central Visayas can enhance its capability to effectively conduct maritime search and rescue operations. These efforts will foster greater operational efficiency, resilience, and responsiveness, thereby reinforcing the

organization's commitment to safeguarding maritime interests and responding effectively to emergencies in the region and beyond.

Recommendations

In view of the findings of the study the following recommendations are being suggested:

1. The researcher recommended a structured action plan to address challenges in maritime search and rescue operations. The plan includes enhancing personnel capability, improving training programs, optimizing operational strategies, and allocating resources. The plan emphasizes proactive measures to uphold maritime safety and security, ensuring the district's commitment to safeguarding maritime interests and enhancing emergency response capabilities. The plan aims to achieve measurable enhancements in operational readiness and response efficiency.

2. To address the identified challenges in personnel capability within the Coast Guard District Central Visayas, several key initiatives are recommended. Firstly, there is a crucial need to ensure an adequate number of qualified maintenance personnel. This can be achieved through targeted recruitment drives aimed at attracting individuals with specialized skills essential for maintaining and repairing fleet assets. Additionally, implementing comprehensive training programs focused on skill enhancement is essential. These programs should not only improve technical proficiency but also boost personnel confidence in handling diverse maritime emergencies effectively. Furthermore, it is imperative to provide proper equipment, tools, and materials that are well-maintained and readily accessible to support seamless operations during rescue missions.

3. Enhancing the Coast Guard's training framework is vital for improving operational readiness and response effectiveness. It is recommended to develop and implement comprehensive training programs that cover both theoretical knowledge and practical skills relevant to maritime search and rescue operations. These programs should incorporate advanced training delivery methods, making use of interactive and scenario-based approaches that simulate real-world emergencies. Moreover, expanding training opportunities through international partnerships, virtual training sessions, and skills enhancement workshops will ensure continuous professional development among Coast Guard personnel.

4. To optimize operational effectiveness, strategies should focus on enhancing readiness, coordination, and search capabilities. Regular drills, scenario-based exercises, and simulations are essential to improve operational readiness and ensure personnel are well-prepared for emergencies. Strengthening coordination mechanisms with local and international partners will facilitate seamless collaboration during rescue operations. Additionally, investing in advanced technologies such as UAVs, UUVs, satellite imaging, and advanced communication systems will enhance the Coast Guard's search capabilities and response efficiency.

5. Modernizing the Coast Guard fleet is critical for maintaining operational superiority. This involves prioritizing the acquisition of new vessels equipped with state-of-the-art navigation, communication, and rescue equipment. Implementing a rigorous maintenance schedule is equally important to ensure all fleet assets are in optimal

operational condition at all times. Furthermore, allocating resources for researching and adopting new technologies will further enhance operational efficiency, safety, and response capabilities during maritime emergencies.

6. Developing clear policies, guidelines, and standardized operating procedures (SOPs) is essential for ensuring consistency and effectiveness in maritime search and rescue operations. Regular reviews and updates of existing policies should be conducted to address current challenges and align with international best practices. Establishing SOPs that outline precise protocols for response, communication, coordination, and decision-making during emergencies will enhance operational efficiency and safety. Effective implementation of SOPs should be ensured through continuous training, drills, and evaluations, thereby increasing awareness among personnel about their importance in enhancing operational readiness and safety.

7. Future research should focus on the long-term impact of age and experience on performance in maritime search and rescue teams, explore gender dynamics in Coast Guard operations, integrate emerging technologies like AI and machine learning, and study climate change resilience in maritime safety and emergency response strategies. These studies aim to understand generational shifts, gender dynamics, and the effectiveness of adaptation measures in diverse environmental conditions.

Compliance with Ethical Standards

This study adhered to ethical standards, obtaining informed consent from all participants and ensuring their right to withdraw at any time. Anonymity and confidentiality were maintained to protect privacy, and personal identifiers were removed or coded. The well-being of the respondents was a primary concern, and procedures were conducted with respect for their rights and dignity. No conflict of interest existed, and plagiarism was avoided by properly citing sources and acknowledging previous research contributions. Bias in the interpretation of findings was meticulously avoided. Objective data analysis techniques and rigorous methodological standards were employed to ensure the validity and reliability of the results. The findings and conclusions were used for academic and research purposes, contributing to maritime training and safety knowledge.

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ASSESSMENT OF COMMUNITY-BASED TRAINING (CBT) GRADUATES AMONG TESDA TECHNOLOGY INSTITUTIONS IN MARINDUQUE FOR C.Y. 2018-2022

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ABSTRACT

Community-based training goes further than just mere skills training provision. This study aims to assess community-based (CBT) program graduates among TESDA Technology Institutions in Marinduque for C.Y. 2018 to 2022. Specifically, this aims to determine the employment background of the community-based training graduates; identify the relevance of the skills acquired from community-based training; enumerate the perceived suggestions of graduates and employers to enhance the program further, and propose interventions. The research used a mixed design with a validated research questionnaire administered to graduates using a systematized sampling. Results reveal that most CBT graduates are unemployed and most employed are in the government sector. The majority of the self-employed employees are engaged in the whole retail business sector while the main reason for unemployment is the lack of job opportunities. The skills acquired by the CBT graduates are relevant to their job while problem-solving and critical thinking skills can improve their relevance. The employers evaluated the attitude as the highest among the three (3) assessed parameters, leaving skills and knowledge. However, improvements can be made in the three (3) aspects of learning. Graduates and employers highly suggested interventions in three major areas - the curriculum, industry-related matters, and CBT enhancement through stakeholder engagement. The interventions suggested to address this study's key findings highlight the development of a career placement center in the institutions, collaboration of industry partners and local government, stakeholder engagement, increase of training hours, and development of a comprehensive job placement program.

Keywords: *Community-based training, employment, graduates, TESDA*

INTRODUCTION

Throughout history, Technical and Vocational Education and Training (TVET) has served as a crucial bridge between individuals and a fulfilling career path. By equipping young people and adults with the skills and knowledge they need, TVET empowers them to improve their quality of life (National Center for Education Statistics (2019). This transformative potential has garnered increasing global attention, particularly for its ability to boost the productivity and income of disadvantaged individuals, enhance employability, and open doors to new job opportunities (Orbeta & Esguerra, 2016; UNESCO, 2016).

Assessment of community-based training graduates of Technical and Vocational Education and Training (TVET) programs is crucial for understanding the impact and effectiveness of these initiatives. Evaluation helps assess the relevance of acquired skills, employability, and workforce contribution. It provides insights into program effectiveness, highlights areas for improvement, and guides curriculum development. Effective evaluation leads to better job market preparation, increased employment opportunities, and economic growth. Without evaluation, graduates may be ill-prepared, leading to skills mismatches and limited socio-economic development. Studying assessment is essential for enhancing TVET programs, benefiting graduates, industries, communities, and society (Tripney & Hombrados, 2013).

Community-based training programs focus on the needs of local communities, such as out-of-school youth, women, unemployed adults, marginalized populations, indigenous people, and informal sector members. TESDA provides technical assistance, including training modules, equipment, supplies, qualified trainers, venue approvals, competency assessments, and certifications. TESDA also monitors and evaluates programs, co-signs training certificates, and facilitates the provision of starter tool kits to graduates (Robinson, 2012).

Community-based TVET programs empower individuals and communities by providing accessible training opportunities. These programs, implemented in collaboration with local government units, NGOs, and community organizations, address specific skill requirements and enhance livelihood opportunities. Assessing graduates at the local level identifies community-specific needs, measures the impact on local economies, and evaluates the effectiveness of skill development initiatives in grassroots development.

The TESDA Women's Center Tracer Study by Ignacio and Tabu (2018) reveals that over half of employed TVET graduates work full-time in the formal sector, with hospitality, food service, and construction being major employment destinations. A separate study by Mariano & Tantoco (2023) found an even higher employment rate of 87.94% among TVET graduates.

Overall, community-based training in TESDA empowers local communities through accessible and tailored skill development programs, contributing to economic growth, self-sufficiency, and the well-being of individuals within these communities.

Researches has highlighted concerns about the current state of Work Readiness in TVET graduates. The Asian Development Bank (2021) and Fletcher (2012) underscore the critical role of job skills and Work Readiness in determining graduate success. However, studies like Wibowo and Saptono (2018) point out that some vocational high schools might not be fully equipped to nurture these qualities in their students.

Gaps in community-based training graduates contribute to low employment rates include skills mismatches, limited industry relevance, lack of soft skills, and limited access to job opportunities. Addressing these gaps requires aligning programs with industry needs, incorporating soft skills development, providing job placement services, fostering entrepreneurship, and addressing economic factors. Collaboration between stakeholders is crucial.

Research Questions

This study seeks to assess graduates of the Community-Based Training (CBT) Program from TESDA Technology Institutions in Marinduque for C.Y. 2018 – 2022. Specifically, this is sought to answer the following questions:

1. What is the employment background of the community-based training graduates in terms of:
    1.1 Employment Status
    1.2 Status of Employed Graduates
        1.2.1 Nature of Employment
        1.2.2 Employer Background/ Employment after Graduation
        1.2.3 Monthly Gross Income
    1.3 Entrepreneurial Status
        1.3.1 Nature of Business
        1.3.2 Length of Venturing into Business After Graduation
        1.3.3 Gross Income

2. What is the relevance of the skills acquired from community-based training to the graduates' current employment or entrepreneurial ventures?

3. How do employers assess the graduates of the community-based training in terms of:
    3.1 Knowledge
    3.2 Skills
    3.3 Attitudes

4. What are the graduates' and employers' suggestions to enhance TESDA community-based training programs in Marinduque?

METHODOLOGY

The study was mainly conducted in the province of Marinduque, specifically in the municipalities of Sta Cruz and Torrijos, where the selected TVET Institutions are located and CBT Programs are being implemented.

This study focused on graduates from two TESDA Technology Institutions (TTIs) in Marinduque who completed their training between 2018 and 2022, It employed a simple random sampling technique to choose a representative sample from this group. This method entails assigning a unique identification number to each eligible graduate and randomly selecting a set number of graduates for the study. By ensuring an equal opportunity for every graduate to be included in the sample, the study can effectively capture this specific cohort's unique perspectives and experiences. Utilizing simple random sampling minimizes bias and improves the applicability of the study findings to the wider population of graduates from these institutions within the specified timeframe. 304 respondents were selected from the 1440 graduates of the various programs.

Furthermore, the researcher also purposively and conveniently selected 15 TESDA industry partners who employed graduates of the CBT Program from TPSAT and BSAT from 2018 to 2022. This is to create further a relevant and accurate assessment of the graduates using the point of view of an employer.

In this study, the researcher used two self-made survey questionnaires explicitly designed for CBT graduates and the other for industry partners which was validated by the stakeholders (representatives from TESDA and specialist) The researcher also incorporated the TESDA tracer study questionnaire (2019) as a guide in drafting the self-made questionnaires as instruments for gathering the data needed in this study.

The data collection involved multiple methods. The researcher utilized survey questionnaires, which were distributed to respondents via Google Forms, and email. Additionally, the researcher personally visited the institutions to gather data by directly answering the questionnaires. Supplementary data gathering took place through the courtesy of the TESDA Technology Institutions in Marinduque, utilizing their existing database. Overall, the researcher obtained data from the TESDA Technology Institution database, conducted surveys through various means, and incorporated supplementary data from the TESDA Technology Institutions in Marinduque, thereby ensuring a comprehensive approach to gathering information on the community-based training graduates in the selected TESDA Schools.

The collected data underwent statistical analysis using standard statistical tools. The Likert scale was utilized for quantitative data to translate qualitative responses into numerical values.

RESULTS

Employment Background of the Community-Based Training Graduates

The different employment backgrounds of the Community-Based Training Graduates were gathered in this study and presented in the succeeding subsections.

Employment Status

Table 1 presents data on the employment status of individuals based on different programs. It shows the frequency and percentage of individuals employed, self-employed, and unemployed for each program.

Table 1. Employment Status of the Community-Based Training Graduates

PROGRAM	EMPLOYED		SELF EMPLOYED		UNEMPLOYED		Total	
	Freq	%age	Freq	%age	Freq	%age	Freq	%age
BPP NC II	0	0.00%	6	1.97%	10	3.29%	16	5.26%
CSS NC II	12	3.95%	4	1.32%	8	2.63%	24	7.89%
DomRAC NC II	2	0.66%	5	1.64%	8	2.63%	15	4.93%
DRIVING NC II	6	1.97%	1	0.33%	8	2.63%	15	4.93%
EIM NC II	0	0.00%	0	0.00%	16	5.26%	16	5.26%
EIM NC III	6	1.97%	4	1.32%	0	0.00%	10	3.29%
FOP NC II	0	0.00%	11	3.62%	12	3.95%	23	7.57%
GTAW NC II	8	2.63%	2	0.66%	11	3.62%	21	6.91%
OAP NC II	4	1.32%	7	2.30%	15	4.93%	26	8.55%
SMAW NC I	18	5.92%	8	2.63%	28	9.21%	54	17.76%
SMAW NC II	19	6.25%	5	1.64%	60	19.74%	84	27.63%
TOTAL	**75**	**24.67%**	**53**	**17.43%**	**176**	**57.89%**	**304**	**100.00%**

Out of the 304 individuals included in the analysis, 24.67% (75 individuals) are employed, 17.43% (53 individuals) are self-employed, and 57.89% (176 individuals) are unemployed. Some programs, such as SMAW NC II and SMAW NC I, have higher total counts, with 84 (72.63%) and 54 (17.76) individuals respectively. However, the majority of individuals within these programs are unemployed. This highlights the need to address graduates' employment challenges from these programs. It is encouraging that some individuals are self-employed, indicating their entrepreneurial endeavors. However, the overall percentage of self-employed individuals is relatively low compared to the unemployed population. Overall, the data is aligned to the study of the National Governors Association (2021) that efforts are needed to improve the employment outcomes for graduates across all programs. This could involve enhancing job placement services, fostering entrepreneurial skills, and addressing the factors contributing to the high unemployment rate among graduates.

Status of Employed Graduates

Table 2 shows the background of employed graduates in terms of the nature of employment.

Table 2. Nature of Employment of the Community-Based Training Graduates

Nature of Employment	Frequency	Percentage
Permanent	42	56.00%
Contractual	23	30.67%
Job Order	10	13.33%
Total	75	100.00%

It indicates that 56.00% of the employed graduates have permanent job positions. Graduates in permanent jobs usually have stability, benefits, and work security. It shows that a significant portion of workers have permanent jobs, which is encouraging for job security and professional advancement.

In terms of the nature of employment, contractual work makes up 30.67%. Contractual jobs often have a set duration and cannot provide the same security and perks as permanent work. The existence of contractual employment raises the possibility that businesses take advantage of this kind of labor for short-term or project-specific positions.

Furthermore, Job Order employment accounts for 13.33% of all employed graduates. Job order work is frequently project-based and transient, with employees hired for a particular assignment or duration. It shows a lower percentage of workers in contract and temporary positions than in permanent jobs.

In conclusion, majority of workers have permanent positions, indicating a stable workforce with long-term commitments. Contract and job order employment, however less in percentage, can provide organizations with flexibility for short-term needs.

Table 3 shows the employer background of the CBT graduates. The data on employer background reveals that private establishments, with a frequency of 44 and a percentage of 58.67%, have surpassed government employers, making them the predominant type of employer in the dataset.

Table 3. Employer Background of the Community-Based Training Graduates

Employer Background	Frequency	Percentage
Government	31	41.33%
Private Establishment	44	58.67%
Total	**75**	**100.00%**

The data presented in Table 3 indicates that private establishments are emerging as the predominant type of employer in the dataset. The higher frequency and percentage of private establishment employers compared to government employers indicate a growing reliance on the private sector for employment opportunities. This trend suggests a potential shift towards private sector job opportunities within the surveyed sample, reflecting the dynamic nature of the job market and the evolving balance between public

and private sector employment options. The data underscores the importance of monitoring these trends to understand the changing dynamics of the job market and the implications for individuals seeking employment in government and private establishments.

Table 3 shows the duration of employment of community-based training graduates after graduation. This data provides valuable insights into the timeline of employment outcomes for community-based training graduates, indicating varying durations for securing employment post-graduation. It underscores the importance of tracking and understanding the transition of graduates into the workforce to assess the effectiveness of the training programs and support services provided.

Table 4. Duration of Employment after Graduation

Employment After Graduation	Frequency	Percentage
Within 1 to 3 months	35	46.67%
Within 4 to 6 months	0	0.00%
After 6 months	5	6.67%
After 1 Year	31	41.33%
More than 2 Years	2	2.67%
No answer	2	2.67%
Total	**75**	**100.00%**

Most employed graduates, accounting for 46.67%, secured employment within the first three months after graduation. It indicates a fast transition from education to the workforce for a significant portion of the graduates. Finding employment within this timeframe is considered favorable as it reflects a proactive approach to entering the job market.

Almost 41.33% of graduates found employment within one year after completing their training. While not immediate, securing a job within the first year is still a positive outcome and suggests persistence in the job search process. This category represents a substantial portion of graduates who took a bit longer to enter the workforce but eventually found employment. A smaller percentage of 6.67% of graduates obtained employment after six months of graduation. This group may have faced challenges in finding suitable opportunities immediately after completing their studies. The delay in employment for this segment could be due to various factors such as market conditions or personal circumstances.

A very small percentage of graduates, 2.67% each, took more than two years to secure employment or did not respond. Graduates in these categories may have faced prolonged job search periods or chosen to pursue further education or other paths before entering the workforce. The data reflects a diverse timeline of employment outcomes for graduates, with varying durations to secure jobs after graduation.

Table 5 presents the monthly gross income of community-based training graduates. This data showcases the earnings of individuals who have completed community-based training programs. The table may provide insights into the income distribution among these graduates, highlighting the range of earnings they receive every month. Analyzing this data can offer valuable information on the financial outcomes of individuals who have undergone community-based training, shedding light on their economic status and potential financial stability.

Table 5. The *Monthly Gross Income of the CBT Graduates*

Initial Gross Income	Frequency	Percentage	Rank
Below 10,000	46	61.33%	1
Php 10,000 - Php20,000	4	5.33%	3
Php 20,000 - Php30000	25	33.33%	2
Total	75	100.00%	

The data revealed that the majority of employed graduates, accounting for 61.33%, reported an initial gross income below Php 10,000. This income range indicates entry-level positions or part-time jobs that may offer lower salaries. A significant portion of graduates starting with incomes below Php 10,000 suggests that many are beginning their careers in roles with limited earning potential.

The lowest percentage of 5.33% of graduates reported an initial gross income between Php 10,000 and Php 20,000. This income range likely represents slightly higher-paying entry-level positions or roles with additional responsibilities. The lowest percentage in this category suggests that only a few graduates started with incomes within this range.

Approximately 33.33% of employed graduates had an initial gross income in the range of Php 20,000 to Php 30,000. This income bracket may include mid-level positions or roles that require specific skills and experience. The presence of a significant percentage in this category indicates a notable portion of graduates start with relatively higher incomes compared to the other ranges.

The lowest percentage started with incomes between Php 10,000 and Php 20,000, while a significant portion fell in the Php 20,000 to Php 30,000 range, indicating a mix of salary levels among the employed graduates.

Status of Self-Employed Graduates

Table 6 provides details on the various industries or sectors in which self-employed community-based training graduates have established their businesses. The purpose of this data is to showcase the diversity of entrepreneurial ventures and provide insights into the range of industries that these graduates are contributing to through their self-employment.

Table 6. The Type of Business of the Self-Employed CBT Graduates

Nature of Business	Frequency	Percentage
Seller	29	54.72%
Baker	3	5.66%
Computer Shop	3	5.66%
Butterfly Breeder	2	3.77%
Electrician	1	1.89%
Plumber	1	1.89%
Glass Installer	1	1.89%
Tricycle Driver	3	5.66%
Rider	3	5.66%
Welder	7	13.21%
Total	**53**	100.00%

With a frequency of 29 and a percentage of 54.72%, sellers constitute the largest group among self-employed CBT graduates. This indicates that a significant majority of CBT graduates have chosen entrepreneurship in selling goods or services as their business venture.

Both bakers and computer shop owners have a frequency of 3 and a percentage of 5.66% each. It suggests that a smaller proportion of CBT graduates are engaged in baking and managing computer shops as their self-employment choices.

The data reveals that the most common type of business among self-employed CBT graduates is selling, indicating a preference for entrepreneurial activities related to retail or service provision. The presence of bakers and computer shop owners, though in smaller numbers, showcases a diversity of business interests within the CBT graduate community.

It is interesting to note the mix of traditional (baker) and modern (computer shop) business types among these graduates, reflecting their adaptability and versatility in exploring different sectors.

Table 7 regarding the length of venturing of CBT graduates into business. However, based on the table's description, it likely provides information on the duration or length of time that CBT graduates have been involved in their business ventures. This data can suggest insights into the stability and longevity of their entrepreneurial endeavors, indicating whether they have recently started their businesses or have been operating them for an extended period.

Table 7. Length of Venturing of CBT Graduates into Business

Length of Venturing into Business After Graduation	Frequency	Percentage
Within 1 to 3 months	37	69.81%
Within 4 to 6 months	0	0.00%
After 6 months	1	1.89%
After 1 year	15	28.30%
more than 2 years	0	0.00%
no answer	0	0.00%
Total	**53**	**100.00%**

Most self-employed graduates, accounting for 69.81%, started their businesses within the first three months after graduation. This indicates a proactive approach towards entrepreneurship immediately after completing their studies.

Both categories have zero frequency, meaning no graduates ventured into business after 6 months or more than two years post-graduation. This suggests a trend towards quicker entry into entrepreneurship among the surveyed graduates. The low percentages for starting businesses after 6 months or more than two years suggest that most graduates prefer to kickstart their entrepreneurial journeys promptly after completing their studies. The low percentages for starting businesses after 6 months or more than two years suggest that most graduates prefer to kickstart their entrepreneurial journeys promptly after completing their studies.

A significant proportion, 28.30%, of graduates started their businesses after the first year of completing their studies. This group represents those who took a slightly longer time to establish their entrepreneurial endeavors. The data indicates a sense of urgency and readiness among most graduates to start their businesses shortly after graduation, with nearly 70% launching their ventures within the first three months.

The group that started businesses after one year reflects a smaller but notable portion of graduates who may have taken additional time for planning, preparation, or other personal reasons before entering into self-employment.

Table 8 presents data on the monthly gross income of self-employed CBT graduates. This table provides information on the earnings or income that these graduates generate from their entrepreneurial ventures every month.

Table 8. Monthly Gross Income of Self-employed CBT graduates

Monthly Gross Income	Frequency	Percent
Below Php 10,000	45	84.91%
Php 10, 000 - 20,000	8	15.09%
Php 20,000 - 30,000	0	0.00%
Total	**53**	**100.00%**

The majority of graduates, accounting for 84.91%, have a monthly gross income below Php 10,000. This indicates that a significant portion of these entrepreneurs are currently earning below this threshold. The data reveals that a significant majority of graduates earn below Php 10,000 monthly from their businesses, highlighting the financial challenges or early stages of development faced by these entrepreneurs.

A smaller proportion, 15.09%, of graduates fall within the income range of Php 10,000 to 20,000 per month. This group represents those who have managed to achieve a slightly higher level of income from their businesses. The presence of a smaller group earning between Php 10,000 - 20,000 suggests a segment of entrepreneurs who have managed to increase their monthly income slightly above the initial threshold.

Interestingly, there are no graduates in the income bracket of Php 20,000 to 30,000 per month, indicating that none of the surveyed individuals currently fall within this income range. The absence of graduates earning between Php 20,000 to 30,000 indicates a gap in income distribution, with none of the surveyed individuals currently reaching this income level.

Unemployed

Table 9 shows the years of being unemployed of the community-based training graduates. This data can give insights into the length of time individuals remain unemployed.

Table 9 Years of being unemployed after the training

Years of being unemployed after the training	Frequency	Percentage
After 1 year	30	17.05%
More than 2 years	146	82.95%
Total	**176**	**100%**

The data presented reveals how individuals are distributed based on the length of unemployment after the training. Out of the total 176 graduates, 30 people (17.05%) were unemployed after one year of training, while 146 people (82.95%) remained unemployed for more than two years. This data highlights a larger percentage of individuals (82.95%) facing long-term unemployment compared to those who were unemployed for just one year (17.05%).

The breakdown of percentages provides perceptions of the duration of unemployment following training, indicating a significant proportion of individuals experiencing prolonged unemployment. This information could have implications for evaluating the effectiveness of training programs and understanding the job market conditions. Table 10 shows the reasons for being unemployed of the community-based training graduates.

Table 11. Reasons for being Unemployed of CBT graduates

Reasons for being unemployed	Frequency	Percentage
Job Mismatch	63	35.80%
Financial	41	23.30%
Lacks of Job Opportunity	62	35.23%
Lack of Knowledge and Skills	10	5.68%
Total	**176**	**100%**

Job Mismatch, which explains 35.80% of the reasons why CBT graduates are unemployed, suggests that a sizable portion of the population is unemployed as a result of their inability to locate employment that is a good fit for their qualifications and skill set. This problem arises from a mismatch between the talents they learned in school and what skills employers are looking for.

Lack of Job Opportunities comes in second at 35.23%, indicating that many CBT graduates have trouble finding work because there aren't many positions available in their sector. This challenge could be impacted by particular problems in the CBT sector or by more general economic considerations.

Among CBT graduates, financial challenges rank third in terms of the reasons for unemployment (23.30%). This implies that a significant portion of the population is unemployed as a result of the work options that are accessible to them not offering adequate financial security or pay.

Finally, with a proportion of 5.68%, Lack of Knowledge and Skills continues to be a major cause of unemployment among CBT graduates. This suggests that a tiny percentage of people might not have the fundamental abilities and information that companies demand, which could harm their chances of finding employment. In conclusion, the data suggests that lack of work possibilities and job mismatch are the main causes of unemployment among CBT graduates, followed by financial limitations and skill gaps. To improve the employment chances of CBT graduates, addressing these difficulties may entail improving career guidance, bridging the gap between education and industry needs, and offering support for skill development and job placement programs.

Relevance of Skills Acquired

Table 11 shows the skills learned by graduates at community-based training programs can vary depending on the specific program and its focus. However,

community-based training programs often aim to equip individuals with practical and employable skills that are relevant to the needs of their local communities. It provides information on the competencies of employed, self-employed, and unemployed individuals, along with their corresponding mean scores and interpretations.

Table 11. Skills Learned of Graduates at Community-Based Training

Competencies	Employed		Self-Employed		Unemployed	
	Mean	**Interpretation**	**Mean**	**Interpretation**	**Mean**	**Interpretation**
Skills	3.1	Moderately Relevant	1.71	Less Relevant	2	Less Relevant
Technical Skills	3.03	Moderately Relevant	2.21	Moderately Relevant	1.23	Less Relevant
Communication Skills	3.26	Moderately Relevant	2.49	Moderately Relevant	1.3	Less Relevant
Entrepreneurial Skills	2.58	Moderately Relevant	2.9	Moderately Relevant	1.71	Less Relevant
Computer Skills	2.77	Moderately Relevant	2.97	Moderately Relevant	1.25	Less Relevant
Problem-Solving Skills	3.2	Moderately Relevant	2.55	Moderately Relevant	1.12	Less Relevant
Critical Thinking Skills	2.58	Moderately Relevant	2.21	Moderately Relevant	211	Less Relevant
Total Mean	**2.93**	**Moderately Relevant**	**2.43**	**Moderately Relevant**	**1.53**	**Less Relevant**

The mean score for skills is 3.1, indicating that employed individuals perceive their skills as moderately relevant. Self-employed individuals, on the other hand, have a lower mean score of 1.71, suggesting that they perceive their skills as less relevant. Unemployed individuals also have a lower mean score of 2, indicating that they perceive their skills as less relevant as well.

Employed individuals have a mean score of 3.03, indicating that they perceive their technical skills as moderately relevant. Self-employed individuals have a slightly higher mean score of 2.21, suggesting that they also perceive their technical skills as moderately relevant. Unemployed individuals, however, have the lowest mean score of 1.23, indicating that they perceive their technical skills as less relevant.

Employed individuals have a mean score of 3.26, indicating that they perceive their communication skills as moderately relevant. Self-employed individuals also have a moderately relevant mean score of 2.49 for communication skills. Unemployed individuals have the lowest mean score of 1.3, suggesting that they perceive their communication skills as less relevant.

Employed individuals have a mean score of 2.58 for entrepreneurial skills, indicating that they perceive these skills as moderately relevant. Self-employed individuals have a slightly higher mean score of 2.9, suggesting a similar perception of moderately relevant entrepreneurial skills. Unemployed individuals have a lower mean score of 1.71, indicating that they perceive entrepreneurial skills as less relevant.

Employed individuals have a mean score of 2.77 for computer skills, indicating that they perceive these skills as moderately relevant. Self-employed individuals have a slightly higher mean score of 2.97, suggesting a similar perception of moderately relevant computer skills. Unemployed individuals have the lowest mean score of 1.25, indicating that they perceive computer skills as less relevant.

Employed individuals have a mean score of 3.2 for problem-solving skills, indicating that they perceive these skills as moderately relevant. Self-employed individuals have a slightly lower mean score of 2.55, suggesting a similar perception of moderately relevant problem-solving skills. Unemployed individuals have the lowest mean score of 1.12, indicating that they perceive problem-solving skills as less relevant.

Employed individuals have a mean score of 2.58 for critical thinking skills, indicating that they perceive these skills as moderately relevant. Self-employed individuals have a slightly higher mean score of 2.21, suggesting a similar perception of moderately relevant critical thinking skills. Unfortunately, the value of 211 for unemployed individuals seems to be an error and cannot be interpreted.

Overall, the total mean score for competencies is 2.93 for employed individuals, 2.43 for self-employed individuals, and 1.53 for unemployed individuals. This suggests that employed and self-employed individuals perceive their competencies as moderately relevant, while unemployed individuals perceive their competencies as less relevant. These findings highlight the importance of skills and competencies in employment and entrepreneurship, and the potential impact they can have on individuals' employment outcomes.

Employers Assessment of the Graduates of the CBT

Table 12 regarding the assessment of graduates from a Community-Based Training (CBT) program based on their Knowledge, Skills, and Attitude. The assessment of graduates from a CBT program is based on their knowledge, skills, and attitude, it is common for such assessments to involve evaluating the theoretical knowledge acquired, practical skills developed, and the overall attitude and mindset of the graduates.

Table 12. Assessment of CBT graduates in terms of Knowledge, Skills, and Attitude

Competencies	Mean Score	Description
Knowledge	1.99	Agree
Skills	2.11	Agree
Attitude	1.92	Agree
Total Mean	**2.01**	**Agree**

Employers mostly agree that graduates of the Community-Based Training program know relevant to their field, as indicated by the mean score of 1.99. This implies that the graduates have a firm knowledge of the ideas and guidelines covered in their course. Employers agree that graduates of the Community-Based Training program exhibit the necessary abilities to succeed in their roles, with a mean score of 2.11. This could include useful talents like project management, community involvement, and other qualities unique to community-based work.

The mean score of 1.92 indicates that employers agree that graduates exhibit positive attitudes toward their work within community settings. This may include attributes

like teamwork, cultural sensitivity, empathy, and a dedication to serving the community effectively.

The total mean score of 2.01 suggests an overall agreement among employers regarding the competencies of graduates from the Community-Based Training program in terms of Knowledge, Skills, and Attitude. This indicates that employers perceive these graduates as well-prepared and capable of contributing positively to community-based initiatives.

Graduates and Employers' Suggestions to Further Enhance TESDA Community-based Training Programs in Marinduque.

Table 13 shows the summary of suggestions of the respondents to enhance the CBT program. The summary of suggestions provided by respondents can offer valuable insights into areas for improvement and enhancement of the CBT program. The three general categories are industry-related, curriculum-related, and overall CBT enhancement. These are comprehensively discussed as follows.

Table 13. Summary of Suggestions of the Respondents

	Summary of Suggestions to Enhance CBT
Industry-Related Suggestions	Employment Opportunities Regularly update program offerings to match local job market demands. Integrate emerging and advanced technologies in training to make graduates more competitive. Conduct of Trade-Matching and Placement Services
Curriculum Related Concerns	Additional trained experts Additional training days Conducive Environment Advanced Equipment
CBT Enhancement	Collaboration of stakeholders and the local government unit Availability of the Program for each municipality

For Industry-Related Suggestions it highlights, regularly update program offerings to match local job market demands, which emphasizes the need for vocational education programs to be responsive to the changing needs of the workforce; integrate emerging and advanced technologies in training to make graduates more competitive, which highlights the importance of preparing workers for the Fourth Industrial Revolution by equipping them with the skills and knowledge needed to operate in a technologically advanced world and conduct trade-matching and placement services to connect graduates with potential employers, which emphasizes the need for stronger partnerships between vocational education programs and employers to ensure that graduates have the skills needed to succeed in the workplace.

For Curriculum-Related Concerns it was suggested to hire additional trained experts to ensure that the curriculum is up-to-date and high quality. Second, increase the number of training days to give students more time to develop their skills and knowledge. For conducive environment, it was suggested to create a supportive and inclusive learning environment that encourages students to succeed and provide students with access to advanced equipment and technology to prepare them for the demands of the workplace.

Lastly in enhancing CBT Enhancement it was recommended to collaborate with stakeholders and the local government unit to ensure that the CBT program is aligned with the needs of the community and industry and make the CBT program available to students in all municipalities to ensure that all students have access to quality vocational education.

Proposal to Enhance TESDA's Community-based Training Program

Table 14 shows the suggested key interventions to enhance the CBT program. The interventions focus on key steps that would enhance not just the instruction process but the employment of the CBT graduates and are discussed as follows:

Establish a formal collaboration between the CBT institution and local stakeholders, including employers, government agencies, and community organizations: This collaboration can help to ensure that the CBT program is aligned with the needs of the community and industry.

Table 14. Matrix Summary of the Research Key Findings, Implications, and Suggested Interventions

Objective of the study	Key Findings	Implications	Suggested Intervention
Employment background of the community-based training graduates	34.09% of the CBT graduates are unemployed, 25.33% are employed, and 9.43% are self-employed.	There is a high unemployment rate among	**CBT Program Enhancement Key Steps** 1 Establish a formal collaboration between the CBT institution and
Relevance of the skills acquired from community-based training to the graduates' current employment or entrepreneurial venture	For employed graduates of CBT, Communication skills are the most important skill, with a mean score of 3.26% and an interpretation of "Moderately Relevant." Entrepreneurial, Critical thinking skills and computer skills are the fifth and sixth most important skills, respectively, with mean scores of 2.58% and	Problem-solving skills and critical must be Provide the CBT graduates with participate in development programs to	employers, government agencies, and community organizations. 2 Establishment of Industry Partners and Linkages 3 Increase the number of training days to give students more time to develop their skills and knowledge. 4 Develop a comprehensive job placement program. 5 Integrate industry-based certifications into the CBT program.

	2.77% and interpretations of "Moderately Relevant." For self-employed Computer, skills are the most important skill with a mean score of 2.97 and an interpretation of "Moderately Relevant. For the unemployed Critical-Thinking Skills are the most important with a mean score of 2.11 with an interpretation of' Less Relevant".	enhance their knowledge and skills in specific areas, such as communication, information gathering, and problem-solving.	6. Establish partnerships with local employers to develop a curriculum that aligns with industry needs. 7. Continuously evaluate and improve the CBT program based on feedback from stakeholders.
Employers' assessment of the graduates of the community-based training	The overall interpretation suggests that, on average, the individuals being assessed are perceived to be moderately knowledgeable in both their knowledge and skills. Additionally, they are viewed as having a moderately acceptable attitude.	The attitude, skills, and knowledge can be increased. Provide the CBT graduates with opportunities to participate in training and development programs to enhance their knowledge and skills in specific areas, such as communication, information gathering, and problem-solving.	
Graduates and employers perceived suggestions.	The suggestions' three (3) general themes are industry-related, curriculum-related, and overall CBT enhancement.	Employment opportunities, curriculum, and the overall CBT needs improvement.	

Establish partnerships with local employers to develop a curriculum that aligns with industry needs. This can be achieved through advisory boards, internships, and joint training programs.

1. Integrate industry-based certifications into the CBT program so that students with recognized credentials can enhance their employability.
2. Integrate industry-based certifications into the CBT program. This will provide students with recognized credentials that can enhance their employability.

3. Increase the number of training days to give students more time to develop their skills and knowledge: This could be done by extending the length of the program or offering more intensive training sessions.
4. Establish a formal collaboration between the CBT institution and local stakeholders, including employers, government agencies, and community organizations: This collaboration can help to ensure that the CBT program is aligned with the needs of the community and industry.
5. Develop a comprehensive job placement program: This program should include career counseling, resume writing workshops, and job fairs to connect graduates with potential employers.

Table 15 presents a comprehensive set of interventions to enhance the Community-Based Training (CBT) program. These interventions address key aspects of the program, including stakeholder collaboration, industry linkages, training duration, job placement, curriculum alignment, and continuous evaluation.

Table 16. Key Steps in Implementing CBT Program Enhancement

Suggested Intervention	Key Steps to Implement
Establish a Formal Collaboration between the CBT Institution and Local Stakeholders	• Identify and engage with key stakeholders, including employers, government agencies, and community organizations. • Form a formal advisory board or committee to provide ongoing feedback and guidance. • Establish regular communication channels to share information and collaborate on program development.
Establishment of Industry Partners and Linkages	• Develop partnerships with local employers to offer internships, apprenticeships, and job shadowing opportunities. • Collaborate with industry associations to participate in industry events, conferences, and workshops. • Encourage students to network with industry professionals through professional organizations and online platforms.
Increase the Number of Training Days to Provide Students with More Time to Develop Their Skills and Knowledge	• Extend the length of the CBT program to provide more in-depth training. • Offer additional training modules or workshops to cover specific skills and knowledge areas. • Utilize blended learning approaches to combine traditional instruction with online learning opportunities.
Develop a Comprehensive Job Placement Program	• Establish a dedicated career services office to provide individualized job placement assistance. • Offer career counseling and resume writing workshops to prepare students for the job search. • Organize job fairs and networking events to connect students with potential employers. • Maintain a database of employment opportunities and internships for CBT graduates.
Integrate Industry-Based Certifications into the CBT Program	• Identify industry-recognized certifications that align with the CBT program's learning outcomes. • Partner with certification providers to offer on-site or online training and testing. • Incorporate certification preparation into the CBT curriculum. • Provide financial assistance to students pursuing industry-based certifications.
Establish Partnerships with Local Employers to Develop a Curriculum that Aligns with Industry Needs	• Conduct regular needs assessments with local employers to identify skill and knowledge gaps.

	• Incorporate employer feedback into the design and development of the CBT curriculum. • Invite industry experts to guest lecture and participate in curriculum reviews. • Utilize industry-based textbooks and learning materials.
Continuously Evaluate and Improve the CBT Program Based on Feedback from Stakeholders	• Collect feedback from students, employers, and community stakeholders through surveys, interviews, and focus groups. • Analyze feedback data to identify areas for improvement. • Develop an action plan to address identified issues and implement necessary changes. • Regularly review and update the CBT program based on ongoing feedback and evaluation.

Establishing a formal collaboration between the CBT institution and local stakeholders is crucial for aligning the program with community and industry needs. The key steps outlined, such as identifying stakeholders, forming an advisory board, and establishing communication channels, provide a structured approach to fostering collaboration.

Developing partnerships with local employers and industry associations provide students with valuable opportunities for internships, networking, and exposure to industry trends. The key steps emphasize engaging with industry partners, encouraging student involvement, and collaborating on events and workshops.

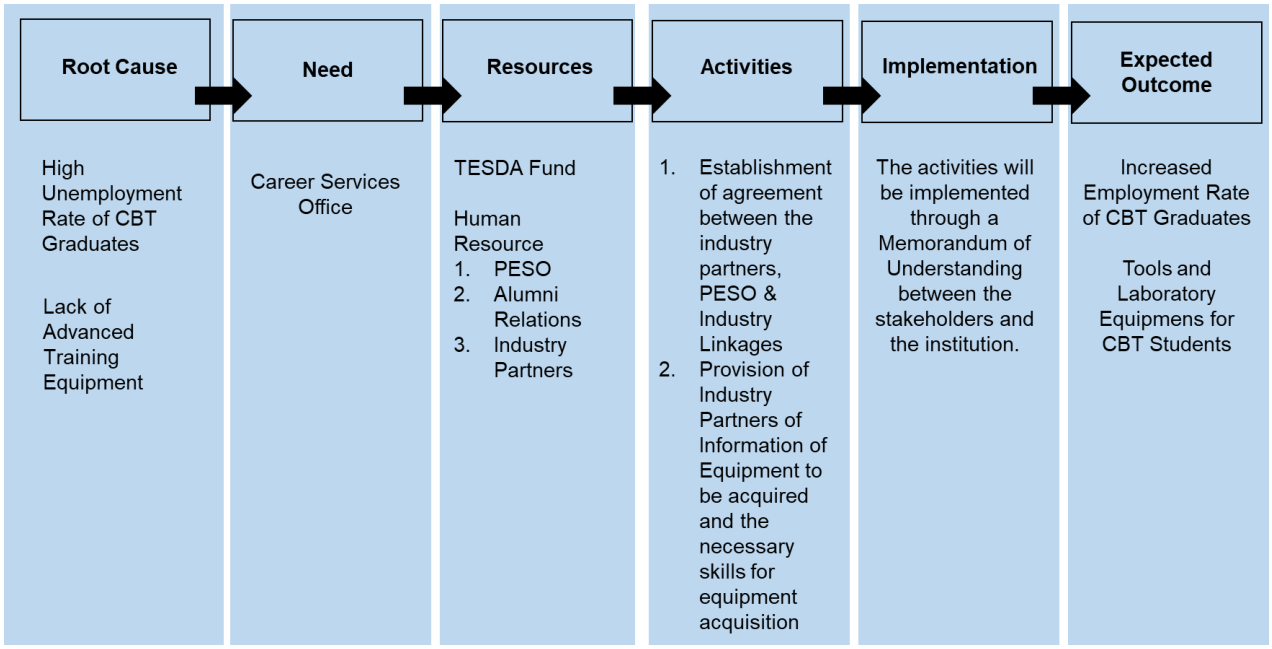
Extending the CBT program's duration or offering additional training modules allows students to develop their skills and knowledge more in-depth. The key steps suggest incorporating blended learning approaches to combine traditional instruction with online learning, catering to diverse learning styles. A dedicated career services office, job search preparation workshops, job fairs, and an internship database provide comprehensive job placement support for CBT graduates. These key steps emphasize individualized assistance, networking opportunities, and access to employment resources. Integrating industry-recognized certifications into the CBT program enhances graduates' employability and aligns their skills with industry standards. The key steps involve identifying relevant certifications, partnering with certification providers, incorporating preparation into the curriculum, and providing financial assistance. Regular needs assessments, employer feedback incorporation, industry expert involvement, and utilization of industry-based materials ensure that the CBT curriculum remains relevant and responsive to industry demands. These key steps emphasize ongoing assessment and adaptation. Collecting feedback from stakeholders, analyzing data to identify areas for improvement, developing action plans, and regularly reviewing the program based on feedback are essential for continuous improvement. These key steps emphasize a data-driven and stakeholder-oriented approach to program enhancement.

These findings provides a comprehensive and well-structured set of interventions and key steps that address various aspects of the CBT program as discussed by Noe *et al* (2013) and Nunjana (2022). By implementing these interventions effectively, the CBT institution can significantly enhance the program's quality, relevance, and impact on student success and community development.

Implementation of the CBT Program Enhancement

The implementation of the interventions being proposed is suggested to be accomplished following the Theory of Change Framework as shown in Figure 1.

Figure 1. The Proposed Implementation of the Intervention



As shown in Figure 1, the intervention aims to enhance the employment prospects of CBT graduates by expanding the range and quality of career services available to them.

By implementing these career services and support initiatives, the intervention aims to empower CBT graduates with the resources, guidance, and opportunities needed to secure meaningful employment and advance their careers. It underscores the importance of holistic support in facilitating successful transitions from training programs to the workforce.

Overall, the proposed implementation of the Intervention has the potential to be a successful way to increase the employment rate of CBT graduates. By providing CBT students and graduates with the skills and knowledge they need to be successful in the workforce and with opportunities to network with potential employers, this Intervention can help CBT graduates achieve their employment goals. The institution should develop a strong alumni relations program. This program can connect CBT graduates with potential employers and provide them with support and guidance throughout their careers. The institution should work with the government to develop policies supporting CBT graduates' employment. For example, the government could provide tax breaks to companies that hire CBT graduates or create apprenticeship programs for CBT graduates. The institution should also work with other educational institutions to develop

joint programs that will provide CBT graduates with the skills and knowledge they need to succeed in the workforce.

By taking these additional steps, the institution can further increase the employment rate of CBT graduates and help them to achieve their full potential.

DISCUSSION

This study investigated the employment situation of graduates from two technical schools in the Philippines (BSAT and TPSAT) focusing on those who completed the qualifications in BSAT and TPSAT programs. The researchers wanted to understand why some graduates struggled to find jobs. They also explored what the schools were doing to address these challenges.

The study used surveys to gather information from graduates and employers. Over 300 graduates from 2018 to 2022 participated in the survey. The findings showed that more than half of the graduates were unemployed, with job mismatch and lack of opportunities being the main reasons. Interestingly, a significant portion (around 28%) were self-employed, often running businesses related to sales, baking, or computers.

The employed graduates felt their technical, communication, and problem-solving skills were moderately relevant to their jobs. Self-employed graduates found entrepreneurial skills to be most important. Unemployed graduates, however, felt their technical, communication, and computer skills were not very relevant to the jobs they were seeking. Employers generally agreed that the graduates had the necessary knowledge, skills, and attitude but there was room for improvement. Stakeholders suggested a few improvements for the schools, including updating programs to reflect current industry needs, incorporating new technologies, and providing job placement services. Additionally, stakeholders recommended changes to the curriculum, such as extending training periods, providing better equipment, and creating a more favorable learning environment. Finally, there were suggestions to strengthen collaboration with industry partners and to make the programs more accessible to potential students.

Conclusions

1. The high unemployment rate among CBT graduates indicates a need to better align the program with industry demands.
2. Graduates' perceptions of skill relevance vary based on their employment status, suggesting the need for customized training.
3. Employers generally view CBT graduates positively, but there is room for improvement in their knowledge, skills, and attitudes. Stakeholders provide valuable suggestions to enhance the CBT program in various areas.
4. Stakeholders recommended changes to the curriculum, such as extending training periods, providing better equipment, and creating a more favorable learning environment. Finally, there were suggestions to strengthen

collaboration with industry partners and to make the programs more accessible to potential students.

Recommendations

Based from the findings of this study, the following recommendations are hereby presented:

1. Establish formal collaborations between the CBT institution and local stakeholders to ensure program alignment with community and industry needs.
2. Develop partnerships with local employers to incorporate their feedback into the CBT curriculum and provide students with industry experience**.**
3. Increase the number of training days and integrate industry-based certifications to enhance students' skills and knowledge.
4. Implement a comprehensive job placement program to connect graduates with employment opportunities.
5. Continuously evaluate and improve the CBT program based on feedback from stakeholders.
6. Integrate entrepreneurship, bookkeeping, and soft skills into the Senior High School curriculum to better prepare students for the CBT program.
7. Develop a strong alumni relations program and collaborate with the government to support the employment of CBT graduates.

Compliance with Ethical Standards

To ensure ethical practices, participant received a clear and comprehensive informed consent form explaining the study's purpose, data collection methods, potential risks and benefits, and their right to withdraw at any time. They Participants were explicitly informed of this right and provided with a clear and easy process for withdrawing. Data collection instruments were designed to avoid collecting any personally identifiable information. Any identifying information collected was securely stored and destroyed after analysis to ensure participant confidentiality. The research design minimized potential risks, and mitigation strategies were implemented for any identified psychological or emotional concerns. Participants were also informed of their right to seek support or counseling if needed. Researchers declared any potential conflicts of interest before commencing the study, ensuring objectivity and preventing personal biases from influencing the research.

All sources of information were properly cited and referenced throughout the research process, upholding academic integrity and respecting the intellectual property of others. All printed data were safeguarded and kept in secured cases while digital copies

were secured with passwords. Researchers were mindful of their own biases and took steps to mitigate them during data collection and analysis. Statistician and subject matter experts were consulted. The research design was also structured to minimize bias and ensure the validity of the results. Finally, the results was used purely for research purposes. The data was not used for any commercial or personal gain, solely for the advancement of knowledge in the field.

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ASSESSMENT OF THE THREE PILLARS OF THE COMPREHENSIVE DISASTER RISK REDUCTION MANAGEMENT IN BASIC EDUCATION

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ABSTRACT

Disasters are inevitable, but their scope and magnitude are often magnified due to unsustainable development that has not considered the possible hazard impacts in a particular location. Compliance with DRRM should be identified as one of the primary concerns of any school to prepare necessary precautionary measures in the occurrence of natural and even human-caused calamities. This study entitled “Assessment of the Three Pillars of the Comprehensive Disaster Risk Reduction Management in Basic Education” sought to establish significant relationships between the knowledge, skills, and attitudes of the teacher respondents, as well as with the school profile of the 48 participating schools using Chi-Square Test. Best Practices for the implementation of the DRRM activities were also analyzed. The test of hypotheses conducted in this study has recognized the significant relationship between variables that are notably important to the teachers, schools, pillars of the DRRM, and most importantly, to the learners. The study's results displayed a significant relationship between the teachers' attitudes, together with the enrollment profile, and the extent of the level of implementation of the three pillars of comprehensive DRRM in Basic Education. Having a high score on the CFSS also significantly correlates with the three pillars of comprehensive DRRM in Basic Education.

Keywords: *Disaster risk reduction management, hazard, resilience, Philippines, community involvement*

INTRODUCTION

The world has experienced increased exposure to risks and hazards of climate-related and human-made disasters that threaten lives and sustainable development efforts (Lopez et al., 2018). In the study of Manalo (2019), the situation needs attention. Therefore, disaster capacity and mitigation efforts can be formulated to reduce population exposure and vulnerability in international and local settings. Disasters are inevitable, but their scope and magnitude are often magnified due to unsustainable development that has not considered the possible hazard impacts in a particular location. The effects of such can be minimized if the population has a better understanding of locally experienced hazards and implements corresponding preventive or mitigating measures.

Disasters, with their potential to cause deaths and severe societal disruptions, necessitate the global community to take decisive actions to address and reduce their impacts. In recognition of this, the Philippine government, through the Disaster Risk Reduction Management Act of 2010, has mandated the integration of disaster risk reduction into the school curriculum. This initiative aims to enhance the awareness and practice of personnel and students in calamity preparedness (Ventura & Madrigal, 2020).

The Philippines, with its high exposure to natural hazards and limited resources for managing them, faces a critical need for accurate forecasts and evidence-based allocation of available funding for disaster preparedness and relief. In this context, Disaster Risk Managers play a pivotal role. A survey conducted in 2016–2017 revealed significant disparities in how Managers perceive risk and their levels of preparedness across the country, influenced by varying storm impacts since 2009. To facilitate effective policymaking, the collection of more comprehensive and up-to-date data is imperative (Brucal et al., 2020).

In the Philippines, an earthquake happened which disrupted Education throughout the Bohol Region. The damage to education infrastructure was extensive, based on the Bohol Earthquake Action Plan (2013). Multiple schools were rendered unusable because of damage, and some are due to prolonged use as shelters.

As cited by Benson (2016), in the event of a disaster causes significant financing gaps in many developing countries. It means the economy may fall back instead on reallocating planned capital and recurrent spending to meet more immediate post-disaster spending requirements and often redirect capital budgets over the years. Unsafe schools will continue to betray the trust and hope that is placed in them unless schools are conscious and proactive. Learners will get injured and drop out of schools in vast numbers unless the responsibility is jointly taken to make them safe. School's Disaster Risk Reduction Management (DRRM) program implementation has a more significant favorable influence on the lives of the learners (Bello, 2020). Natural disasters have increased dramatically in frequency and intensity (Kron, 2015).

In this research, the author aims to assess the level of implementation of the three pillars of disaster risk reduction management in basic education in the District of Santa Maria as per DO 37, s. 2015. Compliance with DRRM should be identified as one of the primary concerns of any school to prepare necessary preventive measures in the occurrence of natural and even human-caused calamities.

Research Questions

1. What is the profile of the school, in terms of location, enrollment, position of school head, position of coordinator, school-based management level and child friendly school survey level?
2. What is the level of knowledge, skills, and attitudes of teachers on the three pillars of comprehensive DRRM in basic education?
3. What is the extent of implementation of the three pillars of the comprehensive DRRM in Basic Education, in terms of?
    3.1 Safe Learning Facilities?
    3.2 School Disaster Management?
    3.3 Risk Reduction and Resilience Education?
4. Is there a significant relationship between the level of knowledge, skills, and attitudes of teachers on the three pillars of comprehensive DRRM in basic education and the extent of implementation of the three pillars of comprehensive DRRM in Basic Education?
5. Is there a significant relationship between the profile of the school and level of knowledge, skills, and attitudes of teachers on the three pillars of comprehensive DRRM in basic education?
6. Is there a significant relationship between the profile of the school and the extent of implementation of the three pillars of the comprehensive DRRM in Basic Education?
7. What are the common and best practices of elementary and secondary schools with regard with the implementation of the three pillars of the comprehensive DRRM in basic Education?

METHODOLOGY

Research Design

This research used descriptive evaluative design. A descriptive evaluative research design is a methodological approach that aims to gather information about prevailing conditions or situations for the purpose of description and interpretation (Fikri et al., 2021).

This method was used to describe and analyze the data on the implementations of DRRM in Basic Education for this study.

Sampling Technique

According to Kang's study (2021), G*Power is a tool for computing statistical power analyses for many different t-tests, F-tests, Chi- squared tests, z-tests and some exact tests. This was used to determine the samples which will be used for the quantitative part of the study.

Purposive sampling was used. A purposive sample is the one whose characteristics are defined for a purpose that is relevant to the study (Andrade, 2021). The main purpose is to gather information by surveying the DRRM coordinators and their school heads of each school in the District of Santa Maria. There were 48 respondents in total.

Research Instrument

The researcher used a questionnaire approved and content validated by the defense panel. Validation of the questionnaire was made to secure the reliability and dependability of the questions as per suggestions and corrections made by the members of the panel. The questionnaire that was used in gathering data was divided into two parts. The first part includes the profile of the school as per the data available in the school reports. It specifically includes name of the school, location, enrollment, position of the school head, position of the school DRRM coordinator, SBM level, and CFSS points.

Part two was a multiple-choice type of examination that aided the author in determining the teacher respondents' level of knowledge, skill, and attitude regarding the three pillars of comprehensive disaster risk reduction management.

Part three assessed the three pillars of the comprehensive DRRM in primary Education using a five-point Likert's Scale. Pillar I (Safe Learning Facilities) includes critical indicators on two aspects: education facilities that are conducive to the physical well-being of learners and a secure learning environment that promotes the protection and mental and emotional well-being of learners. Pillar II (School Disaster Management) includes leadership and coordination, information management, school and community stakeholders' engagement and participation, student-led activities, and education continuity plans. The last was Pillar III (Risk Reduction and Resilience Education), which included DRRM integration in the K to 12 Curriculum, co-curricular activities, learning materials and strategies, and a national greening program.

An open-ended question was also included for the SDRRM coordinators and the school head. This noted the best practices of his respective schools regarding implementing the three pillars of comprehensive DRRM in basic Education that can be shared with other schools.

This study began with the pilot implementation. A pilot implementation of a study is a small-scale preliminary study conducted before any large-scale quantitative research to evaluate the potential for a future, full-scale project. It is considered a fundamental stage of the research process, for it can help identify design issues and evaluate a study's feasibility, practicality, resources, time, and cost before the main research is conducted.

The pilot implementation enables researchers to predict an appropriate sample size, budget accordingly, and improve the study design before performing a full-scale project. The study was piloted to all elementary SDRRM Coordinators and Key teachers of the Mabitac Sub-Office respondents.

Data Collection and Analysis

The author has the pertinent documents approved by proper authority to conduct this study. Communication lines and coordination with responsible persons was also be ensured for proper distribution and retrieval of the raw data needed.
A survey was conducted, and the researcher visits all the schools in order to gather all the necessary data from the school DRRM coordinators and school heads, for them to answer the survey. It was also noted to remind the respondents of the confidentiality of their answers. The answers in the open- ended questions were noted and highlighted through citation of best practices.

As for the analysis of data, the parameters are presented with the corresponding statistical tools. They were used for a more valid and more reliable interpretation and analysis of data.

The profile of the school, and the assessment of the level of knowledge, skill, and attitude of teachers on the three pillars of comprehensive DRRM used frequency and percentage. A percentage frequency distribution is a display of data that specifies the percentage of observations that exist for each data point or grouping of data points. It is a particularly useful method of expressing the relative frequency of survey responses and other data (Khan et al., 2018).

The assessment of the extent of implementation of the three pillars of the comprehensive DRRM in Basic Education used weighted means. Significant relationship between the level of knowledge, skill, and attitude of teachers on the three pillars of comprehensive DRRM and extent of implementation of the three pillars of the comprehensive DRRM in basic education used the test of relationship called the chi-squared test.

For the significant relationship between the profile of the school and the extent of implementation of the three pillars of the comprehensive DRRM in basic education, this study used the chi- squared test. Chi square testing can also be used to determine if two categorical variables are associated with each other. The variables being analyzed do not have to have the same number of levels (Chen, 2021).

RESULTS

Table 1. Profile of the Schools

Location	**Frequency**	**Percentage**
Upland	18	37.50
Lowland	26	54.17
Town Proper	4	8.33
Total	**48**	**100.00**
Enrollment	**Frequency**	**Percentage**
Less than 250	34	70.83
251-500	10	20.83
501-750	0	0.00
751 and Above	4	8.33
Total	**48**	**100.00**
Position of the School Head	**Frequency**	**Percentage**
Teacher Leader	0	0.00
Teacher In Charge	14	29.17
Head Teacher	14	29.17
Principal	20	41.67
Total	**48**	**100.00**
Position of the School DRRM Coordinator	**Frequency**	**Percentage**
Teacher I	20	41.67
Teacher II	13	27.08
Teacher III	14	29.17
Head Teacher/ Master Teacher	1	2.08
Total	**48**	**100.00**
School Based Management Level	**Frequency**	**Percentage**
Level 1 (Developing)	0	0.00
Level 2 (Maturing)	38	79.17

Level 3 (Advanced)	10	20.83
Total	**48**	**100.00**

Child Friendly School Survey Level	**Frequency**	**Percentage**
30-below	8	16.67
31 to 35	10	20.83
36 to 40	30	62.50
Total	**48**	**100.00**

Table 2. Level of Knowledge of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

Competency	**No. of Items**	**Highest Score**	**Lowest Score**	**Mean**	**SD**	**MPS**
Knowledge	10	10	4	7.75	1.56	77.50

Item	**Number of Correct Responses**	**Item Difficulty Index**
DRRM means.	47	0.98
National and provincial hazard maps have been prepared to increase knowledge of risks and at the same time influence development of policies and programs.	48	1.00
This pillar refers to the establishment of organizational support structures such as the DRRM Service and DRRM Coordinators in all regional and division offices of DepEd.	37	0.77
This refers to the integration of DRRM in the formal and non-formal school curricula and in extracurricular activities.	41	0.85
How many times do we conduct the Nationwide Simultaneous Earthquake Drill?	48	1.00
Disaster risk management involves activities related to the following except for one:	28	0.58
Which of the following is the correct approach of the DRR's Innovation curve?	38	0.79

Which is identified as the appropriate communication of robust risk information at the right time can raise awareness and trigger action.	28	0.58
Which is identified as the understanding of the geographic area affected, along with the intensity and frequency of hazard events, planning evacuation routes, creating shelters, and running preparedness drills.	27	0.56
Which is identified as the risk information for reconstruction needs to be available before an event occurs, since after the event there is rarely time to collect the data needed to inform resilient design and land-use plans.	30	0.63

Table 3. Level of Skills of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

Competency	**No. of Items**	**Highest Score**	**Lowest Score**	**Mean**	**SD**	**MPS**
Skills	10	10	4	8,25	1.56	82.50
Item				**Number of Correct Responses**		**Item Difficulty Index**
What do you call the initial care for an ill or injured person?				48		1.00
In giving first aid treatment, the first step is to _____.				34		0.71
Which of the following is not a type of sports injury?				36		0.75
In the prevention of communicable disease and illness, _____ is essential.				40		0.83
During an emergency procedure, recognizing respiratory or cardiac arrest and the proper application of CPR is called as _____.				39		0.81
Basic Life Support is performed to support the patient's _____through the use of CPR until advanced life support arrives.				45		0.94
In doing the CPR in adult, how many breaths should be given every 30 compression?				33		0.69
It is the first aid given when a person is choking.				43		0.90

If an emergency patient has fractured arm or leg, this supportive device is used to keep in place any suspected fracture.	44	0.92
Which one is not a goal of DRR?	34	0.71

Table 4. Level of Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

Competency	Weighted Mean	Verbal Interpretation	Rank
Attitude In the occurrence of earthquakes, floods, or other disasters, our school is adequately prepared.	4.60	Very High	6.5
Hazard mapping is done and properly addressed.	4.60	Very High	6.5
Training of teachers and other stakeholders is conducted.	4.48	Very High	9
Drills for disaster preparedness are conducted every quarter.	4.85	Very High	1
In case of disaster occurrence, evacuation maps are visible and are strategically placed for the learners to be seen.	4.67	Very High	5
In case of disaster occurrence, emergency contact numbers are visible and are strategically placed for easy access.	4.69	Very High	3.5
A disaster kit is always ready and available.	4.73	Very High	2
Monitoring of news and forecasts for preparedness for disasters and calamities.	4.69	Very High	3.5
It is easy to contact response teams because the school has an available communication device.	4.50	Very High	8
Transport for emergency cases is simple because there is an available transport service.	4.06	High	10
Average Weighted Mean	**4.59**	**Very High**	

Table 5. Extent of Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education in terms of Safe Learning Facilities

Pillar I Safe Learning Facilities	Weighted Mean	Verbal Interpretation	Rank
is accessible to all, regardless of physical ability.	4.542	Very High	6.5
the learning environment is marked by visible boundaries and clear signs, as appropriate.	4.500	Very High	8.5
the grounds have adequate space for classes and administration, recreation, and sanitation facilities.	4.375	High	14.5
the class space and seating arrangements are according to the prescribed ratio of space per learner and teacher, at all grade levels, to facilitate participatory methodologies and learner-centered approaches.	4.563	Very High	5
the community participates in the construction and maintenance of the school.	4.375	High	14.5
basic health and hygiene are promoted in the learning environment.	4.708	Very High	1
adequate sanitation facilities are provided, considering age, gender, and special education needs and considerations.	4.667	Very High	2
adequate quantities of water for safe drinking and personal hygiene are available at the learning site.	4.500	Very High	8.5
is near the populations they serve.	4.458	High	12
there are access routes leading to the school that are safe and secure for all.	4.479	High	10.5
the learning environment is free from dangers that may cause harm to learners.	4.396	High	13
training programs for teachers, learners, and the community are in place to promote safety, security, and protection.	4.542	Very High	6.5
teachers and other education personnel are provided with the skills to give psychosocial support for the learners' emotional well-being.	4.479	High	10.5

the community is involved in decisions concerning the location of the learning environment, and in establishing systems and policies to ensure that learners are safe and secure.	4.604	Very High	4
the nutrition and short-term hunger need of learners are addressed to allow for effective learning to take place at the learning site.	4.646	Very High	3
Average Weighted Mean	**4.522**	**Very High**	

Table 6. Extent of Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education in terms of School Disaster Management

Pillar II School Disaster Management	**Weighted Mean**	**Verbal Interpretation**	**Rank**
the DRRM was headed by the school head.	4.771	Very High	1.5
teachers and other school personnel, together with the parents and community members are involved in the SDRRM Team.	4.729	Very High	4
information is gathered, stored, and disseminated.	4.729	Very High	4
administrators know how to manage information on any phase of the disaster.	4.771	Very High	1.5
the community stakeholders are engaged and actively participate in the assessing, planning, implementing, monitoring, and evaluating education in emergency programs.	4.521	Very High	9
the learners understand and participate in DRRM activities.	4.667	Very High	6
capacity building is included in the School Improvement Plan.	4.729	Very High	4
risk assessment and training needs analysis are conducted.	4.604	Very High	7
training of the school community is maximized through partnerships with NGOs and CSOs.	4.521	Very High	9
contingency plans are present in case hazards incur.	4.521	Very High	9

Average Weighted Mean	**4.656**	**Very High**	

Table 7. Extent of Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education in terms of Risk Reduction and Resilience Education

Pillar III Risk Reduction and Resilience Education	**Weighted Mean**	**Verbal Interpretation**	**Rank**
classroom teaching of DRRM is implemented in all grade levels and subject areas such as Science, Araling Panlipunan, and Health.	4.792	Very High	1
classroom teaching of DRRM is complemented with co-curricular activities and local and national activities.	4.646	Very High	3
learning materials are made available by the SDRRM Team.	4.458	High	4
DepEd goals on food security, biodiversity conservation, and climate change mitigation and adaptation are integrated such as participation in the national greening program.	4.750	Very High	2
Average Weighted Mean	**4.661**	**Very High**	

Table 8. Significant Relationship between the Level of Knowledge, Skills, and Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education and the Extent of Implementation of the Three Pillars of Comprehensive DRRM in Basic Education

Competency	**Pillar**	x^2 **Value**	**p-value**	**Decision**	**Interpretation**
Knowledge	PillarI	8.988	0.704	Failed to Reject H_0	Not Significant
	Pillar2	6.235	0.397	Failed to Reject H_0	Not Significant
	Pillar3	5.362	0.498	Failed to Reject H_0	Not Significant
Skills	PillarI	7.576	0.817	Failed to Reject H_0	Not Significant
	Pillar2	7.462	0.28	Failed to Reject H_0	Not Significant

	Pillar3	8.46	0.206	Failed to Reject H_0	Not Significant
Attitude	PillarI	25.014	0.001	Reject H_0	Significant
	Pillar2	31.694	0.001	Reject H_0	Significant
	Pillar3	21.626	0.001	Reject H_0	Significant

Table 9. Significant Relationship between the Profile of the School and Level of Knowledge, Skills, and Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

Profile of School	**Competency**	x^2 **Value**	**p-value**	**Decision**	**Interpretation**
Location	Knowledge	9.351	0.673	Failed to Reject H_0	Not Significant
Enrollment		13.134	0.359	Failed to Reject H_0	Not Significant
Position		17.788	0.122	Failed to Reject H_0	Not Significant
DRRM Coordinator		16.253	0.575	Failed to Reject H_0	Not Significant
SBM Level		5.688	0.459	Failed to Reject H_0	Not Significant
CFSS Level		7.554	0.819	Failed to Reject H_0	Not Significant
Location	Skills	11.18	0.514	Failed to Reject H_0	Not Significant
Enrollment		23.658	0.023	Reject H_0	Significant
Position		16.152	0.184	Failed to Reject H_0	Not Significant
DRRM Coordinator		19.268	0.376	Failed to Reject H_0	Not Significant
SBM Level		6.901	0.33	Failed to Reject H_0	Not Significant
CFSS Level		14.02	0.299	Failed to Reject H_0	Not Significant
Location	Attitude	2.985	0.56	Failed to Reject H_0	Not Significant
Enrollment		2.651	0.618	Failed to Reject H_0	Not Significant
Position		3.268	0.514	Failed to Reject H_0	Not Significant
DRRM Coordinator		6.528	0.367	Failed to Reject H_0	Not Significant

SBM Level		1.112	0.574	Failed to Reject H_0	Not Significant
CFSS Level		4.944	0.293	Failed to Reject H_0	Not Significant

Table 10. Significant Relationship between the Profile of the School and the Extent of Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education

Profile of School	**Pillar**	x^2 **Value**	**p-value**	**Decision**	**Interpretation**
Location	I	2.354	0.671	Failed to Reject H_0	Not Significant
Enrollment		2.065	0.724	Failed to Reject H_0	Not Significant
Position		2.601	0.627	Failed to Reject H_0	Not Significant
DRRM Coordinator		5.053	0.537	Failed to Reject H_0	Not Significant
SBM Level		5.861	0.053	Failed to Reject H_0	Not Significant
CFSS Level		9.947	0.041	Reject H_0	Significant
Location	II	0.827	0.661	Failed to Reject H_0	Not Significant
Enrollment		0.607	0.738	Failed to Reject H_0	Not Significant
Position		0.703	0.704	Failed to Reject H_0	Not Significant
DRRM Coordinator		4.168	0.244	Failed to Reject H_0	Not Significant
SBM Level		2.246	0.134	Failed to Reject H_0	Not Significant
CFSS Level		8.43	0.015	Reject H_0	Significant
Location	III	0.403	0.817	Failed to Reject H_0	Not Significant
Enrollment		0.356	0.837	Failed to Reject H_0	Not Significant
Position		2.499	0.287	Failed to Reject H_0	Not Significant
DRRM Coordinator		1.747	0.626	Failed to Reject H_0	Not Significant
SBM Level		4.692	0.044	Reject H_0	Significant
CFSS Level		8.798	0.012	Reject H_0	Significant

DISCUSSION

Disasters are sudden catastrophes that ravage everything and take away human lives. It is categorized into 1. natural disasters or disasters that humans cannot control, such as floods, fire, and earthquakes; and 2. man-made disasters due to the implications that human beings themselves cause certain disasters, and some of these acts are warfare, vandalism, and cyber-attacks among others (Brown, 2018). Assessment of the three pillars of the comprehensive disaster risk reduction management in basic education was completed through a survey method. The results from the data gathered will be presented and discussed this in chapter.

While the DRRM act provided a legal basis for its disaster risk reduction directives, the Department of Education (DepEd) issued DO 37, s. 2015 as the basis of the Basic Education Framework with a more comprehensive Disaster Risk Reduction Management. Catanus (2018) stated that in this framework, the offices, and schools of DepEd shall have institutionalized DRRM structures, systems, protocols, and practices. Moreover, the impact of disasters always finds their way in schools through strong typhoons and massive flooding that ruins school properties. Thus, Philippines being prone to disaster warrant a closer look at its disaster-related policies that are currently in place (Mamhot, 2019).

Although numerous different programs have been developed, there are still very few studies on the program awareness and implementation in educational institutions. Thus, to fill in the gap in existing literature, this study included the profile of the school to determine the extent of implementation of the public schools' DRRM program.

Profile of the School

The researcher wanted to test the relationships between the profile of the school. Among the 48 public schools who participated in the survey, only 4 schools lie within the town proper, 26 of the schools are located in the lowland, and the remaining 18 are located upland. The school enrolment profile shows that the majority of the schools who participated in the survey have an enrollment of less than 250 students, having a percentage of 70.83. this was followed by those schools whose enrollment was between 251 to 500 with a frequency of 10 and has a percentage of 20.83. Last was the 4 schools whose enrollment was 751 and above with a percentage of 8.33.

As for the school head's position, 20 out of 48 (41.67%) respondents have a principal item, 14 (29.17) head teacher, and 14 (29.17) are teacher-in-charge. For the school DRRM coordinators, the following are the breakdown of the number of participants: 20 (41.67%) Teacher I, 13 (27.08%) Teacher II, 14 (29.17%) Teacher III, and 1 (2.08%) Head/ Master Teacher.

The majority of the participating schools, 38 out of 48 (79.17%) belong to Level II (Maturing) of the SB Level, and the remaining 10 (20.83%) are on Level III (Advanced). With regards to the CFSS, 8 (16.67%) schools have a score of 30 and below, 10 (20.83%)

schools have a score between 31- 35, and the majority of the schools, 30 (62.50%) have a score between 36 to 40.

Level of Knowledge, Skills, and Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

The decisive role of a teacher has called upon the necessity to employ a range of measurement standards and accreditation to ensure the students who graduate from a certain program meet employer requirements. In the past years, a teacher's competency has attracted much attention among researchers and become the main concern among educational stakeholders. In the study of Omar et al. (2020), the pertinent facts from their research findings indicated salient contributions to understanding teacher competence in the teaching profession.

The researchers pushed the research context within teacher competency, imploring the necessary action toward understanding teacher's competency to improve the teaching and learning environment (Low et al., 2016). In a study, it was indicated that the pivotal role of competency consists of knowledge, skills, and attitudes as characteristics and personalities that one person must possess to showcase his or her competence in fulfilling the designated job. The main purpose of competency is to enable someone to perform more tasks effectively and effectively at their optimum level (Nousiainen et al., 2018).

In Table 1, an Item analysis of the level of knowledge of the teachers on the three pillars of the comprehensive DRRM in Basic Education is presented. The MPS score is 77.50. Based on the difficulty index of the 10-item test, item 2 "National and provincial hazard maps have been prepared to increase knowledge of risks and at the same time influence development of policies and programs (a. Hazard Map)" has the greatest number of correct answers.

On the contrary, the least number of correct answers was item 9 "Which is identified as the understanding of the geographic area affected, along with the intensity and frequency of hazard events, planning evacuation routes, creating shelters, and running preparedness drills (a. Preparedness)". Out of the 48 respondents, 8 (17%) got a perfect score of 10 in the knowledge of teachers on the three pillars of comprehensive DRRM.

In Table 3, an Item analysis of the level of skills of the teachers on the three pillars of the comprehensive DRRM in Basic Education is presented. The MPS score is 82.50. The highest score was 10, and the lowest was 4. Based on the difficulty index of the 10-item test, item 1 "It is the provision of initial care for an ill or injured person. (a. First Aid)" has the greatest number of correct answers. On the contrary, the least number of correct answers was item 7 "In doing CPR, how many breaths should be given every 5 seconds? (a. 1)". Out of the 48 respondents, 13 (27.08%) got a perfect score of 10 in the skills of teachers on the three pillars of comprehensive DRRM.

For Table 4, the level of attitudes of teachers on the three pillars of the comprehensive DRRM, the average weighted mean was computed at 4.59 and has the interpretation of very high. Of the 10 competencies itemized under the attitude, Drills for disaster preparedness conducted every quarter got the highest weighted mean of 4.85 and was interpreted as very high. The lowest mean was 4.06, stating that transport of emergency cases is simple because there is an available transport service, which was interpreted as high. The other eight components have an average ranging from 4.73 to 4.48, all interpreted as to be very high.

Table 4. Level of Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

These competencies in the knowledge, skills, and attitude of teachers imply that they were very highly competent in the three pillars of comprehensive disaster risk reduction management. Teachers conducted drills for disaster preparedness quarterly, attended DRRM-related trainings and workshops, always prepared disaster kits as ready and available, always monitored the news and forecasts as they prepared for disasters and calamities, and placed the emergency hotlines and evacuation maps in strategic locations in case of emergency. They also conduct hazard mapping in their respective schools to check and prevent any occurrence of accidents due to hazards.

Table 5 implies a very high extent of implementation of the three pillars of the comprehensive DRRM in basic education in terms of Safe Learning Facilities. They practice the promotion of basic health and hygiene through the provision of adequate hand-washing facilities in every school. Schools also have a feeding program to address hunger needs.

The community can make decisions concerning the location of the learning environment and establish systems and policies to ensure that learners are safe and secure as the Department of Education (DepEd) reiterates the provisions of DO 037, s. 2022, which provides guidelines on the cancellation or suspension of classes and work in schools in the event of natural disasters, power outages/power interruptions, and other calamities. This includes the school heads' authority and discretion to suspend the conduct of in-person classes and shift to alternative delivery modes (ADM) in cases of extreme heat and other calamities that may compromise the health and safety of learners, teachers, and non-teaching personnel.

Table 6 shows the extent of implementation of the three pillars of the comprehensive DRRM in basic education in terms of school disaster management with an average weighted mean of 4.656, interpreted as very high.

This implies that all SDRRM was headed by the school head, teachers, and other school personnel, together with the stakeholders are also involved in the team. Schools also include DRRM in the SIP, AIP, and APP for proper procurement of DRRM supplies and budgeting on capacity building. DRRM information is well-managed and properly disseminated.

In Table 7, the extent of implementation of the three pillars of the comprehensive DRRM in Basic Education in terms of risk reduction and resilience education is presented. The average weighted mean was 4.661 and was interpreted as very high.

This implies that DRRM is integrated into classroom teaching in all grade levels and subject areas such as Science, Araling Panlipunan, and Health. This integration of classroom teaching of DRRM is complemented by co-curricular activities and local and national activities. There were also available learning materials.

Significant Relationship between the Level of Knowledge, Skills, and Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education and the Extent of Implementation of the Three Pillars of Comprehensive DRRM in Basic Education

The knowledge of teachers was not significantly related to Pillar 1 (Safe Learning Facilities), Pillar 2 (School Disaster Management), and Pillar 3 (Risk Reduction and Resilience Education), the same with the skills but the attitudes were significantly related to the three Pillars. These imply that the knowledge and skills of the teachers were not important to accomplish the three pillars. However, teachers' attitudes were important in attaining the three pillars.
In statistics, a large chi-square value means that data does not fit, then the observed and expected values are not close and the model is a poor fit to the data (Shen, et al., 2022). In this case, the attitude of the teachers does have a significant relationship with regards to the implementation of comprehensive DRRM.

Disaster risk reduction management has been integrated into all schools to ensure that students and teachers are prepared in the event of a disaster or hazard. This study by Fale (2022) aimed to determine the extent of climate change adaptation, disaster risk reduction management practices, and resiliency of secondary school teachers by utilizing a descriptive and correlational design.

The findings revealed that secondary school teachers' level of climate change adaptation was very satisfactory. The disaster risk reduction management practices of secondary school teachers were also very satisfactory. Secondary school teachers' resiliency in terms of absorptive and anticipatory capacity was rated very satisfactory, while transformative capacity was rated satisfactory.

Another significant finding is that the secondary teachers engaged in an acceptable practice of eradicating disaster risk through mitigation. Teachers tend to provide adequate knowledge of the various types of disasters that are likely to occur and ways to protect against them by incorporating them into their curriculum.

Significant Relationship between the Profile of the School and Level of Knowledge, Skills, and Attitudes of Teachers on the Three Pillars of Comprehensive DRRM in Basic Education

The study of Lavilles and Hordista (2024), determined the level of awareness of the teachers and administrators in natural and human-caused disasters as well as their level of preparation and implementation of the DRRM Program using descriptive-correlational research design, specifically, weighted mean and Pearson Correlation. Results of the study showed a high awareness of teachers and administrators in natural and human-caused disasters. The school personnel also prepared and implemented the DRRM Program. The study also revealed significant relationships between the awareness of multiple disasters and preparation in the DRRM Program as well as the preparation and implementation of the DRRM Program. Given the overall results, the study may serve as a basis for schools to improve the implementation of the DRRM Program through higher disaster awareness and preparation.

In line with this, the Department of Education (DepEd) included the Disaster Readiness and Risk Reduction (DRRR) subject in the K-12 Senior High School curriculum after launching the K-12 program in 2013. However, after reviewing the curricula of two selected schools from the Philippines, it was discovered that the DRRR subject was only offered in the Science, Technology, Engineering, and Math (STEM) strand as a required subject while it is offered in the General Academic (GAS) strand as either a required subject or an elective. Furthermore, DepEd itself prescribed DRRR as a core subject only for STEM, with the other strands not required to take this subject. Therefore, it is recommended for DepEd to revisit the Senior High School curricula and try to include Disaster Readiness and Risk Reduction as a required subject in all Senior High School strands in order to prepare the next generation in dealing with various hazards in the Philippines (Manalo & Manalo, 2020).

This study by Simon et al. (2021) was conducted to determine the level of resiliency to natural disasters of CAPSU as Basis to Strengthen Disaster Risk Reduction Management Program. The results of the study showed that faculty and staff respondents showed a high level of resiliency, observed 5R's and recorded cellphone hotline numbers. They participated in earthquake/fire drill, tree growing projects, volunteers on community recovery/clean - up drive.

The student who responded in the same study developed the skills in the four DRRM thematic areas but not in high extent, practiced "Drop, Cover, and Hold-on," unplug appliances, and turn - off gas supply, attended preparedness lectures; and volunteer services. Second district Campus/ Satellite colleges showed a high level of resiliency because these are areas prone to floods, soil erosion and earthquakes. It was also found that the lesser the number of faculty and staff and student population the easier it is to implement DRRM activities. Administration may consider conducting training related to First Aid, and correct handling of fire extinguisher.

From the recommendation of the study, knowledge, skills, and attitude of the teachers can be improved through conduct of workshops and trainings in awareness and preparation. In this case's scenario, different school profiles were tested in relationship with the knowledge, skills, and attitude of the teachers using Chi- Square Test. A significant relationship is established, with 95% level of confidence, between the enrollment profile of the school and the level of skills of the teachers on the extent of implementation of the comprehensive DRRM in Basic Education.

This implies that the competencies on the skills of the teachers such as prevention of illness and diseases, provision of first aid has a significant relationship with the number of enrollments.

Significant Relationship between the Profile of the School and the Extent of Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education

In this part of the study, the school's profile, and the extent of implementation of the three pillars of the comprehensive DRRM in Basic Education was tested for relationship using chi- square test. Results revealed a significant relationship between CFSS Level and Pillar I (Safe Learning Facilities), between CFSS Level and Pillar II (School Disaster Management), and between SBM Level and CFSS Level and Pillar III (Risk Reduction and Resilience Education). Their large chi- square value indicated that the above-mentioned profile has a significant relationship with the extent of implementation of the comprehensive DRRM.
The results revealed that the participants have very satisfactory awareness in the fields of enabling environment, safe learning facilities, disaster risk management, and risk reduction and resilience education and have shown satisfactory compliance in the same fields. Findings of their study indicated that DRRM is not emphasized in the schools. It was concluded that giving focus on school DRRM and conduct of relevant DRRM activities are important to establish resilience in schools.

The test of hypotheses conducted in this study has recognized the significant relationship between variables that are notably important to the teachers, schools, pillars of the DRRM, and most importantly to the learners. Just as Taluban, et al., (2023) in their study determined the disaster awareness and adaptation practices among senior high school students. A descriptive research design was employed through questionnaires.

Based on the data gathering by the researchers' findings show that in terms of disaster awareness, the respondents know the importance of disaster/emergency drills in school. Meanwhile, in terms of disaster adaptation practices of students at home the data reveals that the respondents are always updated in weather condition, temperature, and their surroundings.

On the other hand, as to disaster adaption practices of the respondents at school the data shows that the school disseminates enough information about evacuation areas or safe spot during and after disaster/ emergency situations inside the vicinity of the school.

Common and Best Practices of Elementary and Secondary Schools with regards with the Implementation of the Three Pillars of the Comprehensive DRRM in Basic Education

Amongst the 48 participating schools in the study, the most common practice for safe learning facilities is their accessibility to any physical ability and basic health and hygiene are promoted in the learning environment. This implies that public schools are great followers and advocates in conducting drills and other DRRM activities. Most schools' best practices include active community participation of the external stakeholders in the construction and maintenance of the school every *Brigada Eskwela*.

This study also implied a well-established School DRRM in schools. Common practice is the participation in the quarterly NSED. Notable best practices of some schools were the use of online platforms to disseminate information of DRRM, specifically on their official FB Page, also some schools include procurement of DRRM materials in their MOOE budget through inclusion in the School Improvement Plan and Annual Improvement Plan. Aside from these, schools tied up with the LGU and other NGOs in the conduct of workshops and trainings.

For Risk Reduction and Resilience Education, the most common practice is the classroom teaching of DRRM at all levels. This implies that teachers are highly proficient in classroom integration of the DRRM lessons. Significant practices of some schools are coordinating with other stakeholders and inviting them as speakers and training managers to be able to integrate such into the curriculum.

Conclusions

After analyzing the results of the study, the following conclusions are drawn:
Teachers in Santa Maria Sub- Office are more equipped with knowledge, skilled, and possessed a positive attitude towards DRRM implementation especially those teachers in schools with lower enrolment. Since DRRM is part of the curriculum, Child Friendly School Survey (CFSS) and School-Based Management level also has an effect on its implementation.

Recommendations

The following recommendations were formulated after carefully drawing the conclusions:
To support teachers who are knowledgeable, skilled, and competent in DRRM, continuous training of teachers, school administrators, facilitators, and staff are highly encouraged to keep them posted of the DRRM practices, methods, and advisories.
Development of monitoring and evaluation tools to properly monitor and evaluate the implementation of the DRRM activities in schools.

Establish more schools to keep the enroll low and encourage the schools to attain an advanced level in the SBM. DepEd, together with the National Government should keep

teachers and schools motivated in instigating DRRM activities to learners by providing learning materials.

School enrollment should be kept at medium scale for accurate and constant monitoring of DRRM activities. Schools can partner with the LGUs and other stakeholders to be able to continuously provide a healthier environment for the learners.

Compliance with Ethical Standards

The researchers obtained informed consent from all participants, ensuring their right to withdraw at any time. Anonymity and confidentiality were maintained throughout the study. There were no conflicts of interest, and the research adhered to ethical guidelines, avoiding plagiarism and bias. The results are solely for research purposes.

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ASSESSMENT ON THE EFFECTIVENESS OF FACEBOOK AS A MARKETING PLATFORM IN ABUYOG, LEYTE

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ABSTRACT

The purpose of this study was to assess the effectiveness of Facebook as a Marketing Platform for Micro, Small, and Medium Enterprises in Abuyog, Leyte. Due to the outbreak of COVID-19 pandemic, business operations were greatly much affected. Thus, the researchers observed that this is indeed a great problem for the business sector. Through observing the current trend of doing business these days with the use of social media, particularly Facebook, the researchers observed that there were MSMEs in Abuyog, Leyte which utilized Facebook Marketing Platform. Hence, the researchers would want to assess its effectiveness. The research method employed for this study was quantitative approach and it used Pearson-r correlation to determine the correlation of the variables under study. The research findings showed that the p-value was less than the significance level of 0.05. Thus, **"*there was a significant relationship between the status of sales and income, perceived usefulness, and extent of satisfaction to the extent of effectiveness of Facebook marketing platform.*"** This study concludes with practical recommendations from the researchers that all MSMEs in Abuyog, Leyte must adapt Facebook marketing in order to boost sales/income as this platform is effective.

Keywords: *effectiveness, satisfaction, Facebook, marketing, MSMEs*

INTRODUCTION

Over the last 40 years, we have seen a significant change in how business is conducted and how people interact with one another. Through the emergence of modern technology, the adoption of social media technology is speeding up, and we can anticipate that it will have a similar impact on businesses now and in the future.

Micro, Small, and Medium Enterprises or better known by the acronym “MSMEs” are the business entities that are operating here in the Philippines. These MSMEs are relatively smaller compared to huge companies and corporations. Section 3 of Republic Act No. 6977 “The Magna Carta for Small Enterprises” define MSMEs based on the following categories. Micro enterprises are business entities having less than fifty thousand pesos (P50,000) as the starting capital with 5 or less workers. Cottage enterprises are business entities having fifty thousand one to five hundred thousand pesos (P50,001 to P500,000) as the starting capital with 6 to 9 workers. On the other hand, small enterprises are entities that has a starting capital of five hundred thousand one to five million pesos (P500,001 to P5,000,000) with 10 to 99 workers. Lastly, medium scale enterprises are entities having a capital of five million one to twenty million pesos (P5,000,001 to P20,000,000). Here in the Philippines, there are lots of MSMEs since most businesses found in the local setting are small ones. Based on personal observation, this is for a fact in the local setting of Abuyog, Leyte because majority of the enterprises in the town fall under the micro enterprise category. These enterprises started with a capital of less than fifty thousand pesos (P50,000) and majority of these micro enterprises are on the food industry. When the COVID-19 pandemic struck, these small businesses were the hardest hit. These micro businesses suffered a significant loss of income as a result of lockdowns and stay-at-home protocols. Indeed, this is a significant problem for MSMEs, particularly micro businesses, and the task at hand is to find a solution that will allow these businesses to continue to earn despite the pandemic.

With the emergence of technology, new form of communication existed. Communication is no longer limited to personal interactions but there are now platforms that can be used in communicating with people who are far away from us, and one of those platforms is social media. Social media are new forms of communication that changes people's behavior and expectations, as well as how businesses operate. Because of the emergence of social media, users can now use social media platforms to invite and converse with others in an easy-to-use manner. This type of interaction has given millions of customers a voice, allowing them to communicate with one another and share their experiences and opinions. This is indeed true these days. As we can observe, social media users can now post their comments and feedbacks on social media pages, this give users the freedom to also communicate with one another in sharing different experiences and opinions.

Furthermore, the rapid adoption of social media, such as blogs and other social networking sites, as well as media-sharing technology, is altering how businesses respond to consumer needs and desires, as well as how they respond to competitors. This is for a fact since business entities now address issues and concerns of the customers through social media postings as well. Most of the announcements of business firms are now online – through social media platforms.

Additionally, social media represents marketing opportunities that can connect businesses directly with their customers. This statement is factual since we can observe that business firms can now connect with their customers easier and faster through the use of social media. In just a click, advertisements and announcements can be posted reaching millions of people. In the Social Media Marketing Report of 2011, ninety percent

of marketers indicated that social media was important to their business; all these sources only shows that as businesses become more globally competitive, marketing strategies must also become more innovative and compelling in order to attract larger pools of customers. Undeniably, modernization and globalization is already happening here in our country. That is why, business firms must adapt to these changes by creating new marketing strategies that could help them survive in this modern era.

A related study conducted by Tajvidi in 2017 investigated the impact of social media on business performance. The survey was carried out on MSMEs in the hotel industry in the United Kingdom. The study discovered the impact of social media on the performance of MSMEs in the United Kingdom, as well as the potential of marketing to mediate the relationship between social media and firm performance.

On the other hand, the study of Wang in 2017 investigated the role of social media marketing in improving customer relationships and firm performance. According to the findings of their study, the use of social media moderates the association between customer relationship capabilities and company performance. All these literatures are the basis for this study – that is to assess the effectiveness of social media, specifically Facebook as a marketing platform for MSMEs in Abuyog, Leyte. Other researchers such as those of Suariedewi in 2022 investigated the usage of social media by MSMEs for marketing in India, and their findings revealed that views of ease of use, perceived convenience, and compatibility all had a major impact on social media marketing. The study of Pires in 2022 evaluated the effect of social media marketing in value co-creation and engagement among Chinese and Hong Kong smartphone users. According to the findings of their study, social media marketing is quite effective in increasing value co-creation, engagement, repurchase intention, and brand awareness.

Essentially, there are also lots of researches being done even before the COVID-19 pandemic. Some related researches are: Effectiveness of Facebook as a free marketing tool, by Palma in 2016. The Implications of Facebook Marketing for Organizations by Ramsaran-Fowder in 2013, A Study on Effectiveness of Facebook Marketing among Economic Students by Avilala Sai Gowtham Reddy in 2019, and others. Technically, all these researchers talked about marketing. Much emphasis were layed on social media marketing particularly Facebook. All those researches were done before the emergence of pandemic, and they all have something in common which is the emphasis of the effectiveness of Facebook marketing platform. All those studies attempted to understand the efficiency of Facebook Marketing and how it is the most popular source of social media marketing for businesses those days and even until now.

On the other hand, there has been lot of researches on the use of social media as a marketing tool, but no one has done it during this pandemic. For this study, the researchers aim to assess the effectiveness of Facebook for MSMEs in Abuyog, Leyte particularly in this time of pandemic. Accordingly, the main gap for this research study is on the proliferation COVID-19 pandemic. Because of this, many nations have taken serious measures. Many economic actors, especially MSMEs and start-up businesses have been taken aback by lockdowns and limitations on most community activities and economic activity as per Putri, S. E., 2021. With regards to this, the International Labor

Organization (ILO) (Organization, 2020, p. 3; ILO, 2020) performed a survey to assess the impact of the COVID-19 pandemic on 571 micro, small, and medium-sized businesses. As a result, 58% of MSMEs reported that they had reduced production of goods and services due to a decline in demand. This survey result is already a problem because business operations were halted due to the pandemic, which will have a significant impact on the enterprise and the economy as well.

As Prenaj and Burim's study in 2016 highlighted the additional benefits of social media marketing – the result was an increase in sales for MSMEs, and also according to the study of Rasheed, Ahmed & Nafiz, Abdulla in 2022, their study concluded that the adoption of social media marketing has a significant positive impact on MSME performance. And this is what the authors of this research paper are trying to prove. Going back to the research locale of this study which is in Abuyog, Leyte, the main gap identified for MSMEs, particularly micro enterprises, is a lack of strategies on how to develop a marketing strategy that will promote and help their businesses earn more, especially in this time of pandemic. And, as technology advanced and the use of social networking sites became more popular, there needed to be a way to make use of these resources to promote and earn a sustainable profit – that is through Facebook marketing. Since using Facebook is the most popular in Abuyog, Leyte, creating Facebook pages for businesses is an excellent idea for MSMEs. With this, the ultimate goal is to evaluate if using Facebook as a marketing platform is effective or not.

Accordingly for this study, the researchers will assess if the status of sales and income, the perceived usefulness of Facebook marketing, and the extent of satisfaction of business owners using Facebook marketing has something to do with the overall effectiveness of the said platform.

Research Questions

This study determined the effectiveness of Facebook as a marketing platform for Micro, Small, and Medium Enterprises (MSMEs) in Abuyog, Leyte.

Specifically, it aims to answer the following questions:

1. What is the extent of effectiveness of online marketing via Facebook?
2. What is the status of sales and income of MSMEs in Abuyog, Leyte?
3. What is the extent of usefulness of Facebook marketing platform perceived by business owners?
4. What is the extent of satisfaction of the business owners utilizing Facebook as a marketing strategy?
5. Is there a significant relationship between the status of sales and income of MSMEs to the effectiveness of Facebook marketing platform?
6. Is there a significant relationship between the perceived usefulness of Facebook marketing platform to the effectiveness of Facebook marketing platform?
7. Is there a significant relationship between the extent of satisfaction among business owners utilizing Facebook marketing to the effectiveness of Facebook marketing platform?

METHODOLOGY

Locale of the Study

The research on “Assessment on the Effectiveness of Facebook as a Marketing Platform in Abuyog, Leyte” is centered around Abuyog, Leyte. A first-class municipality in the province of Leyte with numerous MSMEs. Abuyog, Leyte is the specific locale of this study, focusing on the marketing aspect of MSMEs in the said town. The goal is to know how effective is Facebook as a marketing platform, and how it helps in sales generation for businesses.

Sampling

The method to be used for sample selection is convenience sampling. The researchers are targeting at least thirty (30) participants and they will be selected based on availability and willingness to take part.

Data Gathering Procedure and Instrument

In this research, a carefully designed questionnaire, underwent validation and reliability test to ensure the quality of the survey questionnaire. The target population, Abuyog, Leyte’s entrepreneurs were selected using convenience sampling. Participants are the selected entrepreneurs utilizing Facebook marketing platform.

For the data collection, the researchers will utilize these tools for data collection procedure: (1) Online questionnaires through Google Forms; and (2) Online interview through Google Meet and/or Messenger.

In checking the validity and reliability of the survey questionnaire, the researchers asked the assistance of a statistician in validating the questionnaire and at the same time in computing for the reliability test.

Research Instrument Validation

Category	Rating				Score
	4	3	2	1	
Purpose	Purpose is stated clearly.	Purpose is stated somewhat clearly.	Purpose is stated vaguely.	Purpose is not stated.	**3**
Clarity of Questions	Questions are very clear. The reader will not have to ask for clarification.	Questions are clear, and a person might have to ask for clarification.	Questions are somewhat clear, and a person would have to ask for clarification.	Questions are confusing and ambiguous.	**3**
Content	All essential questions	Most of the essential	Some of the essential	One or fewer	**2**

	are properly addressed.	questions are properly addressed.	questions are properly addressed.	essential questions are properly addressed.	

Reliability Analysis

Reliability Statistics		
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**	**N of Items**
.951	.964	6

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Cronbach alpha shows that the survey questionnaire has an excellent reliability since alpha is greater than .9. The questionnaire could now be considered as reliable.

Item Statistics			
	Mean	Std. Deviation	N
VAR00001	4.5333	.68145	30
VAR00002	4.5667	.62606	30
VAR00003	4.3667	.71840	30
VAR00004	4.3667	1.09807	30
VAR00005	4.4000	1.10172	30
VAR00006	4.0667	1.22990	30

Process of Analysis and Statistical Treatment

The study's data treatment was rigorous, starting with self-made questionnaire undergoing expert validation and a pilot test. Using convenience sampling, a representative of 30 entrepreneurs using Facebook as a marketing platform was selected, with participants contacted for clarity and confidentiality. Data entry followed a systematic approach, and rigorous reliability and validity testing included the Pearson correlation coefficient. The analysis involved descriptive and inferential statistics, with findings presented using data visualization techniques. Throughout, ethical considerations were prioritized, ensuring informed consent and participant confidentiality.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
VAR00001	21.7667	19.771	.873	.940	.944
VAR00002	21.7333	20.202	.877	.941	.946
VAR00003	21.9333	19.926	.793	.673	.950
VAR00004	21.9333	15.926	.958	.980	.928
VAR00005	21.9000	15.955	.950	.978	.930
VAR00006	22.2333	15.633	.862	.796	.947

Scope and Limitations

The study "Assessment on the effectiveness of Facebook as a marketing platform in Abuyog, Leyte" focused on discovering how effectiveness is the use of social media, especially Facebook as a marketing tool in the time of pandemic. However, in this study, this only focus on one town in the province of Leyte, and only those entrepreneurs who are willing to take part in the study were interviewed and were asked to answer the survey questionnaire.

RESULTS

Shown below are the graphical presentations of the respondents' answers to the online survey questions through Google Forms.

The data shows that majority of the respondents were from the micro enterprises. Indeed, in Abuyog, Leyte, the researchers directly observed that majority of the enterprises are micro businesses having less than P50,000 as their capital. Majority of these micro enterprises in Abuyog, Leyte are on the food industry.

Figure 1: Summarized results on the survey question "How do you categorize your business in terms of capitalization?"

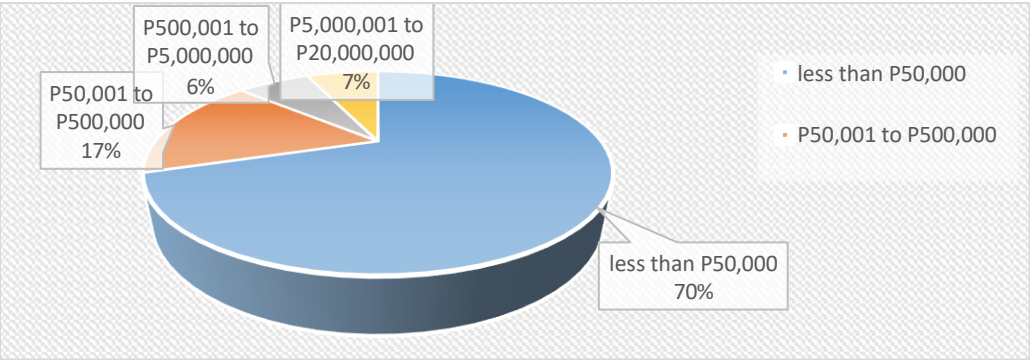


Figure 2: Summarized results on the survey question, “How do you categorize your business in terms of employment size?”

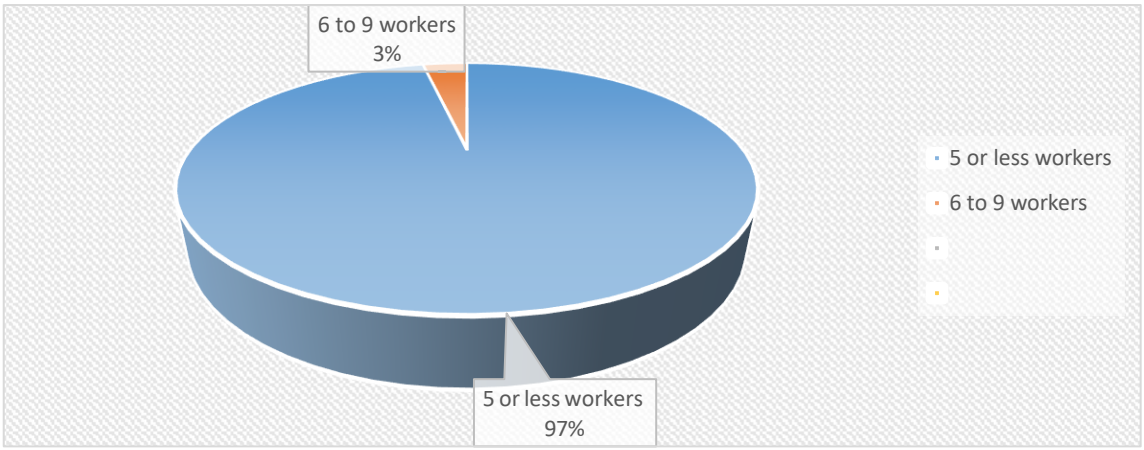


Figure 3: Summarized results on the survey question, “Years of business operation?”

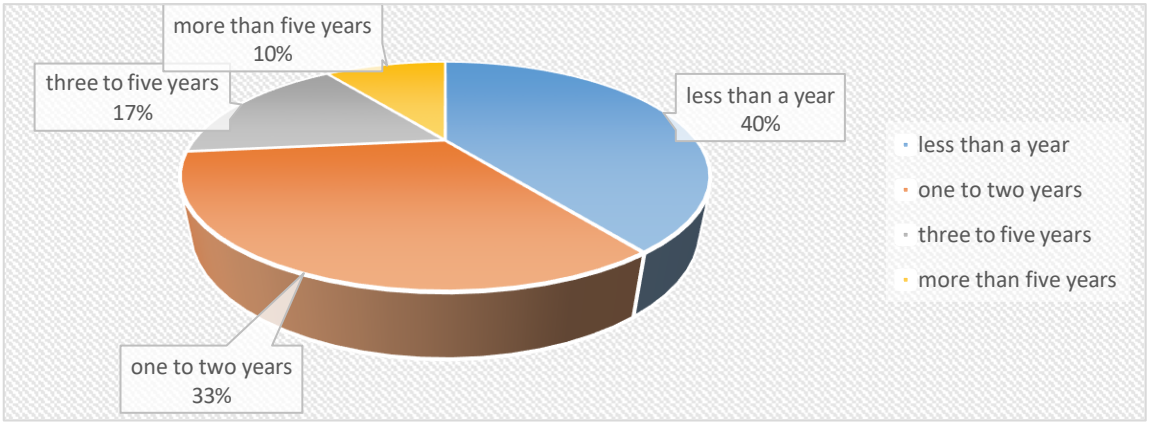


Figure 4: Summarized results on the survey question, “Do you have a Facebook Page for your business or are you using your own Facebook account for online marketing?”

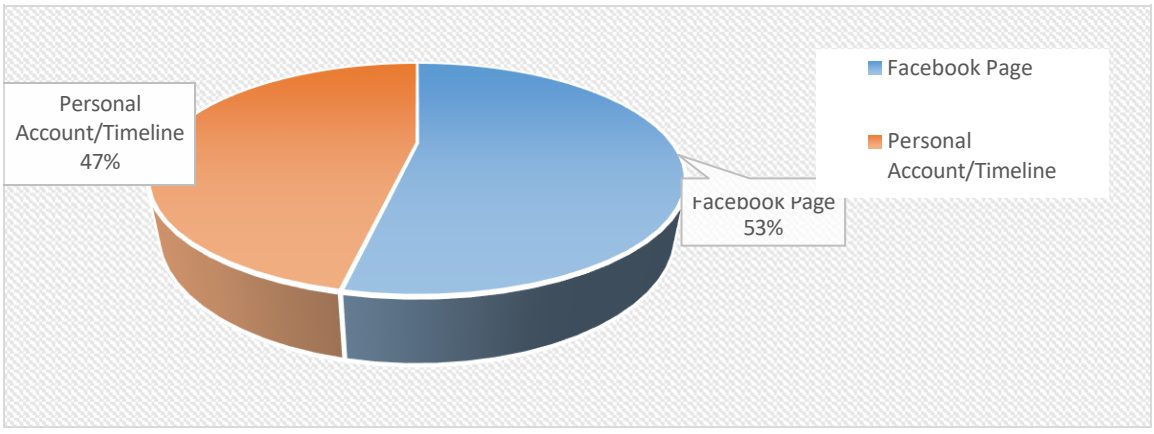


Figure 5: Summarized results on the survey question, “Does the use of Facebook as a marketing platform enhances customer relationship?”

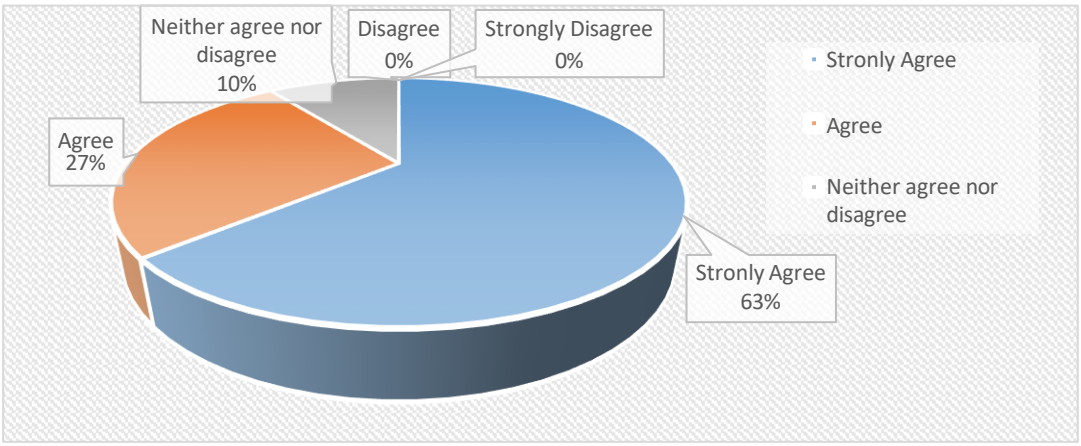


Figure 6: Summarized results on the survey question, “Were you able to attract more customers through the use of Facebook marketing?”

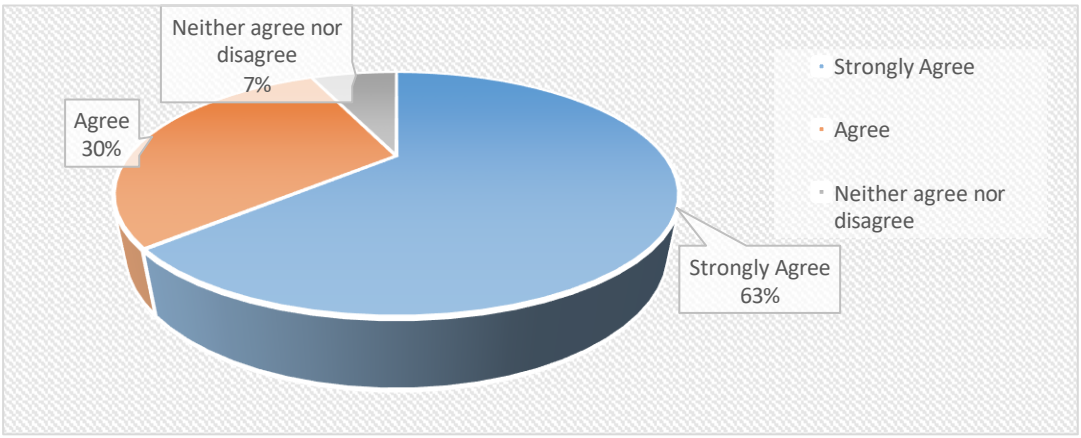


Figure 7: Summarized results on the survey question, “How about your sales? Was there a drastic increase in sales when you adapt the use of Facebook for promotion?”

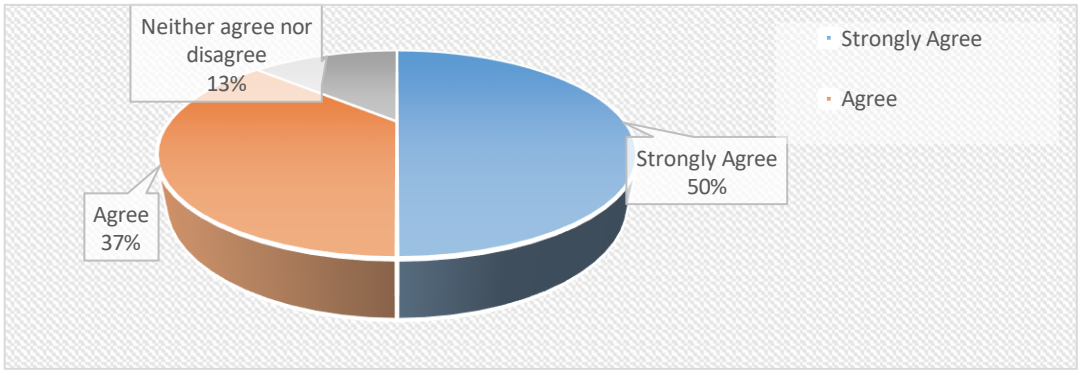


Figure 8: Summarized results on the survey question, “During the outbreak of COVID-19 pandemic, were you able to generate more income through the use of Facebook marketing platform? Kindly rate.”

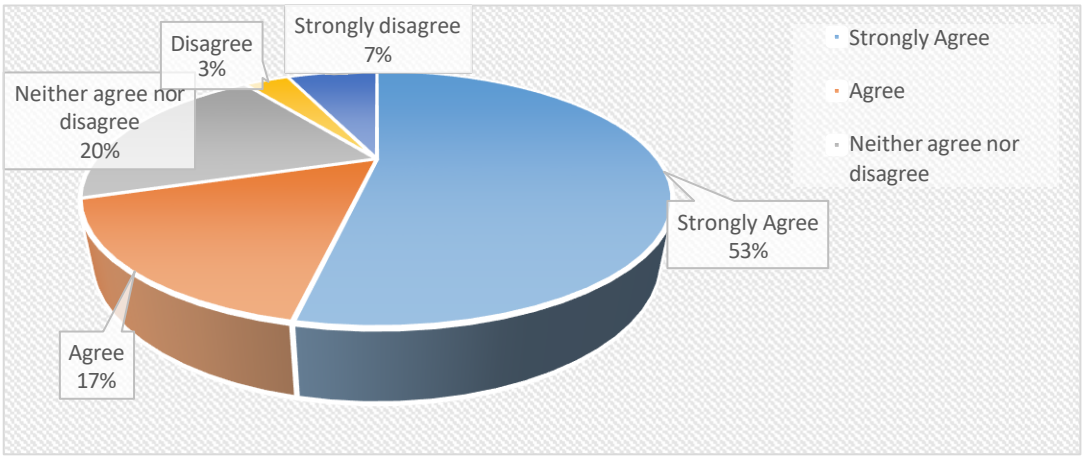


Figure 9: Summarized results on the survey question, “Kindly rate the usefulness of Facebook marketing platform.”

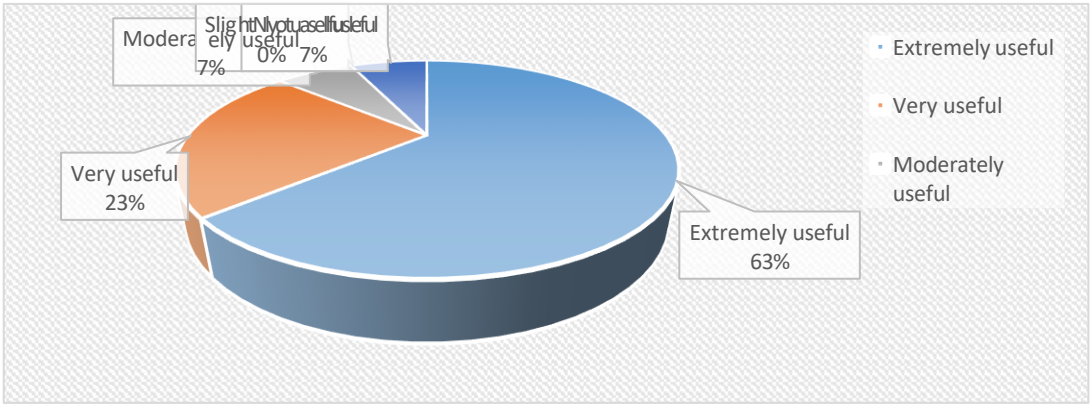


Figure 10: Summarized results on the survey question, “Kindly rate your level/extent of satisfaction in using Facebook marketing platform.”

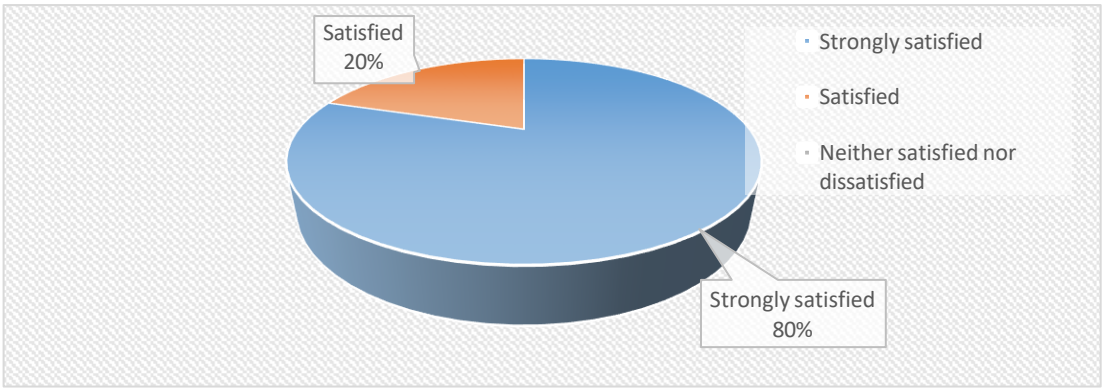
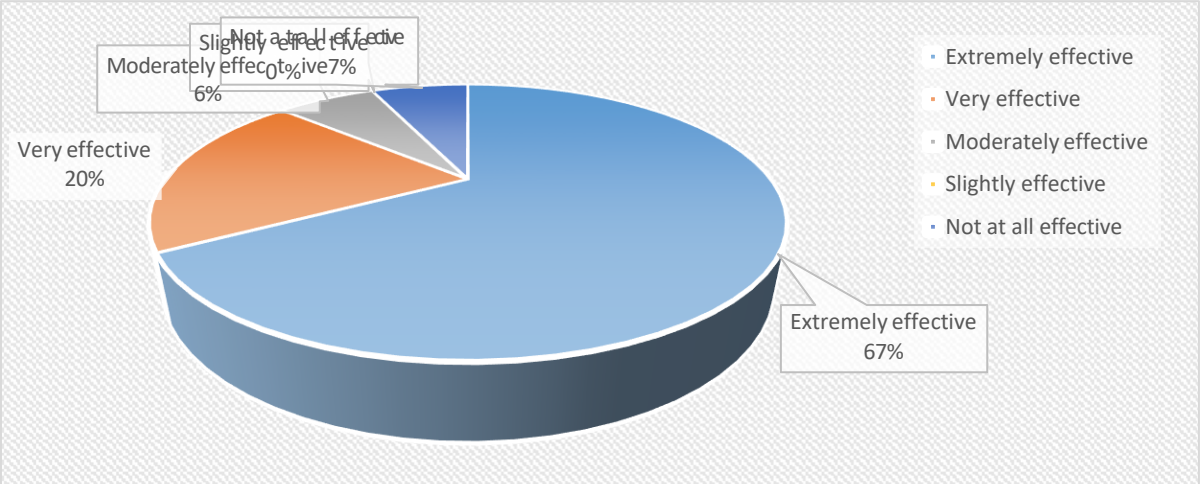


Figure 11: Summarized results on the survey question, “Kindly rate the effectiveness of Facebook marketing platform.”



Results on the Statistical Treatment of Data Using Spss

	MEAN	STD. DEVIATION	VERBAL INTERPRETATION
extent of effectiveness of Facebook marketing	4.37	1.098	VERY LARGE EXTENT

1. What is the extent of effectiveness of online marketing via Facebook?

	MEAN	STD. DEVIATION	VERBAL INTERPRETATION
status of sales/income of MSMEs	4.32	1.080	VERY LARGE EXTENT

2. What is the status of sales and income of MSMEs in Abuyog, Leyte?

	MEAN	STD. DEVIATION	VERBAL INTERPRETATION
extent of usefulness of Facebook marketing	4.37	1.098	VERY LARGE EXTENT

3. What is the extent of usefulness of Facebook marketing platform perceived by business owners?

	MEAN	STD. DEVIATION	VERBAL INTERPRETATION
extent of satisfaction of business owners utilizing Facebook marketing strategy	4.40	1.101	VERY LARGE EXTENT

4. What is the extent of satisfaction of the business owners utilizing Facebook as a marketing strategy?

	PARAMETERS
(4.21 - 5.00)	VERY LARGE EXTENT
(3.41 - 4.20)	LARGE EXTENT
(2.61 - 3.40)	AVERAGE EXTENT
(1.81 - 2.60)	SMALL EXTENT
(1.00 - 1.80)	VERY SMALL EXTENT

5. Is there a significant relationship between the status of sales and income of MSMEs to the effectiveness of Facebook marketing platform?
6. Is there a significant relationship between the perceived usefulness of Facebook marketing platform to the effectiveness of Facebook marketing platform?
7. Is there a significant relationship between the extent of satisfaction among business owners utilizing Facebook marketing to the effectiveness of Facebook marketing platform?

	Variables	**r value**	**Strength**	**p-value**	**Sig**
EFFECTIVENESS OF FACEBOOK MARKETING PLATFORM	STATUS OF SALES AND INCOME	.875	STRONG	p = 0.000 < 0.05	S
	PERCEIVED USEFULNESS	.845	STRONG	p = 0.000 < 0.05	S
	EXTENT OF SATISFACTION OF BUSINESS OWNERS	.855	STRONG	p = 0.000 < 0.05	S

Based from the correlation table above we can say that, **"*there was a significant relationship between the status of sales and income, perceived usefulness, and extent of satisfaction to the extent of effectiveness of Facebook marketing platform.*"**

The statistical treatment used is Pearson-r correlation. The tables above shows the correlation coefficient and the p-value. The strength of the relationship can be determined by the value of the correlation coefficient presented as r. The significance level is at .05. So if the p-value is less than or equal the significance level then we consider the relationship significant.

If r is positive that means as one variable increases the other also increases. But if r is negative that means that as one variable increases the other decreases.

Value of r	Strength of relationship
-1.0 to -0.5 or 1.0 to 0.5	Strong
-0.5 to -0.3 or 0.3 to 0.5	Moderate
-0.3 to -0.1 or 0.1 to 0.3	Weak
-0.1 to 0.1	None or very weak

DISCUSSION

Analysis to Every Result

I. Descriptive Analysis

The extent of effectiveness of Facebook as a marketing platform has a mean of 4.37 and standard deviation of 1.098. This means that the result is a very large extent.

The status of sales and income of MSMEs has a mean of 4.32 and standard deviation of 1.080. This means that the result is a very large extent.

The extent of usefulness of Facebook as a marketing platform has a mean of 4.37 and standard deviation of 1.098. This means that the result is a very large extent.

The extent of satisfaction of business owners utilizing Facebook marketing platform during this time of pandemic has a mean of 4.40 and standard deviation of 1.101. This result is a very large extent.

The significant relationship between between the status of sales and income, perceived usefulness, and extent of satisfaction (independent variables) to the extent of effectiveness of Facebook marketing platform (dependent variable) has been computed using the Pearson-r correlation. After gathering respondent's answers and after computation, the r value for the status of sales and income is .875, the r value for the perceived usefulness of owners utilizing Facebook marketing is .845, and the r value for the extent of satisfaction among business owners is .855. With that correlation coefficient (r value), it follows that the strength of the relationship is strong.

II. Diagnostic Analysis

Based on the respondent's answers, most of them uses Facebook as their marketing platform, thus, it only shows that for them, Facebook is a useful and effective social media marketing platform.

Based on the results of the statistical tool used which is the Pearson-r correlation, the result of the study is, "there was a significant relationship between the status of sales and income, perceived usefulness, and extent of satisfaction to the extent of effectiveness of Facebook marketing platform." The result is valid since all these are taken from the answers of the respondents to the survey questionnaire.

III. Predictive Analysis

The researchers claim that in the near future, more and more enterprises in Abuyog, Leyte will adapt the use of Facebook marketing platform since they will be able to observe that it has a good impact to the overall performance of the business firm.

IV. Prescriptive Analysis

Based on the results of the study, it would be better if all MSMEs in Abuyog, Leyte will adapt the use of Facebook pages as their platform. In that way, their business will be known and it will be easier for customers to contact them since they are visible on social media. The same goes with the placing of orders, it would be more convenient for the customers and the enterprise as well. This can contribute to sales growth of MSMEs. If this happens, all business owners/ entrepreneurs will be satisfied with the use of Facebook marketing platform, and this has an impact to the effectiveness of the said platform.

Conclusions

The purpose of this research was to assess the effectiveness of Facebook as a Marketing Platform for MSMEs in Abuyog, Leyte. This research come into place because of COVID-19 pandemic. Lockdowns and stay at home protocols made it difficult for business enterprises to sustain their sales since customers can no longer go out to shop for their wants and needs. Because of this, the researchers thought that this is really a problem for business owners since their business operations – most especially their sales and income would be greatly much affected. Hence, the researchers pursue this research study in order to assess if using Facebook as a marketing platform is effective enough to reach and persuade more customers amidst pandemic. At the same time, the researchers are eager to find out if the status of sales and income, perceived usefulness, and business owners' satisfaction towards the use of Facebook marketing has something to do with the platform's effectiveness. This is indeed the ultimate goal for this study.

Based on the analysis conveyed, it can be concluded that ***"there was a significant relationship between the status of sales and income, perceived usefulness, and extent of satisfaction to the extent of effectiveness of Facebook marketing platform."*** This analysis was derived from the statistical tool used in computing and analyzing the data provided by the respondents – through using Pearson-r correlation, through this, the researchers were able to test the correlation of the variables under study.

The result was that the p-value was less than the significance level of 0.05. Thus, there is a significant difference. On the other hand, looking at the r-value of the sales and income, perceived usefulness and satisfaction of using Facebook marketing platform, the digits are 0.875, 0.845, and 0.855 respectively. This follows that the strength of the relationship is strong. Since the r value is a positive number, this means that as one variable increases, the other also increases – meaning there is a significant relationship between the status of sales and income, perceived usefulness, and extent of satisfaction to the extent of effectiveness of Facebook marketing platform.

Recommendations

Based on the findings of the study "Assessment on the Effectiveness of Facebook as a Marketing Platform in Abuyog, Leyte," it is highly recommended that entrepreneurs in Abuyog, Leyte utilize Facebook as a marketing platform. The study demonstrated a significant relationship between sales and income, perceived usefulness, and the extent of satisfaction with the effectiveness of Facebook marketing. The use of Facebook for marketing purposes has led to increased sales, expanded reach among potential customers, and higher income for entrepreneurs. Therefore, leveraging Facebook as a marketing tool can be highly beneficial for businesses in this town.

Compliance with Ethical Standards

As the authors of the study titled "Assessment on the Effectiveness of Facebook as a Marketing Platform in Abuyog, Leyte," we affirm our unwavering commitment to maintaining ethical standards throughout our research. We have rigorously obtained explicit informed consent from all participants, ensuring they were fully aware of their right to withdraw from the study at any time.

To protect the anonymity of respondents, we implemented stringent measures that safeguard their privacy and confidentiality throughout the research process. Our commitment to data protection is in strict compliance with the Data Privacy Act of 2012 (Republic Act No. 10173) of the Philippines. Ensuring participants were shielded from any potential harm during the research was a priority.

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A SYSTEMATIC REVIEW OF THE TYPES OF QUESTIONS USED BY TEACHERS

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ABSTRACT

A teacher's art of questioning is proven essential in any aspect of education. It only differs as to what kind of question is being asked – LOTS or HOTS questions that enhance students' thinking skills. This study aims to examine the source, methodological characteristics, findings, and recommendations of the studies. This study followed the PRISMA guidelines for conducting systematic reviews. It included an analysis of 16 studies extracted from three electronic databases, ranging from fifteen years late to the currency of the study. The results show that teachers' questioning: 1) questioning is effective in cultivating students' skills; 2) they are more likely to use LOTS than HOTS; and 3) regular professional development is a need for teachers that will sustain their skills in implementing HOT questioning. Concerning the results, it is crucial to develop both pre-service and in-service teachers' skills in questioning.

Keywords: *Questioning skills, Skill, Higher-order thinking skill, Lower-order thinking skill, Question type*

INTRODUCTION

In education, the art of questioning is extremely vital. (Wilen and Swartz, 2017; and Neta, 2019). It is an essential skill that all teachers should possess to effectively foster critical thinking abilities in their students (Warren and Hughes, 2018). This multifaceted ability centers on the capability to articulate challenging questions that drive students to go

beyond the obvious and reveal deeper levels of understanding for a variety of subjects. Teachers can fashion a learning environment that nurtures rational curiosity and hastens cognitive growth (Çalık & Aksu, 2018) by encouraging students to analyze, synthesize, and evaluate information more profoundly. This emphasis on asking questions has become more and more prominent in the educational setting since it is recognized to play a critical role in shaping the minds of the future's innovators and leaders (Caine et al., 2015; Walsh & Sattes, 2015). The capacity to ask insightful questions benefits students, encourages them to engage with the material at a deeper level, and develops a mindset that views inquiry as an essential part of learning. This gives students the skills they need to deal with complexity and exercise critical thought in a world that is constantly changing. The development of effective questioning techniques is essential for equipping students to become lifelong learners who can navigate the complex terrain of intellectual inquiry and knowledge acquisition as the educational landscape changes.

The teacher asking questions, enhances professional growth as teachers continuously reflect on their practice, refine instructional strategies, and develop a deeper understanding of the subject matter (National Research Council, 2012), promotes creativity and innovation, and teachers have the opportunity to explore creative teaching approaches, adapt curriculum materials and design innovatively that caters to the needs of the diverse students (Harlen & Qualter, 2017), asking question empower the teacher improves classroom management by leading and setting the class to fruitful discussion and good environment increases job satisfaction and teachers' efficacy (Fullan & Hargreaves, 2016)

The practice of questioning within educational contexts finds its roots in the profound and philosophical teachings of the ancient Greek philosopher Socrates, who championed the Socratic method as a way to cultivate critical thinking skills through the careful crafting of questions (Chen, H., & Wu, T., 2020; Wang, Y., & Lin, S., 2015). This method, which places a strong emphasis on the power of inquiry and dialogue, has served as a cornerstone in the realm of pedagogy for centuries. Though it was not until the turn of the 20th century that researchers and educators organized a systematic investigation of the complex character of questions and their significant impact on teachers' and students' learning.

This academic excursion into the area of questioning unveiled a variety of diverse question types, bearing exceptional potential to shape and revitalize student learning experiences. Therefore, this academic journey illuminated the profound importance of crafting and positioning questions purposefully as an indispensable tool in the educational arsenal (Schoenfeld, 2017; McNeill & Krajcik, 2019; Berg & Smith, 2016; Kaminski & Sloutsky, 2020). With its development over time, questioning has become more than just a teaching technique; it is now considered a fundamental component of successful teaching strategies. The intricate relationship between questions and learning objectives has paved the standing of questioning as an essential component of educational praxis, enhancing the variety of instructional approaches and opening up new avenues for intellectual exploration for teachers and students alike. Educators can customize the transformative power of this age-old yet always-evolving educational method to kindle

intellectual discourse, nurture curiosity, and promote a culture of lifelong learning in educational settings by welcoming the art of questioning with open arms and smart discernment.

In today's fast-paced and information-driven society, students are always bombarded with an overwhelming quantity of data from a variety of sources, including online platforms, traditional media outlets, and academic resources (Chen & Liu, 2017). Despite the abundance of information available, countless students struggle to effectively analyze, evaluate, and apply it. This dilemma draws attention to a critical problem in modern education: students often discover it difficult to obtain the essential capabilities needed for critical thinking in an environment full of varied information. In today's world, where false information and fake news are hardly spotted, the capacity to evaluate information critically, recognize biases, and reach well-informed conclusions is becoming more and more important. Thus, it is more important than ever for educators to give students' development of critical thinking skills the highest importance.

Given these challenges, teachers play a crucial role in both imparting knowledge and helping students develop their critical thinking skills. Collins & Duguid (2003) found that through their studies, teachers can encourage students to question, explore, and think for themselves by fostering a stimulating and supportive learning environment. Teachers can help students become knowledgeable and involved members of the information environment by implementing dynamic teaching strategies like Socratic questioning, critical reading exercises, and problem-based learning. Critical thinking instruction also equips students with the abilities necessary to handle challenging circumstances, make informed choices, and adapt to society's rapid changes. Through nurturing a mindset that values logical thinking, fact-based reasoning, and innovative approaches to problem-solving, educators contribute to shaping a cohort of individuals prepared to face the demands of the 21st century.

Also, asking questions is only one aspect of the art of questioning; there is much more to it. It involves the deft application of a variety of question forms, such as open-ended questions that promote in-depth contemplation, probing questions that explore underlying presumptions, and follow-up questions that guide students in the development of critical thinking abilities (Cheng, K., & Chan, W., 2019). Teachers are entrusted with the duty of identifying the subtle range of questioning levels, from simple factual queries to sophisticated analytical challenges, and they need to strategically apply each type to pique students' intellectual curiosity and promote cognitive development.

Teachers are able to involve students in meaningful dialogues that encourage them to explore ideas, clarify concepts, and gain a deeper understanding of the subject by skillfully incorporating a variety of question types and levels of complexity into classroom discussions. This method of instruction fosters a classroom culture that values diversity, celebrates curiosity, and encourages students' ongoing intellectual growth, as well as developing their ability to think independently and solve problems.

As education evolves, the art of questioning will remain an important component in developing a generation of learners who are prepared to navigate an ever-changing world. With the necessity and significance of placing a high priority on helping students develop their critical thinking abilities through engaging instructional techniques and the thoughtful application of varying degrees of questioning to spark intellectual curiosity and promote a diverse and curious classroom environment, this study will attempt to identify the source and methodological characteristics of the studies, analyze the findings and recommendations of the studies, and find out what are the common types of questions used by the teachers in the classroom and what are their recommendations for teachers.

Research questions

1) What are the common types of questions used by the teachers in the classroom?
2) What are the studies' recommendations for teachers?

METHODOLOGY

Data Sources

A comprehensive literature review was done following the PRISMA guidelines, examining the studies directly or indirectly. The steps taken are: 1) have the initial screening of titles and abstracts to identify potentially relevant studies; 2) review the full text of the potentially relevant studies to determine their eligibility for inclusion; 3) extract the relevant data from included studies; 4) evaluate and synthesize the data from included studies; and finally, report the findings of the systematic review. The keywords were “teacher questioning,” “questioning skills,” “questioning,” and “questioning techniques." Regarding the inclusion and exclusion criteria, 16 studies were found to be eligible to explore teachers’ art of questioning. The data reduction chart for this systematic review is given in Figure 1.

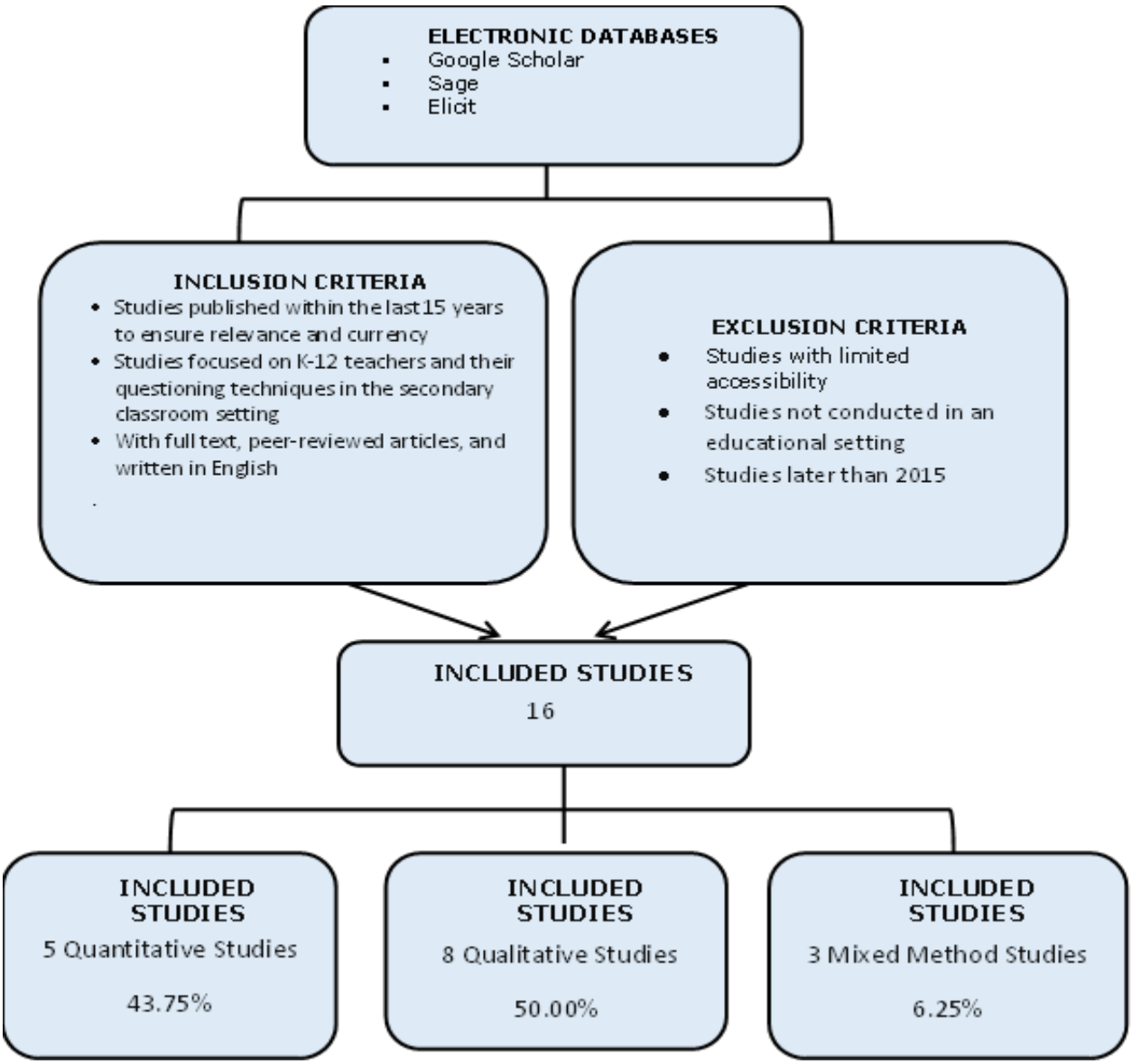


Figure 1: Data abatement chart for Systematic Review

RESULTS AND DISCUSSION

A. Methodological characteristics of the studies

Among all the research, Indonesia has the most articles with 62.5%, followed by Malaysia, Thailand, Pakistan, the United Kingdom, the US, Turkey, and Iran with 6.25% each. As

for the methodological characteristics of the studies, 50.00% used a qualitative, 31.25% used a quantitative, and 18.75% used a mixed methodology (Table 1).

Table 1: Methodological characteristics of the studies

Authors	Research	Methodology	participants	Country
Ansori, 2019	Quantitative	Survey	15 English teachers	Surakarta, Indonesia.
Shalihin, et.al., 2019	Quantitative	Quasi-experimental	30 participants were students	Indonesia
Rahmi, et. al., 2019	Quantitative	quasi-experimental design	32 students	Padang, Indonesia
Mitarlis, et.al., 2020	Quantitative	Quasi-experimental	59 participants	Bontang, Indonesia,
Hill, 2016	Quantitative	Quasi-experimental	Participants are not specified	Southern Thailand
Sujariati, et.al., 2016	Qualitative	Discourse analysis	4 English teachers	SMAN Bontomarannu, State University of Makassar in Indonesia
Tyas, et.al., 2019	Qualitative	Not specified	18 in-service teachers	Central Java and East Java, Indonesia
Khan, et.al., 2011	Qualitative	Observation	20 teachers	Peshawar, Pakistan,
Harrop, et.al, 2010	Qualitative	Interview	10 teachers in infant schools, 10 in junior schools and 10 in secondary schools	Liverpool, UK
Seker, et.al., 2008	Qualitative	Structured interview	15 English Language Teaching	Mugla University, Turkey
Barjesteh, et.al., 2014	Qualitative	Observation	30 Iranian students at a private English institute	Amol, Iran
Tofade, et.al., 2013	Qualitative	Observation	91 faculty members	Maryland, United States
Rooney, 2012	Qualitative	Action research	1 teacher	Surakarta, Indonesia

Gozali,et.al., 2021	Mixed method	Case study	15 secondary teachers	Indonesia
Shafeei, et.al., 2017	Mixed-methods	observations, interviews, and questionnaires	12 English secondary school teachers were the respondents	Malaysia
Djami, et.al., 2019	Mixed method	case study	15 teachers'	Salatiga

a) Qualitative studies. Of the sixteen studies, 50.00% used a qualitative. The characteristic of this qualitative approach is that it focuses on exploring and understanding complex phenomena through an in-depth examination of subjective experiences, meanings, and perspectives (Creswell & Poth, 2017). This involves collecting data through methods such as 1) action research (Rooney, 2012); and 2) the study focused on inquiry-based learning (IBL), which is a student-centered approach that encourages learners to construct new ideas based on their experiences and prior knowledge. It also emphasizes the importance of problem-solving, inferring, estimating, predicting, generalizing, and creative thinking as higher-order thinking skills, highlighting the significance of developing these skills for students' educational success and their ability to navigate a complex and evolving world. 2) Observation: Tofade et al.'s (2013)' study emphasizes the use of questions as a teaching tool to improve learning outcomes. It highlights the importance of well-constructed questions in assessing knowledge, promoting comprehension, and stimulating critical thinking, Barjesteh, et.al., (2014), the study highlights the importance of teacher questions and questioning strategies in an EFL classroom in Iran, and for Khan, et.al., (2011), the study brought the issue of questioning to the forefront, the common order of questions that teachers ask in the classrooms, and better strategies to improve higher-order thinking skills through questioning; 3) Discourse analysis of Sujariati, et.al., (2016), the study highlighted the importance of various types of questions, questioning frequency, techniques, and student engagement and the use of wait time, repeated questions, translation into Bahasa dialect, clarity, close approach, and rewards for correct answers; 4) (Structured) Interview of Seker, et.al., (2008) focuses on the relationship between critical thinking skills and in-class questioning behaviors of English Language Teaching (ELT) students and the differences in questioning behaviors between students with higher and lower critical thinking scores, emphasizing the importance of developing critical thinking skills in teacher education to prepare students for thoughtful and analytical learning experiences, as for Harrop, et.al, (2010) it focuses on a variety of question types that teachers use, such as routine, task-supervision, open-ended, and closed-ended inquiries and stressed on how crucial it is to pose relevant questions because doing so has an impact on students' engagement and learning. The intricacy of questions from elementary, middle, and high schools was also investigated in this study.

b) There were 31.25% who used a quantitative study. The characteristics of quantitative research include its emphasis on numerical analysis and objective measurement to investigate phenomena (Sanders, 2019). This includes 1) a survey study by Ansori (2019) that focuses on the significance of effective questioning in fostering higher-order thinking skills in students. It uses Bloom's Taxonomy to classify cognitive processes in educational settings, ranging from simple recall to complex evaluation, synthesis, and analysis. Also points out that teachers should develop students' critical thinking dispositions through metacognitive techniques, interactive teaching techniques, and problem-based learning; 2) Quasi-experimental of Shalihin et al. (2019) that highlights the use of guided inquiry learning to improve students' critical thinking skills in aspects such as elementary clarification, basic support, inference, advanced clarification, and strategies and tactics; Rahmi et al. al. (2019), that emphasizes the importance of inquiry-based learning in enhancing students' critical thinking skills; Mitarlis et al. (2020), focused on assessing the effectiveness of open inquiry with multiple representation approaches in enhancing students' critical thinking skills in electrochemistry education; and Hill (2016) focused on the higher-level questions, the nature of the questions asked by teachers, and the importance of teacher training and professional development in understanding the importance of questioning techniques.

c) There were 18.75% who used the mixed method. This study enables the researchers to gain a deeper and broader understanding of what is under investigation (Teddlie & Tashakkori, 2009), as well as triangulation (Creswell & Plano Clark, 2017). This approach was employed by Gozali et al. (2021) that highlights the importance of understanding how language teachers engage with and perceive HOTS questioning, the impact of HOTS questioning on language learning, and the efficacy of language teachers in encouraging the development of critical thinking skills among students; Shafeei et al. (2017) point out the relevance of higher-order thinking skills (HOTS) to improving students' critical thinking skills; and Djami et al. (2019).

B. Findings of the Studies

Of the studies analyzed, only 11 from different countries found that teachers are settling on LOTS questions for some reason (Table 2). This is supported by the studies of Bloom (1956) and Cooper, et al. (2019). Some studies found that teachers typically center their questions on factual information rather than prioritizing questions that develop higher-order thinking skills in students, just like the study of Snyder & Snyder (2008), Klieme, et al. (2004), Oliver & Reschly (2007).

Table 2: Teachers' categorization of question usage

Authors	Result	
	LOTS	HOTS
Barjesteh, et.al., 2014	✓	
Djami, et.al., 2019		✓
Harrop, et.al, 2010	✓	

Hill, 2016	✓
Khan, et.al., 2011	✓
Mitarlis, et.al., 2020	✓
Rahmi, et. al., 2019	✓
Seker, et, al., 2008	✓
Shafeei, et.al., 2017	✓
Sujariati, et.al., 2016	✓
Tofade, et.al., 2013	✓

On the other hand, the other five studies included in the analysis showed a different result from Table 1. Only 12.5% showed its effectiveness to the student, as was discussed in the study of Rooney (2012) and Shalihin, et al. (2019). They proved that HOTS questioning or HOTS inquiry-based teaching is effective for students, and teachers are deliberately acquainted with the skill. It is also reiterated in the study of Rooney (2012) that HOT-based questions are engaging if the process is deliberately discussed with the students, making them informed and aware of the skill and process. The other 12.5% of the study proved that teachers are settling for LOTS due to the students' lack of proficiency and understanding, which leads to teachers just resolving to use LOTS (Bloom, 1956; Graesser et al., 1995; Hattie, 2009). That is shown in the study of Gozali (2021) and the study of Tyas, et al. (2019), which proved that if teachers are not acquainted with and do not have experience with the HOTS skill, it will reflect the questions used in teaching. Finally, Ansori (2019) discovered that at some point during the lecture, students ask HOT questions out of curiosity rather than to gain a thorough understanding of the material. His study also demonstrated that teachers have strong self-efficacy in terms of HOTS. See Table 3.

Table 3: Descriptive findings of the study

Author	Result of the Study
Rooney, 2012	Students engaged in the inquiry-based learning process
Shalihin, et.al., 2019	Students demonstrated a higher improvement when the HOT was discussed and implemented.
Tyas, et.al., 2019	The data analysis identified three main challenges: teachers' limited understanding of HOTS, limited experience in developing HOTS-based assessments, teaching and learning resources, and students' heterogeneity in cognitive competence, resulting in difficulty in developing appropriate instructions
Gozali, et.al., 2021	The student's proficiency is a hurdle in using HOT questions and English and language medium might be an important factor affecting the abilities of teachers to ask HOT questions
Ansori, 2019	Students ask HOT queries out of fascination.

	English teachers are confident in their ability to use interactive, critical thinking, and metacognitive pedagogical strategies to promote HOTS during the learning process.

Aside from what is identified by Rooney and Tyas as the prevalence of LOTS, there are other factors underlying the occurrence of lower-order thinking skills (LOTS) in teachers' questioning, which is a complex issue influenced by several underlying factors. The first significant factor is the traditional emphasis on repetitive learning and standardized testing in many educational systems. This emphasis on memorization and recall of factual knowledge unintentionally promotes LOTS, in which students are instructed to bring up information rather than engage in critical thinking. Second, teachers' pedagogical knowledge and beliefs are critical. Those who do not have a thorough understanding of higher-order thinking skills (HOTS) may struggle to develop questions that encourage critical analysis, problem-solving, and creativity in students (Chin and Chia, 2017). Third, limited time and large class sizes (Tyas, 2019) can limit teachers' ability to conduct extensive questioning. The pressure to cover massive amounts of curriculum competencies / content frequently causes teachers to prioritize LOTS, which require less cognitive effort from students and can be answered more quickly (Clarke & Yore, 2010). Finally, teachers' workloads and stress levels can have an impact on their questioning strategies. High levels of stress and exhaustion may make it difficult for teachers to invest in the cognitive resources needed for HOTS questioning, leading to a LOTS default (Van de Grift, 2016). Therefore, addressing the prevalence of LOTS in teachers' questioning requires a multifaceted approach that includes curriculum reform, professional development for teachers, and the creation of supportive classroom environments.

Recommendation of the studies

This section provides some study recommendations that can serve as a starting point for future research.75% (Table 4) of the study suggested that teachers undergo professional development that supports their understanding of HOTS and how to conceptualize questions and utilize them in class.

To improve student outcomes, educators must stay up-to-date on research and best practices, provide feedback, and provide adequate support, as well as provide opportunities for teachers to engage in learning activities similar to those they will use with their students. Engaging in professional growth workshops, conferences, and online courses enables teachers to assist students in building these abilities. Research indicates (Darling-Hammond, et al., 2017; Learning Forward, 2011; National Council of Teachers of Mathematics, 2014) that pursuing professional development has beneficial effects on student achievement and engagement, which renders it an excellent investment for teachers. This professional development should also focus on updating teachers' knowledge, skills, and approaches in light of new teaching trends that enable teachers to apply changes to curricula and teaching practices. Thus, this development is not only limited to formal courses but can also be a collaboration between schools or teachers across schools.

Table 4: Studies' Recommendation

Authors	Recommendations					
	Further / continuous training or professional development	Translation of English question to dialect	Use varied questioning strategies	Interactive learning exercises	Balance the teaching style of questions	Did not offer a recommendation
Ansori, 2019	✓					
Barjesteh, et.al., 2014	✓					
Djami, et.al., 2019	✓					
Gozali, et.al., 2021	✓					
Harrop, et.al, 2010						✓
Hill, 2016			✓			
Khan, et.al., 2011					✓	
Mitarlis, et.al., 2020	✓					
Rahmi, et. al., 2019				✓		
Rooney, 2012						✓
Seker, et,al., 2008			✓			
Shafeei, et.al., 2017	✓					
Shalihin, et.al., 2019			✓			
Sujariati, et.al., 2016		✓				
Tofade, et.al., 2013						✓
Tyas, et.al., 2019	✓					
	43.75	**6.25**	**18.75**	**6.25**	**6.25**	**18.75**

1.1. There were 18. 75% recommended using varied questioning strategies in class. The strategies are open-ended questions, probing questions, hypothetical questions, reflective questions, choice questions, clarification questions, comparison questions, sequencing questions, summarizing questions, and higher-order questioning.

1.2. Open-ended questions are questions that are answered by elaboration. These questions encourage students to provide more detailed answers, express opinions, and share experiences. These questions are beneficial in various contexts, such as they promote deep thinking, encourage detailed responses, and help gather in-depth data from the students. Some of the examples of open-ended questions in English language arts subject are:

a. What did you find interesting about the main character of the story?

b. Explain how the setting of the story is influenced by the plot development.
c. What connections can you make between the events of the story and your own life experience?
d. In your opinion, what was the purpose of the author in writing the story?

1.3. Clarification questions are simple factual questions that aim to clarify information that was initially provided by the student and provide essential details. Some of the examples are

a. Can you clarify what you mean by the author's use of imagery in the story?
b. Could provide a more specific example of how the protagonist can champion the struggle he is facing?
c. Can you explain more in detail how the setting is being influenced by the development of the story?
d. I want to make sure I understand – did the author use foreshadowing to hint who will be the antagonist of the story?

1.4. Comparison questions involve analyzing the similarities and differences between two or more subjects or topics. In the context of language arts subjects, comparison questions can be based on literature, language, and communications, and alike. Some examples are:

a. Compare and contrast the use of symbolism in the story Macbeth and Iliad.
b. Discuss the narrative styles of two poets, Emily Dickinson and Langston Hughes.
c. Examine how the portrayal of female characters in classic versus contemporary literature is.
d. Compare the effectiveness of dialogue in play and screenplay.

1.5. Sequencing questions are questions that involve the organization or chronological of events or steps logically. This sequencing question is very much applicable to other subjects just like performing science experiments wherein students will sequentially practice the steps in conducting investigations effectively to understand the process. In language art subject this is most applicable to story, for instance:

a. What happened in the first part of the story?
b. Describe the sequence of the climax and how the conflict resolves.
c. Can you retell the story in chronological order?
d. Who are the characters presented in the story according to their order and characteristics?

1.6. Sequential questions are questions in a progression manner from LOTS to HOTS depending on the subject matter and strategies in asking questions and this is another term for balanced questioning. This strategy is effective since it is a structured/patterned order that helps create a psychologically safe environment by starting with LOTS questions before progressing to HOTS which promotes students' involvement and interest.

1.7. Summarizing questions are designed to test a student's ability to condense and articulate the main ideas of a text concisely. These questions required students to identify key elements and extract important points using their own words. This helps the students develop their HOT skills, memory retention, and comprehension and extract key points for better understanding across subjects. Some examples are

a. Can you provide a brief overview of the main theme of the story?
b. What are the key elements that drive the plot forward?
c. What is the main style technique of the author?
d. Can you summarize the tension in the story?

1.8. Higher-order questioning refers to questions that require critical thinking, such as analysis, synthesis, and evaluation, rather than just recalling factual information. This prompts deeper engagement and understanding of the subject matter. These question types encourage students to think critically, make connections, and develop their ideas. The examples are:

a. How does the author use symbolism to convey a deeper meaning in the text?
b. Can you evaluate the effectiveness of the protagonist's decisions and actions within the context of the story?
c. How does the setting of the story contribute to the overall message of the story?
d. Can you propose an alternative ending based on your interpretation of the text?

By incorporating a range of questioning techniques in the classroom, educators can better engage students and promote a more interactive and dynamic learning environment. This can lead to enhanced critical thinking skills and a deeper understanding of the subject matter.

Moreover, varied questioning techniques can cater to the diverse learning styles and preferences of students (Smith & Johnson, 2018; Garcia & Fernandez, 2017; Patel & Sharma, 2020). By using a mix of questioning techniques, educators can cater to the individual needs of their students and ensure that everyone can participate and engage with the material in a meaningful way.

The study by Rahmi et al. (2019), has recommended that the art of questioning be studied through interactive learning exercises. Interactive learning exercises are activities or tasks designed to engage students in a participatory, collaborative, and hands-on learning experience. These exercises encourage students to actively participate in the learning process rather than passively receiving information. Interactive learning exercises can take various forms, such as group discussions, problem-solving activities, simulations, role-plays, and multimedia-based activities. See Table 5 for sample questions.

Table 5: Interactive Learning Activities and Sample Questions

Interactive Learning Activities	Sample Questions
Discussions	1. Can you propose an alternative solution based on the groups' discussion? 2. What criteria would you use to judge the project? 3. How do you interpret the main theme of the text?
Problem-solving activities	1. How does the characters' problem contribute to the story's conflict? 2. How can you use the evidence in the story to support your justification of the characters' actions? 3. How does the cultural background of the character influence the interactions and decisions?
Simulations	1. How can you negotiate a conflict between two characters based on their personalities? 2. As a character in the story, what decision would you make differently and how would this alter the story plot? 3. How does your interpretation of the story differ from the other?
Role-plays	1. How can you justify your character's action considering his motivations? 2. What are some potential consequences of your actions if you say yes to his evil plans? 3. How would you react if I am not going to appear in the climax?
Multimedia-based activities	1. How effective does the television \presentation capture the theme and motif of the text? 2. What social media post and platform would you be doing if the song is about a mother's love? 3. How are you going to strategize cohesion while working on your online role-play?

Smith & Brown (2018) and Johnson & White (2017) proved that interactive learning exercises enhance student engagement, motivation, and critical thinking skills. They encourage group work, collaboration, and communication, preparing students for real-life situations. These exercises cater to diverse learning styles, allowing students to engage in hands-on activities, discussions, and multimedia-based tasks. They encourage self-directed learning, allowing students to take ownership of their learning process. Active participation in interactive learning exercises improves knowledge retention and application, preparing students for real-world situations.

Khan et al. (2011), with a percentage of 6.25%, proposed that teachers balance their question-based teaching styles. According to the study's findings, out of 267 questions, 67% were knowledge-based, 23% comprehension-based, 7% application-based, 2%

analysis-based, and 1% synthesis-based. However, the ratio of evaluation-based questions was zero.

1) A balance of lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS) questions in class is required for a variety of reasons. The NEA (2016) and Tomlinson (2014) highlight the importance of using a mix of LOTS and HOTS questions to engage students, promote critical thinking, and accommodate different learning styles. Hattie and Timperley (2007), and Hill & Metcalf (2008) highlight the importance of effective questioning in promoting student learning and understanding. They suggest that using a mix of LOTS and HOTS questions can help achieve this goal. Grossman, Hammerness, & McDonald (2009) emphasized balancing LOTS and HOTS questions to enhance student learning and engagement. This balance ultimately leads to better learning outcomes and overall educational experiences.

2) Sujariati, et al. (2016) recommend that teachers use consistent questioning strategies, repeating questions, emphasizing meaning, translating or mixing questions into Bahasa Indonesia, and being closer to students to understand their learning weaknesses. Translating English questions into a student's first language enhances comprehension (Genesee, et al., 2010), promotes equity and inclusion (Cummins, 2000), boosts confidence and engagement (Skutnab-Kangas, & Cummins, 2008), facilitates cognitive processing (Dewaele, 2018), and encourages multilingualism (Garcia, & Wei, 2014). This is especially beneficial for students developing their English skills or from non-English-speaking backgrounds. It also ensures equal access to the curriculum and encourages a more inclusive learning environment. This approach is particularly beneficial in multilingual and multicultural societies.

3) The remaining 18.75% has no suggestion at all.

Conclusions

This systematic review found 16 articles on teachers' use of LOTS-HOTS questioning. The studied articles were not limited to a single country. The results of these studies are quite revealing. A significant majority, 81.25%, of the research found that LOTS were more commonly used in educational settings than HOTS. This could be due to several factors, including the perceived difficulty of teaching and assessing HOTS, or the belief that LOTS are easier to construct. Large class sizes, limited instructional time, and diverse student populations may also pose challenges to implementing HOTS-promoting instructional strategies (Darling-Hammond, 2010). Teachers may struggle to engage all students in meaningful, higher-order thinking activities while adhering to curriculum and scheduling guidelines. Another plausible explanation is that many teachers may have received insufficient training in instructional strategies that promote HOTS. According to research, professional development programs that focus on strategies like inquiry-based

learning, problem-based learning, and collaborative learning can help teachers foster higher-order thinking in their classrooms (Guskey & Yoon, 2009). However, it is important to note that not all studies came to the same conclusion. A small but significant percentage of 6.25% discovered that teachers were still using HOTS in their questions. This suggests that, despite the general trend toward LOTS, there is still a dedicated group of educators who understand the value of HOTS and are committed to incorporating them into their teaching practices.

Lastly, 12.5% of the studies yielded dissimilar results, indicating that the relationship between LOTS and HOTS in educational settings is not a simple, one-size-fits-all issue. These studies may have focused on different educational levels, subject areas, or cultural contexts, which could have influenced the outcomes.

The studies discussed provide useful insights into the current state of educational practices, particularly the use of LOTS and HOTS. While the majority of research supports the prevalence of LOTS, a sizable minority emphasizes the continued use of HOTS in questioning, as well as the importance of taking into account a variety of factors when asking HOTS questions. Examining these studies from a global perspective allows us to gain a more nuanced understanding of the complexities of educational practice and the ongoing debate surrounding the use of LOTS and HOTS in questioning strategies.
Considering the prior conclusions, the recommendation for additional research can be separated into two parts. First, since most of the studies revealed that teachers need training to successfully incorporate HOT in their questioning strategically, further research would focus on the kinds and appropriateness of training programs for improving teachers' skills in implementing HOTS-based questions. Second, considering the studies of Rooney (2012), Ansori (2019), and Shalihin et al. (2019), there is a tendency that students may understand and incorporate HOT questions in their engagement; further research would investigate other activities that develop HOTS for students. Nevertheless, this study offers helpful data for determining the feasibility of incorporating HOTS questions into qualifications that educate future educators.

Compliance with Ethical Standards

The review employed data from openly available sources and previously published studies. Proper citations and acknowledgments were provided to all original authors and sources to respect intellectual property rights and avoid plagiarism. The researcher has no conflicts of interest related to this article.

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ATTITUDES OF TEACHERS, STUDENTS AND PARENTS TOWARDS FLEXIBLE ONLINE LEARNING

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ABSTRACT

This study aimed at describing the attitudes of teachers, students, parents of accredited private university in one of the City in the Philippines. A total of 331 respondents participated in this study. The descriptive cross-sectional method of research was used to gather data. Three sets of survey questionnaires were utilized. Data gathered were analysed and interpreted using weighted mean, correlation and one-way ANOVA. Findings of the study revealed that respondents are prepared in most aspects of needed capabilities and technology for online learning. More so, with regards to attitudes of respondents, they believe that online class is a good option during any crisis situation and time is manageable using this modality yet there are improvements needed to provide better provisions for online modality. It was also found out that there is no significant relationship between readiness and attitudes. Likewise, comparing attitudes of three groups towards online schooling showed that there is no significant difference among attitudes of the respondents.

Keywords: *Attitude, online schooling, flexible learning, synchronous learning, asynchronous learning, descriptive research*

INTRODUCTION

Online schooling or distance learning modality has gained popularity and attention especially in the time of pandemic when people are not allowed for social gatherings and should only stay in the confines of their homes.

One study about technology used was done by Zhu ET. Al., (2018) suggested that educational benefits of technology usage were the key factor influencing both students' and parents' attitudes. Based on the cross-examined understanding of parents' and students' attitudes, suggestions for large scale tablet initiatives are proposed. But the study of attitudes in this particular case is done in a traditional face to face setting that differentiates with the current study.

When unprecedented problems on how the schooling will be undertaken without disruption of educational operations and practices for the learning to thrive, one of the most popular and convenient way to employ teaching and learning is online schooling using technologies and online platforms with digital pedagogies (Milton, 2013).

There are echoing clamor also on some quarters of the society asking for academic freeze due to lack of preparations, resources and digital divides among students and teachers. Prior to school opening, DepEd initiated more urgent online trainings and webinars about online modalities and technology usage yet unable to pursue a total implementation of online approach. But other schools especially private institutions adopted the online modality as the best option to deliver learning using Learning Management System with synchronous, asynchronous and hybrid format during pandemic.

Since distance education finds its significance more so in this time of pandemic, schools should be aware of perspectives, feelings, expectations and needs of students, parents and teachers. The attitudes of these significant characters play a role in the achievement and improvement of educational process. Conclusions that will be drawn in this study will be useful for the academic community and everyone concerned with the planning, development and implementation of strategies for online learning and distance education in a campus based university in a transition to distance education (Peytcheva-Forsyth, 2018).

One study about attitude dwelt on Science subject being influenced by pedagogical skills of teachers (Benson, Nwagbo, Ugwuanyi, & Okeke, (2020). Attitudes of parents, teachers and students are determined in this study in the absence or fragment of empirical data about this subject. The result of the study is expected to be significant to introduce improvement of the online program with the data that will be obtained as basis.

Research Objectives

1. Describe the readiness of the respondents in using flexible/online learning mode.
2. Describe the prevailing attitudes of parents, teachers and students towards flexible learning modality.
3. Determine the relationship between the readiness and attitude of parents, teachers and students in flexible/online learning mode.
4. Compare the attitudes of parents, teachers and students towards flexible/online learning
5. What are the improvements that are needed in flexible/ online schooling as perceived by the respondents?

Hypotheses:

1. There is no significant relationship between readiness and attitudes of parents, teachers and students on flexible/online learning mode.
2. There is no significant difference among attitudes of parents, teachers and students towards flexible/online learning mode.

METHODOLOGY

This study which is quantitative in nature utilized the descriptive inferential research design. This design is a systematic approach to inquiry that involves description, recording, analysis, and interpretation of conditions that now exist. According to Baraceros (2016), descriptive research aims at defining or giving a verbal portrayal or picture of a person, thing, event, group, situation, etc. This design was used in this study in describing the attitude of junior high school parents, teachers and students of an accredited private junior high school. Descriptive statistics describes data and inferential statistics allows you to make predictions ("inferences") from that data. With inferential statistics, you take data from samples and make generalizations about a population (Statisticshowto, 2023). As regards the utilization of the descriptive correlation as inferential statistics design, Sousa, Driessnack, & Mendes (2007) explain that descriptive correlational studies describe the variables and the relationships that occur naturally between and among them. They involve the systematic investigation of the nature of relationships, or associations between and among variables, rather than direct cause-effect relationships. Correlations analyze direction, degree, magnitude, and strength of the relationships or associations.

Research Locale

The study was conducted in one accredited Private Accredited University in the Philippines where online schooling is adopted as the mode of teaching and learning. Teachers, parents and students underwent training and orientation about online modality. The school with established Learning Management System and provides distance learning has been preferred by parents and students in times of pandemic when face to face is not an option. Online mode using LMS also allows certain flexibilities and thus also termed as Flexible Learning. There is uncertainty and absence of idea how online learning works if fully implemented during pandemic and thus parents, students and teachers alike have their attitude which may be derived from their perspectives, ideas, beliefs or feelings towards a phenomenon. This is the reason why the attitude of the respondents towards online class needs to be examined as a way of determining the possible success or failure of an online program and find solutions for the formulation of policy and programs for improvement.

Participants of the Study

The respondents of the study were the teachers, students and parents of one of the Private Accredited University in the Philippines. A total of 10 teachers, 139 students

and 182 parents participated in this study. The samples were taken from the population using stratified random sampling method.

There are three strata where the samples are taken from each group different from each other. Everyone in the group has given a chance to be participants in the study.

Table 1
Distribution of Respondents

Teachers	40
Students	139
Parents	182
Total	**361**

The Research Instruments

Structured survey questionnaires were used to collect data using Google form for this study. There were three (3) sets of questionnaires used in the study for teachers, students and parents. The questionnaires include readiness survey, attitude survey for teachers, students, and parents, suggestions and recommendations survey for teachers, students and parents.

The weighted means of responses to the questionnaire were verbally described using the following scale:

1 (if there is negative perception due to the falsity of what the item describes)
2 (if there is non-conformity to the item describes)
3 – (if there is somehow conformity to what the item describes)
4– (if there is strong conformity to the truthfulness and manifestation of what the item describes)

The weighted mean of responses to the scales were verbally described as follows.

Numerical equivalent	Verbal Description
3.25-4.00	Strongly agree
2.50-3.24	Agree
1.75-2.49	Disagree
1.00-1.74	Strongly Disagree

Data Gathering Procedure

The researcher sought the permission from the administration of the accredited University in one of the Cities through request letters. The questionnaires were sent to the respondents via group chat in messenger. The link for Google form has been sent to the respondents. The questionnaires were retrieved and tallied later. Thereafter the results were recorded, organized, then analyzed and interpreted.

Validity and Reliability

The validity of the instruments was determined with the help of a statistician. The proponent also consulted other experts in the field to establish the validity of the instruments. Using the data taken from a school in one of the City in the Philippines with the same characteristics to the subject respondents, the questionnaire for students, parents and teachers were administered beforehand to determine the instrument's reliability. With the assistance of a statistician through careful examination, conclusion arrived at that items of the instruments were clear and the directions are well –stated. The data gathered revealed a strong reliability coefficient.

Analysis of Data

Using descriptive statistical tools the data gathered were then analyzed. The weighted mean of the responses with regard to readiness survey, attitude survey, problems and benefits survey questionnaires as well as the correlation between readiness and attitude and difference among attitudes of respondents were tabulated and computed then later on analyzed and interpreted.

RESULTS AND DISCUSSION

Table 2
Readiness of the Respondents in Online Schooling

Item/s	Teachers		Parents		Students	
	Weighted mean	Description	Weighted mean	Description	Weighted mean	Description
1. I can use email, internet , messenger with ease	3.90	SA	3.2	A	3.3	SA
2. I have enough knowledge on how to use google apps and internet browsers	3.70	SA	3.2	A	3.1	A

3. I felt confident in using LMS required by School	3.40	SA	3.1	A	3.1	A
4. I am technology savvy.	3.10	A	2.8	A	3.0	A
5. The school trained me well in online teaching mode.	3.10	A	3.0	A	3.1	A
6. I am very familiar and skilled in using features of Learning Management System	3.00	A	2.9	A	3.2	A
7. I have gadget/s which is/are adequate for online teaching	3.60	SA	3.3	SA	3.3	SA
8. I can use communication tools proficiently such as Zoom, Google Meet, BigBlueButton etc.	3.80	SA	3.2	A	3.4	SA
9. I can effectively create tutorial videos	3.00	A	2.8	A	2.9	A
10. I can construct modules, syllabus, learning contents and assessment materials effectively in LMS.	3.50	SA	3.0	A	3.2	A
11. I have strong internet connection	3.20	A	2.6	A	2.5	A
12. I am very much ready to teach using online modality.	3.40	SA	2.8	A	2.9	A
Overall Weighted mean	**3.39**	**SA**	**2.99**	**A**	**3.10**	A

In this study, readiness of the respondents achieves certain degree of positive response although not to the apex limit. It means that although they agree that they have certain degree of preparation for online schooling something more must be done for improvement. Yet, for a school that is starting to adapt, noticing that stakeholders have capability to utilize technologies is not a bad start at all.

The current K12 online program is still awash of turbulent waters of regional politics, temperamental technologies, innovative methods with no test of efficacy (Ronsisvalle and Watkins, 2005). Readiness to a certain extent provides avenue that sets

the motivation of the learners, parents and students to a positive level. In the absence or lack of it, the ability to deliver and achieve the learning goals may suffer.

As teachers acknowledge both the positive and negative sides of technology as it influences how we learn and survive, it is crucial to strike a balance between social or emotional pedagogy and the pedagogy of inclusion and integration of technology (McFarlane, 2011). Thus, technology plays a vital role as significant component in the implementation of online modality. The level of preparation will somehow define the level of adaptation.

Table 3
Survey of Respondents Attitudes towards Online Class

Item/s	Teachers		Students		Parents	
	Weighted mean	Description	Weighted mean	Description	Weighted mean	Description
1. It is fun teaching online class.	2.90	A	2.8	A	2.7	A
2. There is lesser work in online class.	2.00	D	2.8	A	3.0	A
3. Teaching experiences are more effective in online class.	2.00	D	2.3	D	2.4	D
4. It is easy to manage time with less synchronous schedules in online class.	3.10	A	2.9	A	2.9	A
5. There are adequate interactions in Online Class.	2.30	A	2.9	A	2.8	A
6 Cheating is easy to manage in online modality.	2.80	A	3.0	A	2.8	A
7. I find it cheaper and minimize my expenses working at home	2.70	A	2.9	A	2.9	A
8. I can easily cope with the digital skills required in teaching.	3.10	A	3.1	A	2.8	A
9. Preparing modules, syllabus and exams became simpler and systematic.	2.70	A	2.9	A	2.9	A
10. Online class is the better option during pandemic.	3.50	SA	3.3	SA	3.3	SA
11. There are fewer interruptions in teaching online.	2.40	D	2.6	A	2.8	A

12. I can manage my time well in this modality	3.50	SA	2.9	A	2.8	A
13. Teaching online is satisfying.	2.40	D	2.7	A	2.6	A
14. I can employ diverse teaching method well	2.70	A	2.9	A	2.9	A
15. Problems online can easily be solved.	2.20	D	2.9	A	2.5	A
Overall Weighted Mean	**2.69**	**A**	**2.86**	**A**	**2.79**	**A**

It is interesting to note that flexible/online class schooling is said to be the better option during pandemic. This highlighted in the study of Dhawan (2020) which expressed that this pandemic situation challenged the education system across the world and forced educators to shift to an online mode of teaching overnight. Many academic institutions that were earlier reluctant to change their traditional pedagogical approach had no option but to shift entirely to online teaching–learning.

Likewise, it is also revealing that effectiveness of teaching experiences in online class obtained flak. This may be due to the factors involving limitation in internet and interactions. Online class is also considered arduous among students, teachers, and parents. That is why Gilbert (2015) stressed in his study the challenges of online schooling which are hurdles among stakeholders but definitive measures can be undertaken to overcome those and increase the efficacy of teaching-and-learning methods that have been adversely affected and ensure that students do not fall behind (Aliyyah et al., 2020).

Table 4
Relationship between the Readiness and Attitude of Teachers, Parents, and Students

Correlations

		Attitude of Teachers
Readiness of Teachers	Pearson Correlation	-0.208
	Sig. (2-tailed)	0.564
	N	10

Relationship between the Readiness and Attitude of Parents

Correlations

		Attitude of Parents
Readiness of Parents	Pearson Correlation	.398**
	Sig. (2-tailed)	0
	N	182

Relationship between the Readiness and Attitude of Students

Correlations

		Attitude of Students
Readiness of Students	Pearson Correlation	.429**
	Sig. (2-tailed)	0
	N	139

Table shows the relationship of readiness and attitudes of teachers, parents and students. Since our computed Pearson r for parents is .398 and students Pearson r is .429 at significant level of .05, the null hypothesis is accepted. There is significant relationship between readiness and attitudes towards online/flexible learning based on the response of parents and students. However, based on the lens of teachers the result is the opposite.

Varied findings on different variables revealed in the study of Tang (2013) that first, the use of technology in education was not a hindrance to the students. Second, blended learning adaptability, which was modelled as a second-order formative construct and formed by four first-order reflective constructs—attitude towards online learning, study management, online interaction, and learning flexibility—had a positive relationship with student readiness for blended learning. Third, attitude towards classroom learning had a negative relationship with student readiness for blended learning. An understanding of student attitude towards different learning aspects can be critical in the assessment of student readiness for blended learning, which is a prerequisite for successful implementation of blended learning.

The findings show that having readiness follows that positive attitude also echo among students and parents. Increase readiness links to developing encouraging attitudes. Respondents' readiness amounted to their feelings, beliefs or perspectives towards an issue or phenomenon. The result established that whenever there is a greater extent of preparation, an affirmative or positive attitude manifests which tantamount to better cooperation, motivation and collaboration among key players in education. On the other hand, this is in contrary to the response of the teachers. Further study in other context is suggested to explore additional findings which will prove or disprove the current findings.

Table 5
ONEWAY Attitude on Online Schooling by Groups

/MISSING ANALYSIS
/POSTHOC=TUKEY
ALPHA(0.05).

ANOVA

Attitude On Flexible Learning

	Sum of Squares	df	Weighted mean Square	F	Sig.
Between Groups	0.581	2	0.291	1.655	0.193
Within Groups	57.604	328	0.176		
Total	58.185	330			

Table shows the result of comparison among attitudes of teachers, students and parents using one -way ANOVA. It shows that p value 0.193 is greater than .05 level of significance, the null hypothesis is accepted. There is no significant difference among attitudes of teachers, students and parents. Researches however affirmed that there is a difference among attitudes of stakeholders with regards to using new technologies in school which includes online modality.

In particular, the study of Al-Emran, Elsherif and Shaalan (2016) different factors have been examined to test where there is a significant difference among students and educators' attitudes towards the use of M-learning, such as gender, age, country, level of study, smartphone ownership, major in terms of students and age, country, academic rank, academic experience and smartphone ownership in terms of educators. Findings revealed significant differences among the students' attitudes towards M-learning with regard to their smartphone ownership, country and age. Furthermore, results indicated that M-learning can be one of the promising pedagogical technologies to be employed.

It contradicts with the findings of this study that attitudes of the respondents do not vary. It implies that they have common beliefs and feelings towards online schooling. The unanimity of the respondents' attitude implies that their perception, beliefs and feelings towards online schooling maybe due to their common experiences in the implementation of online modality.

Table 8
Improvements needed for Online Schooling as Perceived by the Respondents

	Teachers		Parents		Students	
Item	Weighted mean	Description	Weighted mean	Description	Weighted mean	Description
1. Activities in online class should be organized better	3.6	SA	3.4	SA	3.3	SA
2. Provide more training about digital platform.	3.8	SA	3.2	A	3.3	SA
3. Provide Psycho-social support	3.6	SA	3.4	SA	3.3	SA
4. Remedial classes and exams be provided	3.8	SA	3.4	SA	3.3	SA
5. More parents consultations and interactions	3.8	SA	3.2	A	3.1	A
6. Provision for strong internet connections for teachers.	3.8	SA	3.4	SA	3.4	SA
7. Reduce teachers paper works to focus more on mastery of delivery	3.6	SA	3.5	SA	3.3	SA
8. Reduce screen-time exposure to both teachers and students	3.8	SA	3.5	SA	3.3	SA
9. Provide parents training on effective engagement in online modality.	3.6	SA	3.2	A	3.2	A
10. Incorporate learning technologies in strategic plan	3.8	SA	3.4	SA	3.3	SA
Overall Weighted mean	**3.72**	**SA**	**3.34**	**SA**	**3.27**	**SA**

Based on the result it is affirmed that online schooling can be improved as a matter of change in policies, provisions, and programs. Aside from the things commonly regarded as beneficial for the improvements of online learning such as establishing norms, creating accessible content, strengthening relationship, fostering lively interactions and connecting with families (Nielsen, 2020) there are other concerns that

are recognized to be of utmost needs to be included in the program of instituting technologies like using online modality in teaching and learning.

Findings above show the strong sentiment of respondents that provisions of giving emphasis on those items mentioned above are necessary especially when it comes to provision of strong internet connections. This is manifested as they strongly agree on most items enumerated.

Conclusions

1. Teachers, students and parents are prepared on online modality. This concurs with the pre-survey result conducted by the school to the clients before resorting to online class modality.
2. There is significant relationship between readiness and attitude.
3. There is no significant difference among attitudes of teachers, parents and students.
4. There are benefits in online schooling yet improvements are needed including more provisions for upgrade and enrichment of facilities, resources and technologies as perceived by the respondents.

Recommendations

1. Strengthen the program for online schooling by providing the stakeholders with support and good provisions for learning online.
2. Incorporate upgrade of learning technologies and capabilities to strategic plan
3. Provide teachers with resources and flexibility
4. Accommodate suggestions from stakeholders to improve the online learning program, make it adequate and effective to build positive attitudes towards online schooling for its success.
5. Have the evaluation of the online program which includes monitoring of the effectiveness involving the stakeholders, teachers, parents and students whose attitudes are affected by how effective or adequate the program is.
6. This study may be administered in other settings and contexts to find out more data regarding online schooling using the same or other variables with varied participants and stakeholders.

Compliance with Ethical Standards

Researcher obtained the informed consent from all participants involved in the study, including students, faculty, and parents and clearly stated the purpose of the study, the procedures involved, the potential risks and benefits, and the participants' rights to voluntary participation, withdrawal, and confidentiality.

The identity and anonymity of the respondents are considered. They were aware of the purpose of the study and that the data gathered will only be used primarily for research. The privacy of participants records are considered and ensure that any personal information or sensitive data collected during the study is handled securely in

accordance with Data Privacy Act. Necessary permission were secured and complied with before collecting data.

The proponent assured that research design, procedures, and interventions prioritize the well-being, convenience, comfort and best interests of participants by minimizing potential hazards, distress, conflict with work schedules or risks associated with participating in the study. This study promotes equity and inclusion by taking into account the diverse backgrounds, needs, perspectives, culture and status of participants. Researcher avoids any form of discrimination, stigma or bias in the research process and efforts are made with due diligence to include underrepresented groups and ensure equitable access to research opportunities.

Cooperation and respect are established by respectful and cooperative relationship with participants and the school. Researcher also acknowledged and values the contributions of participants and ensures that their voices and experiences are accurately expressed and interpreted in the research results. Research is conducted with integrity, honesty and transparency and devoid any fabrication, falsification, or plagiarism by adhering to ethical guidelines to maintain the integrity and trustworthiness of data based on the result.

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BEYOND TASTE: EFFECTIVENESS OF TEAM-BASED AND VIDEO-BASED APPROACHES ON STUDENTS' PLATE PRESENTATION SKILLS

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ABSTRACT

The shift in education caused the teachers to use different methodologies and learning strategies to cater to the needs of the students. Given the hands-on nature of cooking instruction, it is crucial for instructors to use teaching approaches that optimize students' learning experiences to enhance their plate presentation skills. This study looked into the effectiveness of the Team-based and Video-based learning approaches on the plate presentation skills of cookery students. A quasi-experimental design was employed. Statistical tools such as mean, standard deviation, and t-test for paired samples were used to assess the level of plate presentation skills before and after the implementation of interventions. Additionally, ANCOVA was utilized to compare the effectiveness of the two approaches. One group was exposed to team-based learning while another group was exposed to the video-based learning. The findings revealed a significant increase in the post-test plate presentation skills score for both groups. Specifically, students in the team-based learning group received very good ratings on proper balance, color, shape and garnish. In contrast, students in video-based learning group received very good ratings in color, shape, and garnish, but only a good rating in proper balance. The data indicate that both approaches significantly influence students' plating skills across all sub-skills. However, the video-based learning was found to be more effective than the team-based learning in improving shape and use of garnish. However, it is the team-based that is more effective in improving balance. The study points to the need for teachers to consider utilizing collaborative activities for students to work and learn from their peers and even share their knowledge. Moreover, it suggests the use of video discussions or tutorial videos as effective tools for teaching new skills.

Key Words: *Plate presentation skills*, *Team-based learning, Video-based learning*

INTRODUCTION

The Cookery NCII Qualification is a comprehensive program aimed at equipping individuals with the necessary competencies to effectively achieve specific tasks (TESDA, 2014). Derived from the competency map of the Tourism Sector's Hotel and Restaurant domain, a key component of this qualification involves the preparation of meat dishes (Unit Code: TRS512338). To excel in this aspect, candidates must demonstrate the ability to present meat dishes attractively while adhering to classical, cultural, and enterprise standards wherein plate presentation is a skill that they need to master.

Plate presentation is the final phase in culinary presentation and is critical for displaying the quality of food while engaging guests' senses (The Culinary Pro, 2023). Moreover, food presentation and plating are important parts of culinary arts that play an important role in attracting guests and creating the environment of a restaurant (The Art of Food Preparation, 2022. With these, professional chefs' plate presentation talents include a variety of techniques such as color coordination, garnishing, and stacking, which highlight the creativity and artistic aptitude of culinary specialists and contribute to both visual appeal and flavor (Smith and Jones, 2018).

Given the hands-on nature of cooking instruction, instructors should use teaching approaches that optimize students' learning experiences. Traditional tactics such as straight talk or PowerPoint presentations may not be beneficial in improving plate presentation skills. As a result, an experimental approach integrating team-based learning and video-based learning is required to establish their impact on TVL students' plate presentation skills (Kazi et al., 2021).

Finally, the purpose is to provide students with effective learning methodologies and to promote their growth in this crucial culinary area, ensuring that the future generation of chefs can master the art of plate presentation and create outstanding dining experiences for their clients.

Framework

This study assumed that that team-based and video-based learning approaches are facilitative of the development of TVL students’ plate presentation skills. This study is anchored on the theory of Constructivism of Jean Piaget and the Multimedia Learning Theory of Richard Mayer. Constructivist learning theory which is anchored from McLeod’s (2023) conceptualization, is a teaching methodology shaped by the integration of dynamic, experiential, and hands-on aspects of culinary education, establishing a theoretical foundation to incorporate and master the plate presentation skills.

A recent study by Rodriguez et al. (2019) shows that culinary education can be more empowered and enhanced with the assistance of active participation by the students. In line with the constructivist learning theory, knowledge is actively constructed by students through interactions, practical experiences, and reflective processes.

Moreover, Chen et al.'s recent research (2020) emphasizes the value of social contacts in the development of culinary skills. The cooperative efforts that are highlighted in team-based learning are consistent with research indicating that knowledge in the culinary domain is constructed through interactions and shared experiences with peers, teachers, and the culinary environment.

Team-based learning (TBL), as defined by Parmalee and Michaelsen (2010), is an instructional strategy that promotes collaborative learning and teamwork among students to enhance understanding of the course and develop the skills necessary to complete the course. It has different kind of strategies such as team formation, application activities, peer teaching, team reflection, and inter-team competition. First, team formation is a TBL strategy that has a big impact to the learning process of the students because of how successful and effective it can be, wherein students will be given the opportunity to work in team wherein they can share ideas, their skills in cooking, and guide their teammates (Parmalee & Michaelsen, 2010). Peer-teaching allows the students to closely work within a member to improve learning and skill, a peer take turns in leading the task in preparing meals and assist each other to discuss ideas and outline strategies and divide tasks to finish the task easily (Haidet, et.al., 2014). Fourth, team reflection encourages students in ongoing team progress wherein they can evaluate their performance and pinpoint their strengths for potential growth of the team and weaknesses to improve for the next team activity.

The Multimedia Learning Theory (MLT), developed by Richard Mayer, provides a valuable framework for educators to enhance the educational experience by harnessing technology's potential in the classroom (Ramlatachan, 2019).

Moreover, MLT centers on the idea that when educators utilize various tools and mediums, such as audio and visuals, they can more effectively engage students and cater to the diverse ways in which individuals learn. According to Mayer, as cited by Ramlatchan (2019), combining different types of information—like words and pictures—makes learning easier and more effective since it aligns with how the brain works during learning.

The Technical-Vocational-Livelihood (TVL) Home Economics Cookery strand under the senior high school curriculum requires the students to acquire a set of competencies and skills essential to the cooking industry (DepEd and TESDA). With constructivist learning theory and multimedia learning theory, educators will be able to provide the students with the opportunity to improve their skills. Since cooking is a life skill that requires a lot of skills, it is important for the students to learn how to work with others, learn from each other, and use available resources to improve themselves.

At the core of this study is the exploration of plate presentation skills among TVL students. Plate presentation skills among cookery students have evolved significantly in recent years, reflecting broader shifts in culinary education and industry demands. A holistic approach to plate presentation is emphasized in contemporary literature,

incorporating aspects of aesthetics, cultural sensitivity, sustainability, and technical innovation. Cookery students are now encouraged to not only master the technical aspects of cooking but also develop a keen eye for balance, harmony, and creativity in their presentations. Research by Garcia and Rodriguez (2022) emphasizes the value of cultural sensitivity in accommodating a range of tastes and preferences.

Moreover, Chen et al. (2020) examine how technological developments are being incorporated into plate presentation techniques, offering students new avenues for creativity and innovation.

Furthermore, contemporary culinary arts literature acknowledges the potency of vibrant hues as a dynamic tool in the chef's palette. Chen et al. (2022) emphasizes the use of vibrant colors as a powerful component of the multisensory experience offered to diners. The integration of vibrant hues is seen as a deliberate strategy in creating a sensory symphony that goes beyond taste, engaging sight and enhancing the overall enjoyment of a dish. This study aligns with the evolving nature of culinary arts, where chefs are increasingly viewed as orchestrators of holistic dining experiences.

The figure 1 shows the use of two interventions, team—based learning and video-based learning, in determining the plate presentation skills of the students. The plate presentation skills with 5 criteria: proper balance, use of color, shape (proportion), use of garnish, and overall presentation; will be evaluated before and after the implementation of the intervention. A pre-test will be implemented to measure the plate presentation skill of the students and a post-test to measure the skill of the students after a month-long implementation of the intervention.

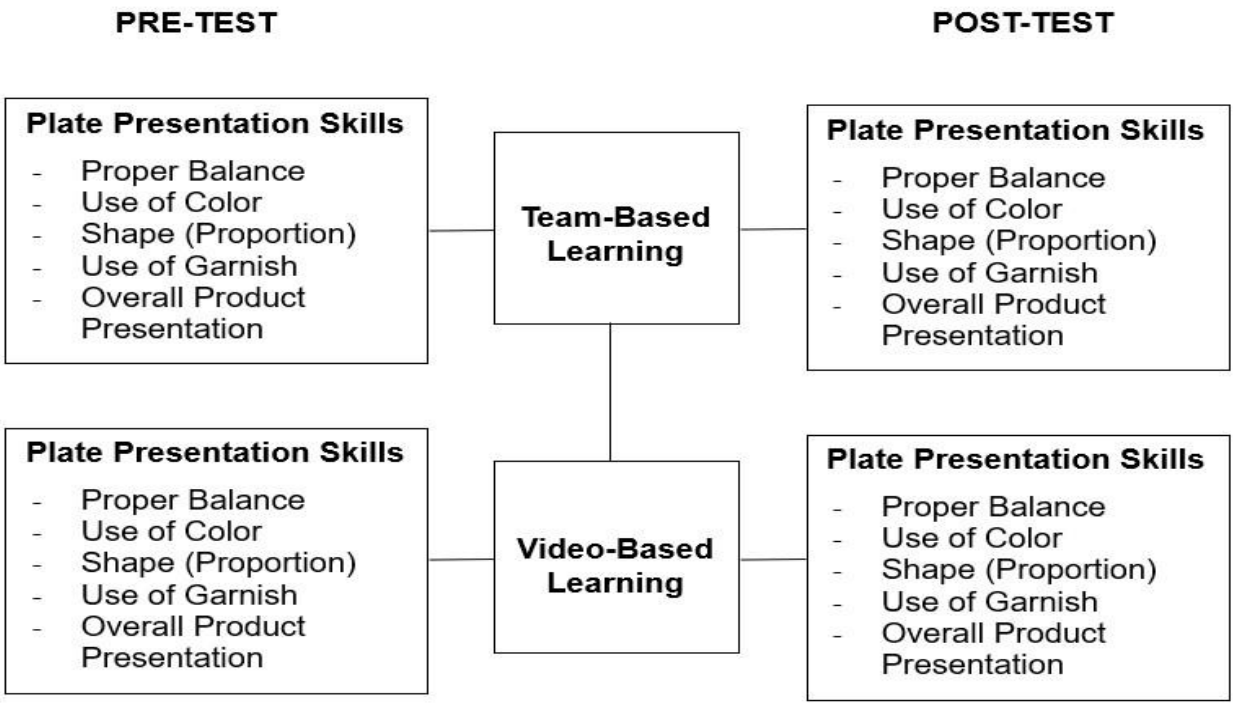


Figure 1. *A Conceptual Model Presenting the Variables of the Study*

Figure 1. Schematic Presentation of the Study

Research Objective

This study aims to determine the effectiveness of Team-based Learning Strategy and Video-Based Learning Strategy in the Plate Presentation Skills of the Cookery students of a public school.

METHODOLOGY

This study utilized a quasi-experimental design with descriptive statistics such as mean, frequency, percentage distribution and standard deviation will be employed to describe the plate presentation skills of the participants before and after the conduct of intervention. And also, t-test for paired sample will be used to compare the plate presentation skills of the participants before and after the implementation of the intervention. And ANCOVA will be employed to compare the plate presentation skills of each group after the implementation of the intervention.

RESULTS AND DISCUSSION

Plate Presentation Skills	TEAM-BASED APPROACH					VIDEO-BASED APPROACH				
	Pre test M	**Post test** M	**t**	**p**	**Effect Size**	**Pre-test** M	**Post test** M	**t**	**p**	**Effect Size**
Proper Balance	2.09	3.76	8.63**	.000	-1.58	2.36	3.28	5.15**	.000	-.940
Use of Color	2.43	3.98	6.73**	.000	-1.23	2.36	4.03	10.58**	.000	-1.93
Shape	1.94	3.96	11.87**	.000	-2.17	2.32	4.26	14.96**	.000	-2.73
Use of Garnish	1.90	3.90	18.06**	.000	-3.30	2.43	4.28	14.81**	.000	-2.70
Overall Product	2.63	4.31	12.42**	.000	-2.27	2.93	3.77	4.96**	.000	-.905

Presentation	

*Legend: **significant at 0.01 level*

Table 1 presents the test result of the difference in the participants' plate presentation skills before and after the interventions. The overall posttest result shows a significant difference in the students' overall performance in all sub-skills in plate presentation skills.

The result of the study is supported by Galatsopoulou, et.al. (2022) and Kazi, et.al. (2021) that video-based learning enhances the students understanding about plate presentation techniques and its impact on their skills. The result also supports the study of Surgener, et.al. (2021) that utilizing video-based learning presents a promising avenue in enhancing culinary skills. The increase and improvement on the plate presentation skills of the students before and after the video-based learning strategy is supported by the study of Chen, et.al. (2019) and Smith and Anderson (2018). The same study strongly shows the effectiveness of video-based instructions in enhancing learning outcomes and students' engagement, which is also agreed by Johnson, et.al. (2020) that video-based instruction not only improves comprehension and retention but also increases engagement and participation.

Analysis of Covariance for Plate Presentation Skills by Group

	TEAM-BASED APPROACH GROUP	VIDEO-BASED APPROACH GROUP	**F**	**p**	**Effect Size**
Balance	3.74	3.29	9.66**	.003	.145
Color	3.98	4.03	.123	.727	.002
Shape	3.94	4.27	5.37*	.024	.086
Use of Garnish	3.92	4.26	8.91**	.004	.135
Overall Plate Presentation	4.05	4.07	.130	.719	.002

**significant at 0.01 level
* significant at 0.05 level

The results further revealed significant differences in the means of their skills in balance (F=9.66, p = .003), shape (F=5.37, p = .024), and garnish (F=8.91, p = .004) but not in the use of color. Compared to the other subskills of balance, shape, and garnish,

the use of color did not show statistical significance. This could be due to several reasons unique to the Grade 12 TVL student population. For one, plate presentation color choices are very personal and can be impacted by differences in culture as well as personal preferences. Color combinations frequently depend on individual and cultural tastes, in contrast to balance, shape, and garnish, which have clearer, more teachable rules. Another reason could be that students may already have preconceived ideas about the use of color because of their individual preferences and past experiences. It may be difficult to change these pre-existing preferences for color through instructional interventions. By contrast, when structured learning approaches are used, students may be more familiar with ideas like balance, shape, and finish, which may result in more noticeable improvements in the students' plate presentation skills in these areas.

Moreover, the estimated marginal means showed that the team-based approach group had higher plate presentation skills than the video-based approach group in terms of balance, with a mean score of 3.74 compared to the video-based approach group's mean of 3.29. According to Salas et al. (2017), team-based strategies allow students to collaborate with others helping them develop their specific skills and preparing them for the collaborative nature of the workplace. Hence, participating in team-based activities with Grade 12 TVL students likely allowed them to learn from and collaborate with their peers, which improved their understanding of portion sizes and symmetrical plating.

In a nutshell, students in Grade 12 TVL greatly enhance many sub-skills related to plate presentation using both team-based and video-based approaches. The collaborative aspect of the tasks is perhaps the reason why the team-based approach is so effective in promoting balance. By comparison, because of the benefits of visual and repetitive learning, the video-based approach performs better when it comes to improving abilities linked to shape and design. These results imply that the best strategy for developing thorough plate presentation skills in culinary education may include the effective use of varied learning approaches such as team and video-based approaches.

Conclusions and Recommendations

The implementation of team-based learning and video-based learning strategies is very important in teaching not only the plate presentation skills of the students, but in overall skills of TVL students. Teachers who play a vital role in the learning process of the students must consider of not only using the traditional strategies of teaching such as pure discussion, pen-and-paper test, and oral recitation, but also using collaborative learning and using of media to make the learning process more engaging and interesting for the students.

The constructivist learning theory and multimedia learning theory which are the basis for this study were emphasized and confirmed in this study. The students plate presentation skills significantly improve after the implementation of team-based learning and video-based learning strategies. Moreover, team-based learning is found to have a higher difference on the pre-test and post-test scores compared to the video-based

learning. This result emphasizes that collaborative learning is significant in improving the skills of the students.

Teachers, that they may consider utilizing collaborative activities for students to work and learn from their peers and even share their own. Also, using video discussions so that students can rewatch an instruction they need to master. Educational Institutions to consider activities and training that will be helpful for the development of the TVL students to understand the culinary industry. Future researchers may consider the result of this study and increase the number of participants to have a wider scope and understanding on the implementation of different learning strategies.

Compliance with Ethical Standards

As stated in RA 10173, or the Data Privacy Act of 2012, all personal data must be collected for valid reasons. Both parties giving and receiving information should be aware of it. Thus, the researcher secured an assent form from the parents of the research participants, and attached therewith was the informed consent from their parents/guardians. The confidentiality of the data gathered the risks, and the benefits of their child's participation in the study were also mentioned and explained. The parents/guardians were also informed that their child's participation in the study was voluntary; hence, withdrawing their child's participation at any time was possible.

With that being stated, all data collection was done with permission to ensure the confidentiality of the information. Thus, all personal information must be relevant and used only for the study's intended purpose. The researcher introduced the research purpose to the participants in the first week before administering the interventions. The participants were involved in the study for 5 weeks only. In the first week, after giving orientation, a pre-test was administered on both interventions in each group of respondents. After that, the groups were exposed to different instructional interventions, and the fifth week was the Post-test of each intervention. The learners in both groups took a posttest after the interventions to determine if there were improvements in their plate presentation skills performance.

The ethical considerations of this study, (adapted from Muhammed Hassan, 2023) included transparency, confidentiality, voluntary participation, risks and benefits of the study, and consent and assent for minors.

Transparency. The researcher observed transparency to the participants and people involved in what is the main purpose, goals, and objective of conducting the research. The researcher will read the research problem, significance, and purpose of the research to the participants. The outcomes or results of the research will also be available and transparent to the participants and people involved.

Confidentiality. In line to protect the rights of the study participants, all the information gathered from this study is kept private and confidential. As stated in RA 10173, or the Data Privacy Act of 2012, all personal data must be collected for valid reasons. Both parties giving and receiving information should be aware of it.

Voluntary Participation. The participation of the respondents was completely voluntary and anonymous to protect their privacy and information was given whenever the respondents do not understand, before deciding whether to participate or not in the study. Respondents' names did not appear anywhere and no one except the researcher knew about respondents' specific scores.

Consents and Assent for Minor. The researcher made sure that the participants of the study were fully aware of the purpose of the study, and the benefits that they and the school got from the study. The study conducted with the approval of the concerned school authorities, parents, and as well as the permission of the respondents themselves.

Risks of Study. During the entire duration of this study, they may get burns from cooking, and cuts while preparing the ingredients. To avoid these dangers, they were required to wear PPE or Personal Protective Equipment such as gloves, apron, hairnet, face mask, and foot socks all the time during the entire duration of the cooking activities. And if these dangers occur, the HE laboratory has its own safety measures corner and a complete set of Medicine and Health kits.

Benefits of Study. Students were given a grade that is according to their performance as a student. Also, this study provided important information that is very useful to the cookery students, to the teachers, and even public and private administrators. The results, discussions, and findings of this study can help teachers to improve strategies that will help them improve your knowledge and skills in plate presentation.

Vulnerability. As school's policy for the safety of its students, for some unavoidable circumstances, the researcher gave consideration and respect to the parents/guardians and the research participants whenever they could not join or participate in the class conducted four times a week to ensure their rights were also observed. The researcher also allocated a specific budget to be given to those research participants who would not able to provide ingredients.

Collaborative study terms of reference. The researcher will get the approval of the Guidance Designate of the School where the participants are enrolled. After seeking the approval of the school head, the school guidance designate will also be oriented and informed about the experimental study to secure the rights of the students.

Moreover, a student can withdraw from the study if he/she is not comfortable with the conduct of the study. The participants can leave or opt to not continue his/her participation in the study. With these, the participants can consider the withdrawal criteria in not participating in the study. Lastly, the participant can also inform the researcher, right away, if he/she wishes to withdraw from the study, wherein he/she can provide his/her reason(s) for withdrawing from the study but is not required to provide one.

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BEYOND WORDS: ENHANCING CREATIVE WRITING PROFICIENCY THROUGH SENSORY VISUALIZATION

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ABSTRACT

This action research endeavors to tackle the hurdles impeding creative writing proficiency among Grade 11 General Academic Strand (GAS) students at Optaciano Hilay National High School. Employing sensory visualization techniques as interventions, this study aimed to augment self-expression, critical thinking, and communication skills. This study adopted an action research design, involving five Grade 11 GAS students who underwent pre- and post-intervention interviews. Thematic analysis was applied to data gathered during the two-week period of integrating sensory visualization techniques into the creative writing process. Initially, students faced challenges such as initiation and cognitive clarity issues, along with pressure, lack of enjoyment, and struggles in conveying ideas effectively. Following the intervention, notable improvements emerged: heightened idea generation, enhanced cognitive clarity, increased enjoyment and engagement, and improved expression and ability to overcome obstacles. Notably, their written creative compositions exhibited enriched detail and narrative flow, enhanced descriptive imagery and vividness, and amplified emotional depth, thereby indicating the effectiveness of sensory visualization. Ultimately, this study provides valuable insights for teaching, advocating structured approaches and techniques, bolstering student engagement and enjoyment, and refining expression and communication skills.

Keywords: *Creative writing, Sensory visualization, Action research, Grade 11 GAS students, Writing Proficiency, Language Teaching*

INTRODUCTION

Within the Grade 11 General Academic Strand (GAS) at Optaciano Hilay National High School, creative writing serves as a fundamental tool for fostering self-expression, critical thinking, and effective communication. However, many students within this group face notable challenges in refining their creative writing abilities.

One prevalent obstacle among Grade 11 GAS students is the struggle to initiate and articulate their imaginative ideas effectively. Often, they find themselves grappling with writer's block when confronted with the task of commencing a new writing project. This initial barrier not only impedes their progress but also dampens their enthusiasm for creative expression. Furthermore, even when they manage to surmount this hurdle, students frequently encounter difficulties in conveying their thoughts with vividness and coherence, hindering the realization of their full creative potential.

In recognition of these challenges, this action research sought to introduce an innovative approach, leveraging sensory visualization, to enhance the creative writing prowess of Grade 11 GAS students. Sensory visualization entails the use of descriptive language that appeals to the different senses, aimed to invite readers to vividly imagine the settings, scents, sounds, tastes, and textures within the narrative. To achieve this goal, the teacher provided prompts to learners throughout the writing process. These prompts encourage learners to immerse themselves in rich sensory experiences, thereby deepening their engagement with their writing and enhancing its impact on the reader.

Sensory Visualization is identified as one of the most effective approaches to assist learners in their creative writing dilemma. This innovative strategy is designed to facilitate students in commencing their essays and sustaining a coherent stream of ideas. As highlighted by Cron (2012) in her work, engaging the senses through descriptive imagery not only captivates readers but also immerses them in the narrative, rendering it more compelling and memorable.

In the classroom, this technique unfolds through a series of specific steps designed to engage students' senses and unleash their creativity. Firstly, students are presented with a writing prompt that helps them to envision a particular scenario or setting, such as a beach scene or a bustling city street. They are then encouraged to close their eyes and mentally transport themselves to this environment, focusing on each of their senses in turn.

Students are guided to visualize the sights of their chosen scene, imagining the colors, shapes, and movements that surround them. They are prompted to envision the sun-drenched shoreline, the azure expanse of the sea, and the gentle sway of palm trees in the breeze.

Next, students are encouraged to tune into the sounds of their imagined setting, listening for the crash of waves against the shore, the calls of birds overhead, and the laughter of

beachgoers in the distance. They are prompted to imagine the buzz of city life, with honking horns, bustling crowds, and street vendors hawking their wares.

In addition to sight and sound, students are prompted to focus on the sensations of their chosen environment, imagining the warmth of the sun on their skin, the cool touch of sand between their toes, and the refreshing breeze on their face. They are encouraged to conjure up the taste of salt on their lips and the scent of sunscreen and saltwater in the air.

Through this transformative endeavor, the researcher aspires to foster a supportive environment where creative writing becomes not only accessible but also enriching and enjoyable for Grade 11 GAS students. By harnessing the power of sensory visualization, the researcher aimed to empower students to unlock their creativity, overcome writer's block, and express themselves with depth and resonance, both within the academic setting and beyond.

Research Questions

This action research aimed to seek answers to the following questions:

1. What are the experiences of Grade 11 GAS students with creative writing before and after the implementation of sensory visualization?

2. What are the observed improvements in the Grade 11 GAS students' creative writing output after the implementation of sensory visualization?

3. What insights can be drawn from the findings of the study?

METHODOLOGY

This study used action research design, recommended by scholars like McNiff and Whitehead (2016), to engage with the students and tackle real-world challenges effectively. Action research is well-suited for education because it involves collaboration between researchers and participants, allowing for active problem-solving (Stringer, 2019). This approach aims not only to understand the issues in creative writing faced by Grade 11 GAS students but also to develop and implement solutions together with them. Through ongoing reflection and action, action research promotes meaningful improvement in educational settings (Mills, 2018). It ensures student voices are heard, empowering them in the research process (Reason & Bradbury, 2019). Overall, this action research design aligns with modern educational principles and provides a strong framework for addressing creative writing challenges among Grade 11 GAS students.

Five students have been chosen through purposive sampling; a method that selects participants based on specific criteria relevant to the research objectives (Creswell &

Creswell, 2017). This sampling approach ensures that the selected students represent diverse perspectives and experiences within the target population (Patton, 2015). The primary data for this study were gathered through in-depth interviews conducted with the selected students regarding their experiences before and after the intervention. These interviews will provide rich qualitative data, allowing for a detailed exploration of the students' thoughts, experiences, and perceptions regarding creative writing (Merriam & Tisdell, 2016). By interviewing the participants of their experiences before and after the intervention, the study can assess the impact of the sensory visualization techniques on their creative writing abilities and attitudes (Creswell & Poth, 2017). This comprehensive approach to data collection enables a thorough understanding of the intervention's effectiveness and its implications for improving creative writing skills among Grade 11 GAS students.

The data were gathered using an interview guide crafted by the researcher, drawing upon established frameworks recommended by experts in educational research methodology such as Patton (2015) and Kvale and Brinkmann (2015). Participants engaged in semi-structured face-to-face interviews conducted by the researcher, fostering an environment conducive to open and detailed exploration of their experiences and perceptions. These interviews were conducted both before and after the intervention, allowing for a comprehensive understanding of the impact of Sensory Visualization on the creative writing process of Grade 11 GAS students.

The interviews with the participants were transcribed, translated, and then thematically evaluated. This study employed reflexive thematic analysis (RTA) as outlined by Braun and Clarke (2006). This flexible method allows for iterative engagement with the data, emphasizing the researcher's active role in theme identification and development. The analysis followed a six-step process: (1) familiarization with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the report.

Familiarization with the Data. As defined by Nowell et al. (2017), familiarization involves immersing oneself in the data to gain an in-depth understanding. Operationally, the researcher read the transcripts and listened to the audio recordings to identify key ideas and patterns, noting initial impressions and recurring concepts.

Generating Initial Codes. Terry et al. (2017) describe this step as systematically coding the data by identifying meaningful segments related to the research question. In this study, the researcher tagged each relevant piece of data with a code that encapsulated its essence, creating a structured foundation for theme development.

Searching for Themes. According to Vaismoradi et al. (2013), this step involves collating codes into potential themes. The researcher examined the coded data to identify broader patterns of meaning, grouping similar codes together to form initial thematic categories.

Reviewing Themes. King and Brooks (2018) state that this step requires evaluating the potential themes to ensure they accurately represent the data. The researcher refined

themes by comparing them against the original data and the entire data set, ensuring coherence and relevance.

Defining and Naming Themes. Joffe (2012) describes this step as clearly defining each theme and assigning them descriptive names. The researcher refined the themes to capture their core meaning, ensuring each theme provided a clear and distinct understanding of the data.

Producing the Report. Kiger and Varpio (2020) define this final stage as organizing the themes into a coherent narrative. The report included detailed descriptions of each theme, supported by illustrative quotes from the data, demonstrating their relevance and grounding in the participants' experiences.

RESULTS AND DISCUSSION

Experiences with Creative Writing among Grade 11 GAS Students Before Intervention

Struggle with Initiation and Cognitive Clarity. Before the implementation of sensory visualization techniques, students frequently encountered significant challenges when attempting to start their creative writing assignments. This struggle often manifested as a form of writer's block, where students found themselves staring blankly at a page, unable to generate ideas or visualize scenarios. The mental block was particularly frustrating, as it not only delayed the writing process but also decreased students' confidence in their writing abilities. The inability to think clearly and produce coherent thoughts was a common experience among the students, contributing to their overall difficulty with creative writing tasks. Additionally, students lacked structured approaches to overcome this mental block, further exacerbating their struggles. The absence of effective strategies to guide their thought processes led to feelings of frustration and helplessness, making it difficult for them to engage with creative writing tasks meaningfully.

> *"Before I used the implementation of sensory visualization techniques it was kind of hard for me to think of a situation on the given scenarios."* ***(IDI 1.1a)***
>
> *"I experienced difficulties because I had a hard time thinking of what to write."* ***(IDI 1.1b)***
>
> *"Before implementing the sensory visualization techniques, I just only write my thoughts or what comes to my mind reading the theme."* ***(IDI 1.1c)***
>
> *"Before I use the sensory techniques my story that I create is not explaining all that they do on the character."* ***(IDI 1.1e)***

> *“Before using the techniques given, I was feeling a bit clueless and blankly staring at the paper for like a minute because I couldn’t think straight.”* ***(IDI 1.2a)***

Pressure and Lack of Enjoyment. Starting new writing projects was often associated with a sense of pressure and a lack of enjoyment among the students. The initial phase of writing was particularly daunting, as students struggled to gather their thoughts and translate them into coherent narratives. This pressure was not just about the content but also about meeting expectations and producing quality work. The lack of enjoyment in the process stemmed from the frustration of not being able to generate ideas and the constant worry about grammatical mistakes and proper structure.

The high stakes and fear of failure made creative writing feel like a burdensome task. Students' negative perception of writing assignments further hindered their ability to engage fully and enthusiastically with the process, leading to decreased motivation and productivity.

> *“Before using sensory visualization techniques I feel kind of pressure because it is kind of challenging gathering thoughts.”* ***(IDI 1.2c)***

> *“I am not actually good at writing even though I just need to revise my first writing, it is still challenging gathering thoughts.”* ***(IDI 1.3c)***

> *“Yes definitely, you’ll sometime have to think or choose whether you're using the right grammar, is it the right scenery, or on how you choose the start, body, and ending of the story you write.”* ***(IDI 1.3d)***

> *“The specific challenges I remember were my struggle to figure out what to write and the worry that I might make too many grammatical mistakes because I'm not that good at English.”* ***(IDI 1.4b)***

Difficulty in Conveying Ideas Effectively. Students often faced significant challenges in effectively conveying their thoughts and ideas in their creative writing. This difficulty was compounded by external distractions, such as noise and other environmental factors, which further disrupted their concentration and thought processes. Additionally, students struggled with organizing their thoughts coherently and creatively, making it hard to produce well-structured narratives.

Grammatical issues and a lack of familiarity with formal writing conventions also posed considerable obstacles. These challenges not only hindered the clarity and quality of their writing but also contributed to a lack of confidence in their ability to express themselves effectively.

> *“I have so many challenges I faced while I was writing my stories like I was so distracted by the noise and the surroundings around me, and I couldn’t think of something.”* ***(IDI 1.4a)***

"The specific challenges I remember were my struggle to figure out what to write and the worry that I might make too many grammatical mistakes because I'm not that good at English." ***(IDI 1.4b)***

"First is the gathering of thoughts, especially since I don't know how to write it in a proper and creative way, and the noise in the surroundings, it is hard to think and write especially when it is noisy." ***(IDI 1.4c)***

"The challenges that I encounter of writing stories is my grammar because I don't know how to write it in formal." ***(IDI 1.4e)***

Experiences with Creative Writing among Grade 11 GAS Students After Intervention

Improved Idea Generation and Cognitive Clarity**.** After the implementation of sensory visualization techniques, students reported a marked improvement in their ability to generate ideas and think clearly. These techniques provided a structured approach to ideation, helping students visualize scenarios and engage their senses in the writing process. By mentally transporting themselves to different settings and focusing on sensory details, students found it easier to start writing and maintain a coherent flow of ideas. This newfound clarity and structure significantly reduced the instances of writer's block and made the writing process more accessible and less intimidating.

The sensory visualization techniques allowed students to tap into their imagination more effectively, providing a vivid mental framework that guided their writing. This approach not only facilitated the initiation of their writing tasks but also enhanced the overall quality of their narratives by making them more detailed and immersive.

"After using the techniques, it was getting easy for me to think straight and eventually started writing as soon as possible." ***(IDI 1.1a)***

"After implementing the sensory visualization techniques, I can imagine the scene and can write the scenario a bit clearly." ***(IDI 1.1c)***

"After using the techniques, I was surprised by myself because I eventually write as soon as I get to think so many situations." ***(IDI 1.2a)***

"After using it my mind works pretty well because I eventually think is something easily." ***(IDI 1.3a)***

Increased Enjoyment and Engagement. The sensory visualization techniques not only improved the cognitive clarity of students but also significantly increased their enjoyment and engagement in the creative writing process. Students began to see writing as a more enjoyable and less daunting task, which was reflected in their increased enthusiasm and willingness to participate in writing activities. The structured sensory prompts made the

process of writing more engaging, allowing students to connect more deeply with their work and express their ideas with greater confidence and creativity.

This shift in perception from viewing creative writing as a chore to an enjoyable activity was crucial in enhancing their overall writing experience. The positive feedback loop created by the successful use of sensory visualization techniques led to greater satisfaction and a more positive attitude towards future writing projects.

> *"I even enjoyed it more because the way that I written my story is based on how I feel and imagined just like how it said on instructions."* ***(IDI 1.2d)***
>
> *"I feel before is good because I imagine so nice, then after using I believe on sensory it can help to the story in explaining it well."* ***(IDI 1.2e)***
>
> *"I understand it well because I followed the instructions and got an idea because of it."* ***(IDI 1.6b)***
>
> *"By following the steps, it helps me improve the way I write in a clear and creative way."* ***(IDI 1.6c)***
>
> *"Uses of deeper words and critical thinking while I did my writing."* ***(IDI 1.6d)***

Enhanced Expression and Overcoming Challenges*.* Sensory visualization techniques provided students with effective strategies to overcome previous obstacles in their writing. By engaging their senses and following structured prompts, students found it easier to convey their thoughts and ideas clearly and vividly. This technique helped in organizing their thoughts, making their narratives more coherent and impactful. Additionally, the sensory approach reduced the pressure associated with writing, as students felt more equipped to handle the challenges of grammar and structure.

The overall improvement in expression and the ability to tackle writing challenges more effectively were significant outcomes of the intervention. Students felt more confident in their writing abilities and were better able to articulate their ideas, leading to higher quality and more creative writing outputs.

> *"After using sensory techniques my writing is all the character do is I write and all my thinking in my mind I write it."* ***(IDI 1.1e)***
>
> *"After using the techniques, I was surprised by myself because I eventually write as soon as I get to think so many situations."* ***(IDI 1.2a)***
>
> *"I understand it well because I followed the instructions and got an idea because of it."* ***(IDI 1.6b)***
>
> *"By following the steps, it helps me improve the way I write in a clear and creative way."* ***(IDI 1.6c)***

"Uses of deeper words and critical thinking while I did my writing." ***(IDI 1.6d)***

"I perceive the role by following every step on the given techniques." ***(IDI 1.6a)***

The exploration of creative writing experiences among Grade 11 GAS students unveils a narrative of struggle and transformation both before and after intervention. Initially, students grappled with writer's block and a lack of cognitive clarity, hindering their ability to initiate and articulate ideas effectively. The pressure to perform coupled with a perceived lack of enjoyment further deterred them from fully engaging with the writing process. However, the introduction of sensory visualization techniques marked a significant turning point. Students reported a notable improvement in idea generation and clarity of thought, facilitated by structured approaches to visualization. This newfound clarity not only alleviated writer's block but also enhanced the depth and detail of their narratives. Moreover, the intervention sparked a renewed sense of enjoyment and engagement, reshaping students' perceptions of writing from a burdensome task to an enjoyable endeavor. The structured prompts provided a framework for creative expression, fostering confidence and enthusiasm among students. Importantly, the intervention empowered students to overcome previous challenges in conveying ideas effectively, leading to higher quality and more creative writing outputs. Overall, the implementation of sensory visualization techniques heralded a transformative journey, enabling students to navigate the complexities of creative writing with newfound clarity, enjoyment, and expressive prowess.

Improvements in the Creative Writing Output of Grade 11 GAS Students

Enhanced Detail and Story Flow*.* One of the most significant differences observed in students' creative writing output after the implementation of sensory visualization techniques was the enhancement in detail and story flow. Initially, students' stories were often described as lacking in detail and having a disjointed flow, which made them less engaging and harder to visualize. However, after employing sensory visualization techniques, students reported that their stories became more detailed and cohesive. The inclusion of sensory details allowed for a more immersive reading experience, as readers could better visualize and understand the scenarios being described. This improved detail and flow made the narratives more compelling and enjoyable.

Students also noted that their ability to describe scenes and characters improved, making their stories more vivid and lifelike. The sensory visualization techniques provided a structured approach to enhancing the descriptive elements of their writing, leading to more polished and well-developed narratives. This change in their writing output was a testament to the effectiveness of sensory visualization in transforming their creative writing skills.

"Before using those techniques my output was lacking of something like the way the stories flow that's why I'm really not satisfied with it. After using

those techniques my stories improved so much because the flow of the stories is so detailed especially the scenario, enjoying at the river." ***(IDI 2.1a)***

"When I didn't follow the sensory visualization techniques, I had a hard time and the work was not specific and straight forward, but when I followed it, it was easier and it was well written." ***(IDI 2.1b)***

"I noticed that my first output is only very straight to the point and plain, the second output is being enhance a bit and the scenario is clear and you can imagine the place." ***(IDI 2.1c)***

"The difference I noticed in writing my output is the first one is not explaining it well, the second one after using is explaining it well the character on what they do." ***(IDI 2.1e)***

Improved Descriptive Imagery and Vividness*.* Another major difference noted in the students' writing outputs was the improvement in descriptive imagery and vividness. Before using sensory visualization techniques, students struggled to create vivid images and often produced writing that was plain and lacked depth. After incorporating these techniques, students' descriptions became more detailed and vivid, allowing readers to better imagine the scenarios being described. This enhancement in imagery made their stories more engaging and impactful, as the sensory details added richness and depth to their narratives.

Students highlighted that their ability to describe settings, characters, and emotions had significantly improved, making their writing more immersive. This newfound ability to create vivid imagery not only improved the quality of their stories but also boosted their confidence in their writing abilities. By successfully employing sensory details, students were able to produce more compelling and dynamic narratives, marking a notable shift from their previous writing experiences.

"My outputs improve a lot when I was using the techniques because every word is so detailed the way the story is written is so impressive." ***(IDI 2.2a)***

"The specific improvement I observed was that it was easy to do and interesting to read." ***(IDI 2.2b)***

"If you read it, you can imagine the scenario and it becomes more clearer, I think my writing improved a bit." ***(IDI 2.2c)***

"On how more I clarified the way I visualize the scenery in the story, how the sound goes and about the way I explained and visualized what is happening on the characters' lives." ***(IDI 2.2d)***

"I see the improvement after using the sensory is so nice because it detailed all about in the story." ***(IDI 2.2e)***

"Yes, the writing of my second output is more vivid because I apply the sensory visualization techniques." ***(IDI 2.3c)***

Increased Emotional Depth and Reader Engagement. A third significant difference observed in students' writing outputs was the increased emotional depth and reader engagement. Before using sensory visualization techniques, students often produced writing that was emotionally flat and lacked the ability to engage readers deeply. However, after implementing these techniques, students reported that their writing became more emotionally resonant and engaging. The ability to incorporate sensory details allowed students to convey emotions more effectively, creating stronger connections between the characters and the readers.

This emotional depth not only made the stories more engaging but also helped students to express their thoughts and ideas more clearly. The improved emotional resonance in their writing made their narratives more compelling and relatable, enhancing the overall quality of their creative pieces. This shift towards more emotionally engaging writing highlighted the impact of sensory visualization techniques in transforming students' creative writing abilities.

"Before while I was writing my stories it was really hard because I couldn't imagine such a thing. After using it my writing has improved a lot, I love the way I was writing it with is much emotion and detailed." ***(IDI 2.3a)***

"Yes, I noticed a lot of changes because following and not following sensory visualization techniques are very different." ***(IDI 2.3b)***

"Yes, I noticed that I can now imagine better image of my new writing." ***(IDI 2.3d)***

"Yes, before it is summary of they do, after is you write all happened in the story that you do." ***(IDI 2.3e)***

"Before engaging with the techniques I was not really satisfied with my works because it still lacks something. After engaging myself on the techniques I was kind of satisfied and surprised by myself because I didn't expect that I could write stories that way." ***(IDI 2.4a)***

"In my first output I feel not satisfied with it because it is too plain while in the second it is livelier, and I feel kind of satisfied with it." ***(IDI 2.4c)***

"I felt happy, and I enjoyed it, because I've put my heart into writing the sceneries, and on how the plot flowed with each of the characters." ***(IDI 2.4d)***

The discussions highlight the remarkable transformations in the creative writing output of Grade 11 GAS students following the implementation of sensory visualization techniques. Notably, there was a marked improvement in detail and story flow, as students' narratives became more immersive and cohesive. By incorporating sensory details, students were able to create vivid imagery, enhancing the engagement and impact of their writing. Moreover, the integration of sensory visualization techniques facilitated an increase in emotional depth, leading to more resonant and relatable narratives. These findings underscore the effectiveness of sensory visualization in enhancing students' creative writing skills, as reflected in their improved ability to craft compelling and emotionally engaging stories.

Language Teaching Insights Drawn from The Implementation of The Intervention

Utilizing Structured Approaches and Techniques. The implementation of sensory visualization techniques provided students with a structured method to generate ideas and visualize scenarios, demonstrating the effectiveness of structured approaches in overcoming writer's block and enhancing cognitive clarity. These techniques facilitated guided engagement with creative tasks, allowing students to mentally transport themselves to different settings and focus on sensory details, thus aiding in clearer and more coherent writing. Providing clear, step-by-step instructions helped students organize their thoughts and approach writing tasks systematically, reducing anxiety and improving overall performance. Structured techniques reduced cognitive load by offering students a roadmap to follow, which alleviated feelings of helplessness and frustration.

> *"After implementing the sensory visualization techniques, I can imagine the scene and can write the scenario a bit clearly."* ***(IDI 1.1c)***

> *"By following the steps, it helps me improve the way I write in a clear and creative way."* ***(IDI 1.6c)***

Increasing Student Engagement and Enjoyment. The implementation of sensory visualization techniques transformed creative writing from a pressure-laden task to an enjoyable activity, highlighting the importance of engaging and enjoyable learning processes in education. The positive feedback loop created by the successful use of these techniques increased students' enthusiasm and willingness to participate, showing that enjoyment can significantly boost motivation and engagement in learning. Sensory visualization promoted active participation and allowed students to engage creatively with their writing tasks, demonstrating that interactive and creative teaching methods can enhance student engagement. Techniques that encourage students to use their imagination can transform their perception of learning activities, making them more appealing and less intimidating.

> *"I even enjoyed it more because the way that I written my story is based on how I feel and imagined just like how it said on instructions."* ***(IDI 1.2d)***

"After using the techniques, I was surprised by myself because I eventually write as soon as I get to think so many situations." ***(IDI 1.2a)***

Enhancing Expression and communication Skills**.** Sensory visualization techniques significantly improved students' ability to include descriptive details and ensure a cohesive story flow, underscoring the value of techniques that enhance narrative skills in language education. These techniques also helped students produce more vivid and engaging writing, which is crucial for effective communication. Incorporating sensory and emotional elements into writing not only improved the quality of the narratives but also students' ability to express complex ideas and emotions clearly and vividly. Teaching methods that focus on enhancing the sensory and emotional depth of students' work can lead to more engaging and impactful communication skills. The structured support provided by sensory visualization techniques boosted students' confidence in their writing abilities, which is essential for effective language learning and use. By providing clear frameworks and reducing cognitive load, these techniques helped students overcome challenges related to grammar and structure, further enhancing their confidence and proficiency.

"After using those techniques my stories improved so much because the flow of the stories is so detailed especially the scenario, enjoying at the river." ***(IDI 2.1a)***

"I love the way I was writing it with much emotion and detailed." (IDI 2.3a

"I understand it well because I followed the instructions and got an idea because of it." ***(IDI 1.6b)***

The findings from the study on creative writing among Grade 11 GAS students reveal several key insights for language teaching and education. First, utilizing structured approaches and techniques, such as sensory visualization, can significantly enhance students' ability to generate ideas and write coherently. These structured methods provide clear guidance and reduce cognitive load, helping students overcome writer's block and organize their thoughts more effectively. Second, increasing student engagement and enjoyment in the learning process is crucial. Techniques that transform writing from a burdensome task to an enjoyable activity can boost students' motivation and willingness to participate. Interactive and creative methods that encourage imaginative engagement make learning activities more appealing and less intimidating. Finally, enhancing expression and communication skills through sensory and emotional elements in writing leads to more vivid, detailed, and engaging narratives. These approaches help students articulate complex ideas and emotions clearly, improving both their confidence and proficiency in writing. Overall, the study underscores the importance of structured, engaging, and expressive techniques in language education to foster better writing skills and positive learning experiences.

Conclusions

The study on creative writing experiences among Grade 11 GAS students elucidated significant challenges pre-intervention, such as Struggle with Initiation and Cognitive Clarity, Pressure and Lack of Enjoyment, and Difficulty in Conveying Ideas Effectively. However, the introduction of Sensory Visualization Techniques marked a pivotal shift. Following intervention, students reported notable improvements in Improved Idea Generation and Cognitive Clarity, Increased Enjoyment and Engagement, and Enhanced Expression and Overcoming Challenges. These techniques not only enhanced the students' creative writing output by enriching detail, descriptive imagery, and emotional depth but also shed light on effective teaching methodologies. Among the most notable language teaching insights revealed from the implementation of Sensory Visualization are Utilizing Structured Approaches and Techniques, Increasing Students Engagement and Enjoyment, and Enhancing Expression and Communication Skills.

Recommendations

From the findings of the study the following recommendations are presented:

For Students. Embracing sensory visualization techniques can greatly enhance creative writing experience. Students must make it a practice to engage fully with their imagination, utilizing sensory details to bring their stories to life. By immersing themselves in these techniques, they can overcome writer's block, generate ideas more effectively, and ultimately find joy in the writing process.

For Teachers. Integrating sensory visualization techniques into their creative writing curriculum can revolutionize students' writing experiences. They can provide structured guidance and exercises to help students develop these skills and offer ongoing support and feedback to encourage their growth. Collaboration with fellow educators can be invaluable in sharing best practices and refining instructional approaches.

For School Administrators. Supporting the integration of sensory visualization techniques into the school curriculum can enrich the learning experiences of students across all grade levels. Allocate resources for professional development opportunities focused on innovative teaching methods and create spaces within the school environment that foster creative expression. Cultivate a culture of creativity and experimentation within the school community, encouraging teachers and students alike to explore new approaches to learning and expression.

For Department of Education. Incorporating training on sensory visualization techniques into teacher education programs and professional development initiatives can empower educators to implement these innovative approaches effectively. Consider integrating principles of creativity and expression into curriculum standards and guidelines, recognizing their importance alongside academic content. Support research

initiatives that investigate the impact of sensory visualization techniques on student learning outcomes, providing evidence-based guidance for educators and policymakers.

For Future Researchers. Conducting longitudinal studies to assess the long-term effects of sensory visualization techniques on students' writing skills and overall academic achievement can provide valuable insights into their efficacy. Explore potential applications of these techniques across different subjects and grade levels, examining their effectiveness in fostering creativity and critical thinking. Investigate the underlying cognitive processes involved in sensory visualization and its relationship to other aspects of language learning and development.

Compliance with Ethical Standards

In this study, the author affirms his commitment to ethical research practices and the protection of participants' rights. Prior to data collection, informed consent was obtained from all respondents, ensuring they were fully aware of the study's objectives and procedures. Parental consent was also secured for participants under the age of eighteen, further safeguarding their rights and well-being. Participants were informed of their right to withdraw from the study at any point without consequences. Moreover, anonymity was rigorously maintained throughout the research process to safeguard the privacy and confidentiality of the respondents. The well-being of participants was prioritized, with measures in place to minimize any potential discomfort or distress. Furthermore, the authors declare that no conflict of interest influenced the conduct of the study, and strict measures were taken to avoid plagiarism. The interpretation of findings was conducted without bias, ensuring an objective analysis of the data. Finally, the results obtained from this research will be utilized solely for academic and research purposes, contributing to the advancement of knowledge in the field.

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BILINGUALISM TOWARDS ENGLISH LANGUAGE DEVELOPMENT

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ABSTRACT

This study investigates the role of bilingualism in the language development of Senior High School students at Bohol Wisdom School, which integrates Filipino and Chinese cultures. Bilingualism, the ability to manage two languages, is known to enhance cognitive functions and educational outcomes. Despite the Philippines' high English proficiency, challenges in reading comprehension and other academic areas persist. Employing a descriptive-correlational research design, data was collected through a self-made survey questionnaire to examine how bilingualism influences students' motivation (drive), social interactions, and cultural awareness. The findings reveal that bilingualism significantly impacts these areas, enhancing language development and cognitive skills. Bilingual students demonstrated strong proficiency in both English and their native tongue, indicating that bilingualism positively influences language acquisition and overall cognitive development. The study recommends that educational policymakers create bilingual learning resources and training programs. School administrators should design effective bilingual education programs, while guidance counselors, parents, and students should actively support and engage in bilingual learning activities. Future research should explore the long-term impacts of bilingual education, specific teaching methods, and the role of technology in promoting bilingualism. This study provides valuable insights for enhancing educational strategies and contributes to a broader understanding of bilingualism's role in language development.

Keywords: *Bilingualism, Cognitive Functions, Educational Outcomes, Language Development*

INTRODUCTION

Language, a system of spoken, manual, or written symbols, is a distinctive human trait that transcends geographical boundaries. In the realm of bilingualism, individuals adeptly managing two languages experience cognitive benefits, enhancing executive functions through constant use (Bialystok, 2017).

In the Philippines, bilingualism poses particular challenges, especially with the predominant use of English in higher education (Department Order No. 25, s. 1974). The 2018 Programme for International Student Assessment (PISA) reported that the Philippines scored the lowest in Reading Comprehension among 79 countries and the second lowest in Science and Mathematics, highlighting a crisis in education (Parojenog & Pabalan, 2024). This paradoxically low performance raises questions about the efficacy of bilingual education in a country known for its English proficiency. Academicians note the difficulties students face when studying both their mother tongue and English simultaneously.

Bohol Wisdom School provides a unique context for studying bilingualism. The coexistence of Filipino and Chinese cultures allows Senior High School students to pursue academic interests with a significant emphasis on language development. Despite this focus, more needs to be known regarding the role of bilingualism in language development.

Throughout history, people have learned languages beyond their native tongue to connect with different cultures. While anyone can learn additional languages, it is crucial to use them for genuine communication. As the world becomes increasingly globalized, bilingualism—communicating fluently in another language—has become more common.

In an interconnected and multicultural world, bilingualism's role in language development has garnered considerable attention. Proficiency in two languages has been linked to cognitive benefits, enhanced linguistic abilities, and overall cognitive flexibility. Researchers have noted that bilingual individuals demonstrate cognitive advantages over monolinguals, particularly in tasks requiring control systems necessary for proficient language performance (Kroll et al., 2012; Cummins, 2003).

Heritage language speakers, a unique group of bilinguals, typically show more advanced outcomes than second language learners due to their early exposure to a minority language at home (Montrul, 2018; Chang, 2016). Parents often use code-switching to support bilingual language acquisition, helping infants understand and learn vocabulary (Kremin et al., 2022). This practice reflects the social interface between language processing, cognition, and the brain (Kaan et al., 2020).

Early bilingualism, whether simultaneous or sequential, involves acquiring two languages from birth or early childhood, respectively (De Houwer, 2017). Bilingual advantages are thought to result from cognitive control training in dual language use, where both languages are active in the brain (Hoshino & Thierry, 2011; Kroll et al., 2008).

Among fluent bilinguals, both languages continually interact, even in contexts where only one is used (Bialystok, 2017). Adults have reported that bilingualism supports relationships with family and friends and increases access to hobbies, educational, and employment opportunities (Nolte et al., 2021).

Given these factors, this study aims to address this gap by exploring the impact of bilingualism on the language development of Senior High School students at Bohol Wisdom School. It seeks to understand the language challenges faced by these students, thereby benefiting educators in designing tailored strategies and contributing to a broader understanding of bilingualism in Philippine language development.

Research Questions

The main objective of this study was to determine the role of bilingualism towards language development among Senior High School Students at Bohol Wisdom School.

Specifically, this study aimed to answer the following questions:

1. What are the respondents' profiles in terms of:
    1.1 sex; and
    1.2 languages spoken?
2. What is the role of bilingualism along:
    2.1 drive;
    2.2 social; and
    2.3 culture?
3. What are the respondents' level of language development in terms of:
    3.1 drive;
    3.2 social; and
    3.3 culture?
4. Is there a significant relationship between bilingualism and language development?
5. What action plan could be proposed based on the findings of this study?

METHODOLOGY

This section focused on the methodology that was utilized in the conduct of the study. This also outlined the research design, the procedure that was followed, the process of collecting the data and the analysis. During the collection process, the ethical consideration was also discussed.

Research Design

The researchers used a descriptive-correlational research design, which was suited for achieving the study's goals and objectives. The Descriptive research design was used to describe the level of influence of the factors affecting the role of bilingualism on language development. Meanwhile, the Correlational research design was applied to

determine if there is a significant relationship between the two variables. Furthermore, a self-made survey questionnaire was distributed to the respondents.

Research Environment and Research Participants

The researchers used a descriptive-correlational research design, which was suited for achieving the study's goals and objectives. The Descriptive research design was used to describe the level of influence of the factors affecting the role of bilingualism on language development. Meanwhile, the Correlational research design was applied to determine if there is a significant relationship between the two variables. Furthermore, a self-made survey questionnaire was distributed to the respondents.

Research Instrument

The research instrument used in this study was a self-made survey questionnaire. The researchers formulated the questionnaire, which was given to the respondents. The questionnaire was divided into three categories that represent factors in language development.

Table 1
Distribution of Respondents
(N=184)

Sections	No. of Respondents
12 - Justice	36
12 - Charity	34
12 - Loyalty	33
12 - Stewardship	33
12 - Compassion	27
12 - Humility	21
TOTAL	**184**

Moreover, the findings and discussions of related studies and articles aided the formulation of questions for the self-made questionnaire. Finally, pilot testing was first conducted on Senior High School students at Bohol Wisdom School to assess the validity and consistency of the questionnaire.

Data Gathering Procedure

The researchers requested approval from the research adviser and the Bohol Wisdom School High School principal before surveying the Senior High School students. With their approval, the researchers distributed questionnaires and answer sheets to each classroom in the Senior High School Department. The respondents were asked to answer the questionnaire honestly to ensure the validity of the results. Finally, all data that was gathered from the questionnaire was kept confidential.

Data Analysis

To determine the respondents' profile on age, gender, and year level, the percentage formula was applied.

Where:
P = Percentage
F = Frequency
N = Number of cases

To determine the role of bilingualism and language development, the weighted mean formula was utilized.

$$W = \frac{\sum_{i=1}^{n} w_i X_i}{\sum_{i=1}^{n} w_i}$$

W = weighted average

n = number of terms to be average

ω_i = weights applied to x values

x_i = data values to be averaged

To determine the significant relationship between the role of bilingualism and language development, the Pearson Moment Product Coefficient Correlation was used.

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x^2)(n\sum y^2 - (\sum y^2)}}$$

Where:

r = correlation coefficient

n = number of data pairs

$\sum xy$ = the sum of the product of first and second variable

$\sum x$ = the sum of the first variable

$\sum y$ = the sum of the second variable

$\sum x^2$ = the sum of the square of the first variable

$\sum y^2$ = the sum of the square of the second variable

Interval coefficient	Relationship level
0.80-1.000	Very Strong
0.60-0.799	Strong
0.40-0.599	Moderate
0.20-0.399	Weak
0.00-0.199	Very weak

RESULTS

This chapter presents the analysis and interpretation of data to answer the problems raised in the study. The first part entails the profile of the respondents namely: sex and languages spoken. The second part reveals the students' profile on Bilingualism on Drive, Social and Culture. The third part reveals the students' profile on Language Development on Drive, Social and Culture. Lastly, the fourth part shows the significant relationship that exists between bilingualism and language development.

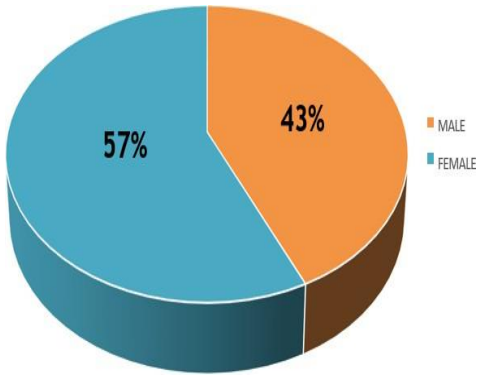


Figure 2. Respondents' Profile on Sex (184)

Figure 2 shows the respondents' profile on sex. As reflected, it revealed that 57% of them were females and 43% were males. This implies that there were more female respondents who answered the survey questionnaire.

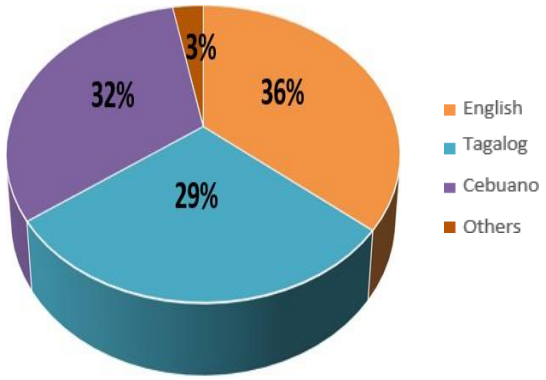


Figure 3. Respondents' Profile on Languages Spoken (N=184)

Figure 3 presents the respondents' languages spoken. As shown, the English language got the highest percentage of 36%, while others obtained the lowest percentage of 3%. This implies that most of the respondents can speak the English Language in the survey conducted.

Zubkov (2020) states that English is taught and learned as a second language or as a foreign language in educational institutions worldwide. This implies a significant level of proficiency or familiarity with the language as English is widely taught and learned in educational setting. This also shows that people acknowledge the fact that learning the English language is the key in the present age.

Table 2
Respondents' Role of Bilingualism on Drive
(N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I watch tutorials on how to properly construct sentences and pronounce words.	2.58	S	5
2. I read books to better enhance my language skills.	2.93	S	3
3. I ask advice from proficient English speakers to enhance my language skills.	2.81	S	4
4. I am motivated to understand the culture and people which also use the languages that I speak.	3.15	S	2
5. I aim to become a proficient speaker in both my native language and the English language.	3.5	A	1
OVERALL WEIGHTED MEAN	**2.99**	**S**	

Legend: 3.26 – 4.00 Always; 2.51 – 3.25 Sometimes; 1.76 – 2.5 Rarely; 1.00 – 1.75 Never

Table 2 presents the respondents' perception on Bilingualism on Drive. Item number 5, "I aim to become a proficient speaker in both my native language and the English language," received the highest weighted mean of 3.5. Meanwhile, item number 1, "I watch tutorials on how to properly construct sentences and pronounce words," received the lowest weighted mean of 2.58. The overall weighted mean obtained is 2.99 with the descriptive value of "Sometimes".

This implies that individuals may not consistently exhibit high levels of motivation and drive towards language learning. Despite the strong aspiration to become proficient bilingual speakers, there may be fluctuations in motivation levels.

According to Nuraeni and Aisyah (2020), only a few are motivated by intrinsic factors such as the need or desire to excel, feel good about oneself, achieve a goal, or fulfill a part of oneself. This means that there is only a small portion of the population that are naturally motivated to achieve certain things.

Table 3
Respondents' Role of Bilingualism on Social (N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I can use the languages that I know in conversations with people who use the same languages.	3.55	A	2
2. I can switch languages depending on the topic and the situation with ease.	3.46	A	3
3. I can speak with my peers using my native language and the English language.	3.64	A	1
4. I often find myself code- switching or using my native tongue and the English language alternately when talking with my peers.	3.44	A	4
5. I can write letters with proper grammar usage and can understand them as well in both languages that I speak.	3.43	A	5
OVERALL WEIGHTED MEAN	**3.50**	**A**	

Legend: 3.26 – 4.00 Always
2.51 – 3.25 Sometimes
1.76 – 2.5 Rarely
1.00 – 1.75 Never

Table 3 exhibits the respondents' profile on bilingualism under the social factor. It was found that item 3, "I can speak with my peers using my native language and the English language," obtained the highest value of 3.64. Meanwhile, item 5, "I can write letters with proper grammar usage and can understand them as well in both languages that I speak," got the lowest value of 3.43. The overall weighted mean obtained is 3.50 with a descriptive value of "Always."

This implies a high level of confidence in using both languages for social purposes. In simpler terms, the survey suggests people feel comfortable talking to friends in both languages.

Sami, R. (2024) states that bilingualism occurs through interest in learning a language that can provide access to communication. Thus, bilingual individual have heightened sensitivities to communicative cues and are more adept at understanding a speaker's context and intent.

Table 4
Respondents' Role of Bilingualism on Culture (N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I am confident that I do not offend others the way I converse with them using my native tongue and the English language.	2.68	S	5
2. I can easily communicate with others despite the culture differences through the English language.	3.31	A	4
3. I can easily adapt to other cultures' language.	3.58	A	2
4. I can express myself with my peers despite of our differences.	3.5	A	3
5. I can identify a variety of things from tone and dialect such as sarcasm and inference.	3.65	A	1
OVERALL WEIGHTED MEAN	**3.34**	**A**	

Legend: 3.26 – 4.00 Always; 2.51 – 3.25 Sometimes; 1.76 – 2.50 Rarely; 1.00 – 1.75 Never

Table 4 conveys the respondents' perception on Bilingualism on Culture. Item number 5, "I can identify a variety of things from tone and dialect such as sarcasm and inference" obtained thehighest weighted meanof 3.65 with a descriptive value of "Always". In contrast, item number 1, "I am confident that I do not offend others the way I converse with them using my native tongue and the English language" garnered the lowest weighted mean of 2.68 with a descriptive value of "Sometimes."

The set of items referring to the influence of Bilingualism on Culture got an overall weighted mean of 3.34 with a descriptive value of "Always." This implies that respondents exhibited a strong ability to use the languages that they know and at the same time being well- versed with the cultures of those languages.

Sofologi et al. (2020) noted that, when educating a bilingual learner, teachers should expect that he or she will be able to function globally across cultures. This implies that culture plays a vital role in the lives of those who are bilingual, that they are expected to transcend boundaries andbecome competent in dealing with a variety of cultures.

Table 5
Summary on the Role of Bilingualism (N=184)

Role of Bilingualism	Weighted Mean	Descriptive Value	Rank
Drive	2.99	Sometimes	3
Social	3.50	Always	1
Culture	3.34	Always	2
Average Weighted Mean	**3.27**	**Always**	

Table 5 shows the summary of the role of bilingualism on drive, social and culture. “Social” obtained the highest weighted mean of 3.50. In contrast, “drive” garnered the lowest weighted mean of 2.99. It has an overall average weighted mean of 3.31 described as "Always."

In one way of saying, bilingualism will most likely have a conclusive influence on bilinguals' motivation to learn more about the languages that they speak, their knowledge on the culture of these languages, and the way they socialize.

Ünveren et al. (2019) cited that bilinguals’ linguistic and intercultural repertories are larger. This means that bilingualism can give several advantages, significantly increasing people’s potential to excel, may it be in language learning or in other fields.

Table 6
Respondents’ Level of Language Development on Drive (N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I self-correct myself whenever I can spot errors using the English language.	3.33	HD	1
2. I aim to ace my English tests.	3.18	D	4
3. I converse with my peers in school using the English language.	3.00	D	5
4. I train myself to watch English movies without the help of subtitles.	3.26	HD	3
5. I strictly adhere to the grammatical rules of the English language.	3.32	HD	2
OVERALL WEIGHTED MEAN	**3.22**	**D**	

Legend: 3.26 – 4.00 Highly Developed; 2.51 – 3.25 Developed; 1.76 – 2.50 Less Developed; 1.00 – 1.75 Not Developed

Table 6 reveals the level of Language Development. It revealed that the item 1, "I self-correct myself whenever I can spot errors using the English language," obtained the highest value of 3.33. Meanwhile, statement 3 "I converse with my peers in peers in school using the English language," obtained the lowest value of 3.00. The overall weighted mean obtained is 3.22 with a descriptive value of"Developed.”

This entails that the learners are motivated by internal satisfaction in language development.

Yue et al. (2022) found that among other various factors, the learners' motivation influences effective learning and it can be identified as one of the most important factors in successful language learning. This implies thatmotivation is a key factor to be targeted to expand learning and the students should be motivated on a consistent basis to achieve better learning outcomes.

Table 7
Respondents' Level of Language Development on Social (N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I can speak with native English speakers or people adept in using the English language withoutthem slowing down or simplifying their speech for me.	3.32	HD	2
2.Icancrackjokesandwordplaysusing the English language.	3.26	HD	4
3. I can understand slang words when conversing with people who use the English language and responding accordingly.	3.53	HD	1
4. I can use idiomatic expressions in conversations which use the English language.	3.18	D	5
5. I am confident in conversing with someone using the English language.	3.28	HD	3
OVERALL WEIGHTED MEAN	**3.31**	**HD**	

Legend: 3.26 – 4.00 Highly Developed
2.51 – 3.25 Developed
1.76 – 2.50 Less Developed
1.00 – 1.75 Not Developed

Table 7 reveals the respondents' perception on Language Development on Social. Item number 3, "I can understand slang words when conversing with people who use English Language and respond accordingly" obtained the highest weighted mean of 3.53 with a descriptive value of "Highly Developed". In contrast, item number 4, "I can use idiomatic expressions in conversation which use the English language" garnered the lowest weighted mean of 3.18 with a descriptive value of "Developed". The set of items pertaining to the influence of language development on Social got an overall weighted mean of 3.31 with a descriptive value of "Highly Developed."

This implies that respondents exhibited a strong ability to socialize confidently using the English language. Zukeflli, N. N., & Subramaniam, V. (2018).

Zukeflli and Subramaniam (2018) mentioned that language serves as a mixture of indispensable abilities for the purpose of communicating, speaking and interacting with each other. This means that language development is heavily influenced through the way we socialize, since its nature and purpose is to fuel interactions and communication among people.

Table 8
Respondents' Level of Language Development on Culture (N=184)

Items	Weighted Mean	Descriptive Value	Rank
1. I am aware that my native tongue and the English language has its own roots and culture.	2.97	D	5
2. I can understand other cultures through the English language.	3.29	HD	1
3. I can interact with others using the English language.	3.18	D	3
4. I can understand and follow directions given to me in English language.	3.24	D	2
5. I can easily help translate for others from the languages that I know.	3.12	D	4
OVERALL WEIGHTED MEAN	**3.16**	**D**	

Legend: 3.26 – 4.00 Highly Developed
2.51 – 3.25 Developed
1.76 – 2.50 Less Developed
1.00 – 1.75 Not Developed

Table 8 reveals the respondents' perception on Language Development on Culture. Item number 2, "I can understand other cultures through the English language" obtained the highest weighted mean of 3.29 with a descriptive value of "Highly Developed". In contrast, item number 1, "I am aware that my native tongue and the English language has its own roots and culture" garnered the lowest weighted mean of 2.97 with a descriptive value of "Developed".

The set of items pertaining the influence of language development on culture got an overall weighted mean of 3.16 with a descriptive value of "Developed." This means that the respondents exhibited an adequate foundation in understanding and engaging with cultures through language.

Similarly, Alyasery et al. (2018) cites that language has a dual character: both as a tool of communication and a carrier of culture. This shows that it serves a dual purpose, to act as a means of communication andavessel for cultural expression as the respondents are in a process that goes beyond mere language acquisition including cultural awareness and appreciation.

Table 9
Summary on the Level of Language Development (N=184)

Level of Language Development	Weighted Mean	Descriptive Mean	Rank
On Drive	3.22	Developed	2
On Social	3.31	Highly Developed	1
On Culture	3.16	Developed	3
Average Weighted Mean	**3.23**	**Developed**	

Legend: 3.26 – 4.00 Highly Developed
2.51 – 3.25 Developed
1.76 – 2.50 Less Developed
1.00 – 1.75 Not Developed

Table 9 shows the summary on the level of language development. “Social” obtained the highest weighted mean of 3.31. Meanwhile, “culture” garnered the lowest weighted mean of 3.16. Overall, it has an average weighted mean of 3.23 with a descriptive value of "Developed."

This indicates that the respondents showed a respectable language development but falls short of being considered as exceptional or advanced.

According to Pirbhai-Illich & Martin et al. (2019) language development can be elevated from acquiring grammar and cultural facts to gaining sociocultural knowledge and awareness. This suggests that language development can be observed and is relative to several factors including cultural awareness and the way we socialize.

Table 10
Significant Relationship Between the Role of Bilingualism and Level of Language Development (N=184)

Relationship	Computed r	Critical r value	P - value	Interpretation	Decision
Bilingualism vs Language Development	0.7125	±0.13675	<.00001	Strong positive correlation	Reject ho

Table 10 shows the significant relationship between bilingualism and language development. Data revealed that Computed r value of 0.7125 is greater than the critical r value of 0.13675 and a computed p value of <0.00001. The value indicated that the null hypothesis is to be rejected. This means that there is a significant relationship between bilingualism and language development. Furthermore, the value indicated that the relationship is strongly positive.

This implies that individuals who are bilingual tend to demonstrate more advanced language skills and proficiency compared to monolingual individuals, underscoring the cognitive and linguistic benefits of being bilingual.

This is connected with what Tribushinina, Boz, Aalbers, and Blom (2024) have stated that Bilingual development may be associated with additional benefits, including cognitive advantages. One type of bilingual advantage may lie in foreign language learning. This means that those individuals who are able to use two languages will be more likely to succeed in learning another language than those monolinguals.

DISCUSSION

Findings

Based on the analysis of the data, the following findings emerged:

Respondents' Profile

On Sex. Data showed that that majority of the respondents were females.

On Languages Spoken. Among other languages, the English language was found to be the most spoken language.

Role of Bilingualism:

On Drive. The data shows that the respondents' drive do sometimes influence their motivation to learn different languages, where some are motivated to do ways to learn and adapt new languages and others are not, for everyone does not have the same level of motivation.

On Social. It was found out that the respondents' socialization always affects the way they interact using the languages that they know. This also shows that bilinguals are always open to conversations which may enable them to use their native tongue and the English language.

On Culture. It was revealed that bilingualism helps the respondents to broaden their knowledge and understanding about other cultures. Bilingualism can also bridge people to connect with each other and can start a relationship with people from various cultures.

On Summary. Data suggests that the role of bilingualism has a significant impact on motivation, socialization, and cultural awareness. Bilingualism not only encourages ongoing language learning but also boosts individuals to adapt in social contexts and fosters a deeper understanding and respect for diverse cultures.

Levels of Language Development:

On Drive. The data shows that the respondents' language development was developed; the respondents are aiming to learn and improve their skills and ability in languages through self-drive, where they are motivated to develop their language more by self-correct, self- training and adhering to some language grammatical rules.

On Social. Data revealed that the respondents' level of language development is highly developed; the respondents exhibited a strong ability to use the English language. In socializing, the respondents were confident in their ability to converse with other people.

On Culture. Data revealed that respondent's level of language development on culture is developed; The respondents are clearly affected by their surroundings. Fact is that the environment is culturally diverse, so everyone wants to be culturally literate and establish unity in order to avoid any squabble. Respondents aim to develop their languages at the same time they can be of help in creating the environment they sought.

On Summary. Data revealed that the level of language development of the respondents is highly developed. The respondents answered exceptionally in factors that determined their development such as drive, social, and culture. This shows that majority of the respondents are adept English language speakers.

On Relationship. There is a significant relationship that exists between the role of bilingualism on drive, social, and culture with the level of language development.

Conclusions

Based on the findings, the researchers concluded that there is a significant relationship between the role of bilingualism and the level of language development. This means that bilingualism can influence or stimulate language development in a favorable way.

Recommendations

Based on the conclusions drawn from the findings accumulated, it is recommended that:

1. The Secretary of the Department of Education may collaborate with language experts to create bilingual learning resources and national guidelines. Public awareness campaigns can highlight the benefits of bilingualism in education, while funding and support can be directed towards training educators in bilingual teaching methods.

2. School Administrator may design bilingual learning programs, like dual language immersion. Working with teachers, they can ensure the curriculum effectively integrates both languages and content. By collecting data on student progress and

program effectiveness, administrators can continuously improve the bilingual learning experience for all students.

3. Guidance Office Personnel may provide valuable resources, connect students with specialists if needed, and collaborate with teachers to ensure learners receive proper academic and social- emotional support in both languages. Creating a comprehensive support system will empower them to thrive in both languages and cultures.

4. Parents may continue using the native language at home while supporting English development. Exploring bilingual children's literature and media can provide shared learning experiences. Engaging with schools strengthens collaboration in supporting the child's bilingual journey.

5. Students may actively participate in activities that leverage their skills, strategically code- switch for clarity, and seek opportunities to connect with other bilingual learners. Embracing the challenges and rewards of bilingualism empowers them to excel in English language learning.

6. Future researchers may investigate the long-term impact of bilingual education programs, study the effectiveness of specific bilingual teaching methods, and explore the role of technology in promoting bilingual learning and cross-cultural communication.

Compliance with Ethical Standards

This study adhered to ethical standards by obtaining informed consent from all participants, ensuring confidentiality, and maintaining voluntary participation without coercion. No harm came to participants, and the study received ethics committee approval. Researchers declared no conflicts of interest and reported findings transparently and honestly. Cultural sensitivity was respected throughout the research process.

PROPOSED ACTION PLAN FOR BILINGUALISM TOWARDS ENGLISH LANGUAGE DEVELOPMENT

Rationale

In today's increasingly interconnected world, proficiency in English has invaluable advantages for communication, education, and career advancement. However, for individuals growing up in bilingual environments, developing excellent English language abilities might be a unique challenge. Students ought to have unrestricted access to assistance they require, particularly when it comes to their language skills. In this case, teachers should include implementing bilingual reading projects and activities that use both languages to improve comprehension or offering focused assistance to bilingual kids

who are struggling with specific areas of English. With this knowledge of the impact of bilingualism on the development of English language skills, the study's proposed action plan aims to offer suggestions and recommendations on how to assist educators, parents, administrators, and learners in realizing the benefits and necessity of bilingualism in language development.

Objectives

After the implementation of the proposed improvement plan, the research aims to achieve the following objectives:

1. encourages students to feel confident and display improved proficiency in both languages specifically, English.
2. develops deeper appreciation for both languages and fosters a sense of belongingness and identity within their school environment.
3. integrates students the cultural elements of both languages into educational materials and activities leading to deeper understanding in cultural context.
4. improves language skills enable them to help in their studies.
5. gives awareness to students about the advantages of bilingual people within their school environment.
6. ensures that the common language difficulties encountered by the students will be dealt with by the activities implemented.

Mechanics of Implementation

The researchers shall present the proposed plan to the Head of the Administrative Team and to the Principal of the High School Department for approval after the examining panel has subjected it to refinement. Upon approval, the researchers will forward the proposal to the DOH, DepEd, and to the Office of the City Mayor where further clarification will be provided.

Schedule of Implementation

The implementation of the program of proposal shall commence once permission is granted to the researchers by the authorities in charge.

Monitoring and Evaluating

To ensure the strict implementation of the proposed plan, the researchers would adapt a periodic monitoring and evaluation to determine effectiveness in its results. This is to identify if there are areas of concern that need further improvements in which an immediate response would be expected from the researchers.

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CARERS OF THE CARE-SEEKERS: THE LIVED EXPERIENCES OF PRIMARY CAREGIVERS OF PATIENTS WITH STROKE

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ABSTRACT

Despite extensive research on the impact of stroke on patients, the experiences of primary caregivers have not been given equal attention, particularly in terms of the long-term support they require. This phenomenological study was designed to develop an understanding of the lived experiences of the primary caregivers of patients with stroke, to discover what their experiences are as partakers of the burden of stroke, and to know how these experiences mean to them. Participants were selected purposively and were limited to caregivers who were at least 18 years old and had been a caregiver for at least six months. The stroke patients were those who had a stroke for at least six months and were living with some form of disability. Data were gathered through in-depth interviews conducted at a tertiary healthcare institution in Panabo City. Utilizing Colaizzi's method of qualitative data analysis, the study generated the following themes: Prologue: Taking Up the Mantle, The Adventure: Living the Life of a Hero, The Achilles' Heel, and Heroes Prevail. These themes revealed that as caregivers embodied the role of becoming carers for stroke patients, they perceived their experiences as akin to being heroic. They expressed initial hesitancy in accepting the role, gradually learned to live with and accept their responsibilities, faced numerous challenges, and ultimately found meaning and fulfillment in their caregiving journey.

Keywords: *Social Science, Primary Caregivers, Patients with Stroke, Phenomenology, Panabo City*

INTRODUCTION

Stroke, often referred to as a brain attack, is a critical medical condition that significantly impacts both the patients and their primary caregivers (National Stroke Association, 2012). According to the 2016 Heart Disease and Stroke Statistics Update by the American Heart Association (2016) and the Centers for Disease Control and Prevention (2015), stroke remains a leading cause of long-term disability worldwide. Each year, the World Health Organization (2014) reports that 15 million people suffer from stroke, with 5 million deaths and another 5 million left permanently disabled. In the Philippines, stroke stands as the second leading cause of death and disability, a statistic that shows no signs of decreasing (Navarro et al., 2014; Loo & Gan, 2012).

The increasing incidence of stroke globally and locally poses profound implications not only for the patients but also for their primary caregivers. These caregivers face substantial physical, emotional, and mental challenges as they support their loved ones through recovery. While extensive research has focused on the impact of stroke on patients, the experiences of primary caregivers have not received the same level of attention. Most studies emphasize acute care and early discharge support, with less focus on the long-term support required in community settings where caregivers play a crucial role (Aziz et al., 2016).

Caregivers become the primary support system for stroke patients after hospitalization and are integral to the healthcare team, contributing significantly to the rehabilitation and recovery of stroke survivors. However, caregiving can be stressful, and caregivers often experience various interrelated individual, interpersonal, and organizational issues in managing stroke-related deficits. This stress can lead to significant psychological distress, affecting caregivers' quality of life (Duncan et al., 2005; National Stroke Association, 2012; Lau et al., 2009; Plank et al., 2012).

Research has shown that stroke survivors and their caregivers face enormous challenges as they move through the phases of stroke management, including the stroke crisis, expectations for recovery, and the crisis of discharge. Caregivers often struggle to adapt to their new roles and responsibilities, which can strain familial relationships and personal well-being. Furthermore, caregivers frequently experience issues such as role changes, difficulties with social and leisure activities, communication challenges, financial problems, and physical and emotional health problems (Lutz et al., 2011; McGurk & Kneebone, 2013; O'Shea & Goode, 2015; Olai et al, 2014).

Studies have highlighted the high Caregiver Burden (CB) scores among stroke patient caregivers, attributed to factors such as low patient functional ability and insufficient municipal social service support. Significant burdens are also due to the time spent caring for stroke survivors and uncertainty about the future, particularly in the early post-stroke period. The health-related quality of life of spouses of stroke survivors decreases not only in the initial years but also in the long term, influenced by their age and the level of the stroke survivor's disability. Additionally, caregiving significantly impacts the domains of work, leisure, and friendships, with the negative effects closely

linked to the unmet needs of the stroke survivors (Andrew et al., 2015; Olai et al., 2014; Persson et al., 2015).

Despite these challenges, caregivers play a vital role in the health continuum of stroke survivors, influencing their rehabilitation and overall quality of life. Effective nursing interventions that provide caregivers with skills to manage physical, cognitive, emotional, and behavioral stroke-related problems are essential for both initial treatment and ongoing management throughout stroke recovery (National Stroke Association, 2012; Gillespie & Campbell, 2011; Grant et al., 2014; Rahman et al., 2017; Winstein et al., 2016; Yuki & Kudo, 2011).

Over time, caregivers learn to adapt to the demands of caring for stroke survivors. Studies have found that while a significant burden is experienced by caregivers in the post-acute and chronic phases of stroke, this burden tends to decline over time. Although stroke caregiving is initially associated with persistent psychological distress, by three years post-stroke, caregivers' life satisfaction, depression levels, and mental health quality of life become comparable to those of non-caregivers. Decreases in caregiver burden significantly correlate with improvements in caregivers' physical, psychological, and environmental quality of life, indicating that the quality of life for both stroke survivors and their caregivers is interlinked and significantly influenced by changes in the survivors' physical function over time (Jaracz et al., 2015; Haley et al., 2015; Pucciarelli et al., 2017).

Despite varying findings, these studies collectively emphasize that caregivers face substantial challenges but play a crucial role in the health and recovery of stroke patients. Recognizing their significant contributions and addressing their needs through further exploration of their experiences is essential for improving their well-being and the care they provide.

Given the critical role that primary caregivers play, it is imperative to develop a deeper understanding of their experiences. This study aims to explore the lived experiences of primary caregivers of stroke patients, highlighting their significant yet often overlooked contributions. By bringing these experiences to light, the study hopes to advocate for better support systems and recognition for primary caregivers, ensuring their needs are addressed alongside those of the patients they care for.

Research Questions

This study aimed to explore the following research questions:

Central Question:

- What are the lived experiences of primary caregivers of patients with stroke?

Sub-question:

- How do primary caregivers interpret and find meaning in their caregiving experiences?

METHODOLOGY

Study Design

This study utilized a phenomenological research design to explore and understand the lived experiences of primary caregivers of stroke patients (Creswell, 2013). Phenomenology is well-suited for this purpose as it aims to describe and interpret the essence of lived experiences, providing deep insights into the personal and subjective world of the participants. This approach allowed us to capture the rich, nuanced experiences of caregivers as they navigate their roles.

Setting

The data collection for this study was conducted at a tertiary healthcare institution in Panabo City. This institution, with a 173-bed capacity, offers a wide range of medical services to the residents of Panabo City and its neighboring areas. The setting provided a comfortable and private environment for in-depth interviews, ensuring that participants felt at ease while sharing their experiences. The study was conducted from January 2017 to March 2017.

Participants

Participants were selected using purposive sampling, focusing on primary caregivers who met specific criteria. Eligible participants were those who were at least 18 years old and had been caregiving for stroke patients for a minimum of six months. The stroke patients they cared for had experienced a stroke at least six months prior and were living with some form of disability. The study aimed for data saturation, which was achieved with eight participants.

Data Collection Procedure

Data collection involved conducting in-depth, one-on-one interviews with each participant. These interviews were guided by a validated questionnaire and were designed to elicit detailed and meaningful responses about the caregivers' experiences.

The procedure was as follows:

1. **Orientation and Consent**: Participants were thoroughly oriented about the study's nature, purpose, and procedures. They were informed of their rights, including voluntary participation, the right to refuse to answer questions, and the right to withdraw at any time. Informed consent was obtained from all participants.

2. **Interviews**: The in-person interviews were conducted at a location within the healthcare institution chosen for the comfort and privacy of the participants. Each session was audio-recorded with the participants' consent to ensure accuracy in data transcription. The interviewer used a researcher-made semi-structured interview guide which was validated by three research experts. Both the English and Visayan versions of the interview guide have been validated and deemed appropriate for the purpose of the study.

3. **Data Validation**: To ensure the reliability of the data, transcripts of the interviews were reviewed and validated by the participants. This reflective dialogue helped confirm that the participants' intended meanings were accurately captured.

4. **Thematic Analysis**: Data were analyzed using Colaizzi's method of qualitative data analysis. This involved extracting significant statements, formulating meanings, and identifying common themes across the participants' experiences.

Trustworthiness of the Study

Ensuring the trustworthiness of this phenomenological study was paramount to validate the findings and establish the credibility, transferability, dependability, and confirmability of the research. These criteria, proposed by Lincoln and Guba (1985), were meticulously applied throughout the study to ensure its rigor and reliability.

Credibility refers to the confidence in the truth of the data and the interpretations of the researcher. To achieve credibility, several strategies were employed. The study utilized Colaizzi's method of phenomenological data analysis, a well-regarded approach in qualitative research, ensuring that the analysis was systematic and thorough. The questionnaire guideline used for in-depth interviews was evaluated by experts in the field of research to ensure its relevance and effectiveness in capturing the lived experiences of caregivers. The researcher's prior employment at the participating organization facilitated an in-depth understanding of the organizational culture and the caregiving context, enhancing the credibility of the data collected. Eight participants were carefully selected to ensure a comprehensive exploration of the phenomenon. The study reached data saturation, meaning that no new information emerged from the additional data, ensuring a thorough understanding of the caregivers' experiences. Conducting a pilot study with four primary caregivers helped assess the feasibility of the research design and tools, ensuring that they effectively captured the necessary data. During interviews, participants were encouraged to be open and honest. They were assured of their right to withdraw from the study at any time without any repercussions, fostering a trusting environment. The researcher engaged with research experts to discuss the data analysis process. Peer debriefing helped identify any potential biases and provided an additional layer of scrutiny to the research findings. The findings were validated through related literature and theories, ensuring that the interpretations were grounded in existing knowledge.

Transferability pertains to the extent to which the findings can be applied to other contexts or groups. To enhance transferability, detailed descriptions of the research context, participants, and findings were provided. This comprehensive account allows readers to determine the applicability of the results to other settings or populations.

Dependability involves the stability and consistency of the research process over time. To ensure dependability, the study underwent external auditing by research experts who were not involved in the study. These experts reviewed the research process and findings to confirm that the data supported the conclusions drawn. The research process,

including data collection and analysis procedures, was meticulously documented. This transparency allows for the replication of the study and verification of the findings.

Confirmability ensures that the findings are shaped by the participants' experiences rather than researcher bias. To achieve confirmability, a clear audit trail was maintained, documenting every step of the research process. This included data collection methods, decisions made during analysis, and the development of themes. Participants reviewed the transcripts and the derived themes to verify that their experiences were accurately captured. This feedback loop ensured that the interpretations truly reflected the caregivers' perspectives. Throughout the data collection and analysis phases, reflective dialogue was used to cross-check the accuracy of the interpretations with the participants. This iterative process helped maintain the authenticity of the findings.

By rigorously applying these criteria, the study ensured that its findings were credible, transferable, dependable, and confirmable. This robust methodological framework provided a trustworthy account of the lived experiences of primary caregivers of stroke patients, offering valuable insights for healthcare professionals, policymakers, and support organizations.

Ethical Considerations

The study adhered to ethical principles to protect the rights and well-being of the participants. Ethical soundness of the study was evaluated by the technical panel of the Master of Arts in Nursing Program of Davao Doctors College, Inc. as well as the research board of the study's locale. This ensured that the research conformed to established ethical standards and guidelines.

Participants provided informed consent after being fully briefed about the study's purpose, procedures, and potential impacts. They were made aware of their rights, including the right to withdraw from the study at any time without any consequences. This informed consent process was crucial in ensuring that participation was voluntary and based on a clear understanding of what the study entailed.

Confidentiality was rigorously maintained throughout the study. Participants' privacy was protected by removing personal identifiers from the transcripts, and all data were securely stored to prevent unauthorized access. This approach safeguarded the participants' identities and the sensitive information they shared.

The principle of beneficence guided the study, which was conducted with the intent to benefit the caregivers. By bringing their experiences to light, the research aimed to highlight the challenges they face and inform better support systems for them. This focus on beneficence ensured that the study was not only ethically sound but also meaningful and impactful for the participants and the broader community of caregivers.

RESULTS

Profile of the Informants

The demographic profile of the study participants provides insight into the diverse backgrounds of primary caregivers of stroke patients. The participants include individuals with varying levels of healthcare experience, ranging from nurses and nursing assistants to those without any formal healthcare background.

Among the eight participants, four are nurses, reflecting a strong presence of individuals with professional healthcare training. These participants are aged between 23 and 32 years old, indicating a relatively young group of healthcare professionals.

Two participants are nursing assistants, both aged 24 years old. Their roles support the primary caregiving activities and highlight the involvement of ancillary healthcare staff in the caregiving process.

The remaining two participants do not have formal healthcare training. Participant 3, who is unemployed and 30 years old, and Participant 5, a 59-year-old self-employed individual, represent the segment of caregivers who may face additional challenges due to their lack of professional healthcare experience.

This demographic diversity underscores the varying degrees of preparedness and challenges faced by caregivers. It also highlights the need for tailored support systems that address the unique needs of both healthcare professionals and laypersons providing care to stroke patients.

Lived Experiences of Caregivers of Patients with Stroke

The study uncovered several key themes and subthemes that provide a comprehensive understanding of the lived experiences of primary caregivers of stroke patients. These themes reveal the practical realities and emotional journeys of caregivers, highlighting both the challenges they face and the sources of resilience and fulfillment they find in their roles.

Theme 1: Prologue: Taking up the Mantle

This theme captures the initial phase of the caregiving journey, where caregivers are confronted with the sudden need to take on the responsibility of caring for a stroke patient. It includes the subthemes of Call to Adventure, Refusal to the Call, Heeding the Call, and Meeting with the Mentor, reflecting the stages of acceptance and adaptation to the new role.

Call to Adventure. Caregivers often begin their journey suddenly, without prior warning. The moment a loved one suffers a stroke, caregivers are thrust into a new role, often out of necessity rather than choice. One participant recalled, "At the moment my aunt had a stroke, there was nobody else who could take care of her, and since I have a

nursing background, her family decided and asked my mother and me if I could be my aunt's caregiver" (Participant 1).

Refusal to the Call. Initial reactions to the caregiving role often include hesitation and reluctance. The overwhelming nature of the responsibility can lead some to initially refuse the role. "There were times when my cousins and I fought over whose turn it is to take care of my grandmother. I felt angry because I still had things to do other than caregiving" (Participant 4).

Heeding the Call. Despite their initial reluctance, many caregivers accept their roles out of love and duty towards their loved ones. They find a way to rise above their fears and hesitations. "Since he is my father, my family agreed to make me the primary caregiver. Actually, my sibling and I take turns in taking care of him, but it was I who really was with my father the most" (Participant 3).

Meeting with the Mentor. Caregivers often receive guidance and support from healthcare professionals, family members, and their own inner strength. This support is crucial in helping them navigate their new responsibilities. "St. Luke's had given us a diet plan, and his physical therapy was twice a week. He also had regular follow-up check-ups with Dr. P" (Participant 3).

Theme 2: The Adventure: Living the Life of a Hero

This theme describes the ongoing journey of caregiving, likened to a heroic quest. Caregivers cross into a new realm of experience, characterized by challenges and responsibilities, but also supported by others. The subthemes are Crossing the Threshold of Being a Hero, A Hero's Duty, and Heroes Assemble!, illustrating the day-to-day tasks and the support networks caregivers rely on.

Crossing the Threshold of Being a Hero. Once caregivers accept their role, they enter a new, challenging phase of life. This transition involves adapting to new routines and responsibilities. "The moment my grandfather had a stroke, we immediately brought him here because he was a regular here and because I work here as well. It seemed automatic that I was chosen to become his caregiver because I was a nurse and the only nurse in our family" (Participant 8).

A Hero's Duty. Caregiving involves a wide range of tasks, from basic daily care to complex medical procedures. The dedication required can be immense. "Usually by afternoons, I give her baths, turn her to her sides, change her clothes, change her catheter, and feed her through her NGT" (Participant 1).

Heroes Assemble! Support from family and friends is crucial. Caregivers often rely on their network to share the burden. "Yes, there were three of us siblings, and we have our cousins as well who help us in taking care of our father" (Participant 2).

Theme 3: The Achilles' Heel

This theme focuses on the vulnerabilities and struggles that caregivers face. It encompasses the significant physical, emotional, and social tolls of caregiving, highlighted by the subthemes "With Great Power Comes Great Responsibility," Heroes Bleed, and Facing the Big Battle. These subthemes address the immense stress and potential for burnout that caregivers endure.

"With Great Power Comes Great Responsibility" The role of a caregiver comes with significant responsibilities, often leading to feelings of being overwhelmed. "At the time I became the primary caregiver of my grandfather, the responsibility of being in-charge of his health was overwhelming for me" (Participant 8).

Heroes Bleed. Caregiving takes a toll on caregivers' physical and mental health. Social isolation and personal sacrifices are common. "My life was really affected. At the moment my father had a stroke, I was about to take exams at that time, and I was a graduating student at that. I was so busy meeting the ends of my requirements, even to the point of not being able to study because I'd allot my study and rest periods to taking care of him" (Participant 2).

Facing the Big Battle. The constant demands of caregiving can lead to significant stress and burnout. "As for the physical aspect, I just deemed that I needed strength to turn her to her sides because she was somewhat overweight" (Participant 1).

Theme 4: Heroes Prevail

The final theme celebrates the resilience and ultimate triumph of caregivers. Despite the myriad challenges, caregivers find meaning and fulfillment in their roles. The subthemes The Road Forward and Resurrection of the Hero describe the ongoing journey of personal growth and the renewed sense of purpose that many caregivers experience.

The Road Forward. Despite the hardships, caregivers find ways to move forward, often driven by the progress and recovery of their loved ones. They develop strategies and routines that help them manage their responsibilities more effectively.

Resurrection of the Hero. Ultimately, caregivers find a sense of purpose and fulfillment in their roles. The journey, while challenging, leads to personal growth and resilience. "For me, if you have children that aid you in caregiving, you'd have a breather, as if your burdens will lessen because of them" (Participant 5).

DISCUSSION

Life after stroke, for most patients, hadn't been an easy life to live with. In fact, it took them several months and, for some, even years before they recovered from and adjusted to the life of having a stroke. Although the complications that resulted from the

stroke event, and the changes it brought to them, varied from one person to another, these patients, owing to their decreased in or loss of their capacity to live their lives on their own, all faced the same brand of challenge – that is, taking on the role of being a care-seeker. However, these stroke patients aren't the only ones who faced big changes. Their caregivers faced them too. Their lives, much to what these stroke patients have had, haven't been an easy one to live with as well, and, in most cases, these caregivers, as they began to take up the role of being the carer of these care-seekers, did not have a good understanding of the mantle they were about to wear, of the role to which they were about to commit, and they were not well-prepared to take on even the basic tasks to meet the patients' needs after stroke. Furthermore, these patients and their caregivers did not have adequate time to deal with the shock and crisis of the stroke event, let alone the crisis of discharge and of all the new responsibilities with which they have dealt and continue to deal with after it occurred – an experience which has been reflected in other studies (Andrew et al., 2015; Byun & Evans, 2015; Haley et al., 2015; Lou et al., 2015; Lutz et al., 2011; McGurk & Kneebone, 2013; Persson et al., 2015; Olai et al., 2014; Timber & Smith, 2011). Simply put, their lives, in all its aspects, have never been the same after stroke.

Nevertheless, amidst all odds, these stroke patients and their caregivers found solace and support in the presence of their family and friends, in the teachings and insight of their healthcare providers, and, most importantly, in the sustenance of each other – as was underscored in several studies (Gillespie & Campbell, 2011; O'Shea & Goode, 2015; Plank et al., 2012; Grant et al., 2014). Together, living after stroke and with stroke had become a series of ups and downs, of trials and errors, and of frustrations and satisfactions.

The insights gained from this study are invaluable for healthcare professionals, policymakers, and support organizations, emphasizing the critical role of primary caregivers and the need for comprehensive support systems. Recognizing and addressing the multifaceted needs of caregivers is essential to improve their quality of life and, consequently, the health outcomes of stroke patients.

One of the primary insights from this study is the necessity for robust community-based support programs that offer both emotional and practical assistance to caregivers, as was suggested by the National Institutes of Health (2015). Such programs can provide a range of services, including help with daily tasks, transportation, and access to local resources. By integrating caregivers into the broader healthcare system, these programs can ensure they receive the comprehensive support needed to manage their caregiving responsibilities effectively. Emotional support through peer groups and counseling can alleviate the psychological burden, while practical assistance can ease the day-to-day caregiving load.

Moreover, implementing flexible work arrangements and respite care options is crucial to help caregivers balance their caregiving responsibilities with other aspects of their lives. Flexible work policies, such as adjustable work hours, remote work options, and extended leave provisions, can significantly reduce the stress and burnout associated

with balancing full-time employment and caregiving duties. Respite care options are equally important, providing temporary relief and allowing caregivers to take necessary breaks to maintain their well-being (Doty & Spillman, 2015; Swanke & Zennan, 2009).

In addition, offering comprehensive training programs is vital to equip caregivers with the necessary skills and knowledge to manage the complex needs of stroke patients effectively, as was suggested by Pitthayapong et al. (2017). These programs should cover practical skills, patient care techniques, and the use of medical equipment. Ongoing training is essential to address the evolving needs of both caregivers and patients, ensuring that caregivers are always prepared to provide the best possible care. Such training empowers caregivers, enhancing their confidence and competence in managing their roles.

Furthermore, incorporating Chada's (2014) recommendation of providing access to mental health services is critical to address the emotional and psychological challenges that caregivers face. Caregiving can be an isolating and emotionally taxing experience, leading to stress, anxiety, and depression. Access to professional counseling and mental health support can help caregivers cope with these challenges, improving their overall mental health and resilience. These resources should be readily available and tailored to meet the specific needs of caregivers, offering them the support they need to sustain their caregiving efforts.

By addressing these needs, the quality of life for both caregivers and stroke patients can be significantly improved. Enhanced support systems, flexible work policies, comprehensive education and training, and accessible mental health resources can ensure better health outcomes and more sustainable caregiving practices. The insights from this study highlight the resilience of caregivers and underscore the critical importance of providing them with the support they need to continue their vital work effectively. Investing in these areas not only benefits caregivers but also contributes to the overall well-being and recovery of stroke patients, fostering a healthier, more supportive community for all.

Limitations of the Study

This study provides valuable insights into the lived experiences of primary caregivers of stroke patients, but it has several limitations. The small sample size and specific geographic focus may affect the generalizability of the findings. Selection bias could also be present due to the purposive sampling method, and reliance on self-reported data may introduce recall bias. Additionally, the cross-sectional design captures only a single point in time, missing the evolving nature of caregiving, and the cultural context may limit applicability to other settings.

Despite these limitations, the study has notable strengths. The phenomenological design allows for an in-depth exploration of caregivers' experiences, providing rich and detailed insights. Colaizzi's method ensured rigorous data analysis, enhancing credibility. The diverse participant backgrounds add depth to the findings, and the focus on an under-

researched group addresses a significant gap in the literature. These strengths contribute to the study's overall value in informing support systems and interventions for primary caregivers of stroke patients.

Conclusions

This phenomenological study aimed to explore and understand the lived experiences of primary caregivers of stroke patients. Through in-depth interviews and qualitative data analysis, we uncovered four major themes that encapsulate the caregiving journey: Prologue: Taking up the Mantle, The Adventure: Living the Life of a Hero, The Achilles' Heel, and Heroes Prevail. These themes reveal the multifaceted nature of caregiving, highlighting both the immense challenges and the deep sense of fulfillment that caregivers experience.

The study found that caregivers often begin their roles with reluctance and hesitation, faced with overwhelming responsibilities and significant lifestyle changes. Despite these initial struggles, they adapt and grow, finding strength and resilience through their journey. The constant demands of caregiving take a toll on their physical, emotional, and social well-being, yet caregivers also find meaning and purpose in their roles, driven by love and duty towards their loved ones.

The findings of this study underscore the critical yet often overlooked role of primary caregivers in the rehabilitation and recovery of stroke patients. The study emphasizes the need for comprehensive support systems that address the physical, emotional, and social needs of caregivers, ensuring they are equipped to manage their responsibilities effectively while maintaining their well-being.

Recommendations

The research has drawn the following recommendations to nursing practice, education, and research from the findings of the present study. For nursing practice, to better support primary caregivers of stroke patients, it is essential to develop and implement integrated caregiver training programs. These programs should focus on practical skills, patient care techniques, and the use of medical equipment. Training must be ongoing to address the evolving needs of both caregivers and patients, ensuring that caregivers are equipped with the latest knowledge and skills necessary for effective care. Regular health assessments for caregivers are crucial to monitor their physical and mental health. By conducting these assessments, healthcare providers can identify signs of burnout and health deterioration early, allowing for timely interventions and support. Additionally, establishing counseling and mental health support services can help caregivers cope with the emotional and psychological challenges they face. Providing access to these services can significantly alleviate stress and improve caregivers' overall well-being.

In addition, nursing education programs should incorporate modules specifically focused on caregiver support. These modules should emphasize the importance of understanding and addressing the needs of caregivers, preparing future nurses to provide

holistic care that includes both patients and their caregivers. By integrating this perspective into the curriculum, nursing students will be better equipped to offer comprehensive support. Training in effective communication techniques is also essential. Educating nursing students on how to communicate empathetically and practically with caregivers ensures that they can provide the necessary guidance and support. This training will enable nurses to build strong, supportive relationships with caregivers, fostering a more collaborative and effective care environment.

For nursing research, there is a need for longitudinal studies to explore the long-term impacts of caregiving on physical and mental health. These studies should examine how the challenges and needs of caregivers evolve over time, identifying effective interventions that can support them throughout their caregiving journey. Research into the effectiveness of various support interventions is also critical. By evaluating programs such as caregiver training, support groups, and mental health services, researchers can determine the best practices for alleviating caregiver burden. Furthermore, studying the experiences of caregivers across different cultural and socio-economic backgrounds is essential to identify unique challenges and tailor support needs accordingly. This research will provide a more comprehensive understanding of caregiving dynamics, ensuring that support interventions are inclusive and effective for diverse populations.

Furthermore, it is the hope of the researcher that the following policy recommendations be implemented in healthcare systems to provide sustainable support to the primary caregivers of patients with stroke. First, advocating for policies that provide flexible work arrangements and respite care options is crucial to help caregivers balance their caregiving responsibilities with other aspects of their lives. Many caregivers face the challenge of juggling full-time employment and caregiving duties, which can lead to significant stress and burnout. Flexible work policies, such as adjustable work hours, remote work options, and extended leave provisions, can alleviate some of these pressures, allowing caregivers to manage their time more effectively. Respite care options, which provide temporary relief by arranging professional care for the patient, are also essential. These policies not only support caregivers' well-being but also ensure they can continue to provide high-quality care to their loved ones without sacrificing their own health or job security.

Moreover, promoting the development of community-based support programs is vital for offering practical assistance and emotional support to caregivers. These programs can provide a range of services, including help with daily tasks, transportation, and access to local resources. By integrating caregivers into the broader healthcare system, these programs can ensure that caregivers receive the comprehensive support they need. For example, community centers can host workshops and support groups, providing a platform for caregivers to share experiences and receive guidance from professionals and peers. These initiatives can create a supportive network, reducing feelings of isolation and enhancing caregivers' ability to manage their responsibilities effectively.

In addition, launching public awareness campaigns is essential to raise awareness about the critical role of caregivers and encourage community support and recognition of their contributions. These campaigns can highlight the challenges caregivers face and the invaluable service they provide, fostering greater empathy and understanding within the community. Public recognition can lead to increased support from employers, policymakers, and community members. Campaigns can utilize various media platforms, including social media, television, and community events, to reach a broad audience. By bringing attention to the importance of caregiving, these campaigns can drive societal changes that support caregivers, such as improved access to resources and better policy implementation.

Compliance with Ethical Standards

This study was conducted in full compliance with ethical standards. Informed consent was obtained from all participants, ensuring that they were fully aware of the study's nature, purpose, and procedures. Participants were informed of their right to withdraw from the study at any time without any repercussions. The anonymity of the informants was rigorously maintained, with personal identifiers removed from all data to protect their privacy. Throughout the study, the well-being of the informants was safeguarded, and every effort was made to minimize any potential distress or discomfort.

There were no conflicts of interest involved in the conduct of this study. The researcher adhered strictly to ethical guidelines to avoid plagiarism, ensuring that all sources were appropriately cited and credited. Additionally, there was no bias in the interpretation of the findings; the data were analyzed objectively to provide an accurate representation of the caregivers' experiences. The results of this study were used purely for research purposes, contributing to the body of knowledge on caregiving and informing better support practices for caregivers of stroke patients.

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CHANGING LANDSCAPE OF FILIPINO EDUCATION: TEACHERS' PERSPECTIVES ON TRADITIONAL VS. MODERNIZED APPROACHES TO TEACHING FILIPINO

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ABSTRACT

The education landscape in the Philippines has been undergoing significant transformations in recent years, driven by technological advancements and evolving pedagogical approaches. The research investigated the evolving educational landscape, focusing on Junior High School teachers' perceptions and appreciation of the Filipino subject amidst changes in Koronadal City during the 2023-2024 Academic Year. Utilizing a qualitative methodology, particularly the phenomenological approach, the study involved fifteen participants – Junior High School teachers from Koronadal National Comprehensive High School in DepEd Koronadal City Division, meeting specified inclusion criteria.Employing a purposive sampling technique, fifteen Filipino teachers from Koronadal National Comprehensive High School, Division of Koronadal City participated. Data collection involved semi-structured interviews and focus group discussions, exploring teachers' perceptions and experiences regarding traditional and modernized teaching methods in Filipino education. Results indicated a predominant perception of traditional methods as teacher-centered, focusing on lectures and didactic instruction, leading to passive learning and limited engagement. Conversely, modernized approaches, integrating technology and collaborative tools, were viewed favorably for enhancing engagement and comprehension, particularly among audio-visual learners. Teachers' preferences for teaching methods were influenced by the learning environment, instructional materials, and personal styles. Technology use positively impacted engagement and appreciation but raised concerns about overreliance and hindering critical thinking skills. Recommendations were provided for the Department of

Education, curriculum developers, Filipino teachers, and future researchers. Suggestions included promoting professional development for digital literacy, designing curriculum frameworks that integrate modernized approaches, embracing a pedagogical mindset valuing both traditional and modern methods, and conducting longitudinal studies to assess the long-term impact of modernized teaching approaches.

Keywords: *Traditional, Modernized, Teachers' Perspectives, Filipino Education*

INTRODUCTION

The education landscape in the Philippines has been undergoing significant transformations in recent years, driven by technological advancements and evolving pedagogical approaches. One of the key subjects at the heart of this transformation is the Filipino subject, which plays a critical role in preserving the national language and culture. The traditional methods of teaching Filipino have been challenged by modernization, introducing new approaches and tools that potentially impact students' learning experiences and perspectives. (DepEd, 2013).

Historically, the teaching of the Filipino subject in the Philippines has been rooted in traditional pedagogical methods. It often emphasizes rote memorization, recitation, and grammatical rules. While these methods have their merits, they have also faced criticism for being less engaging and relevant to students in the modern era (Bernardo, 2017).

The advent of technology and modern teaching methodologies has brought new opportunities for teaching and learning Filipino. Digital resources, interactive multimedia, and online platforms have been integrated into language education to make it more engaging and interactive (Basco & Gonzales, 2019). These modernized approaches aim to bridge the gap between traditional classroom instruction and the digital age.

The Filipino subject is not only about language but also about culture and identity. With modernization, there is a concern that the preservation of the Filipino language and culture may be at risk. Ngag (2023) pointed out that Filipino students have limited knowledge in their own literature, which also affects how they appreciate Filipino as a language.

Modernized approaches often require teachers to adapt to new technologies and teaching strategies. It is essential to investigate whether teachers are adequately prepared and trained to deliver these modernized lessons effectively (DepEd, 2012). Insufficient teacher training can hinder the successful implementation of modernized approaches (Molina & Macasaquit, 2018).

This study aims to delve into this evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceive and appreciate the Filipino subject amidst these changes in Koronadal National

Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

Research Questions

This study aimed to delve into the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceive and appreciate the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

Specifically, this delved with the following questions:

1. How do Junior High School teachers perceive traditional teaching methods in Filipino education, and what are their attitudes toward these methods?
2. What are the modernized approaches to teaching Filipino that are currently being employed in high schools, and how do teachers view their effectiveness in comparison to traditional methods?
3. What are the key factors that influence Junior High School Teachers' preferences for either traditional or modernized approaches to learning the Filipino subject?
4. How does the use of technology and digital resources impact Junior High School Teachers' engagement with and appreciation of the Filipino subject?

METHODOLOGY

Research Design

This research used a qualitative methodology, especially using the phenomenological approach, to delve into the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

One crucial element of the phenomenological research design is the researcher's responsibility to suspend any preexisting beliefs about the experience or phenomena in question (Delve & Limpaecher, 2012).

Participants of the Study

The participants' qualifications, as determined by the criteria established by the researcher before selecting eligible informants for the study. The study involved a total of fifteen (15) participants: comprised of Junior High School teachers from Koronadal National Comprehensive High School, Division of Koronadal City, who met the researcher's specified inclusion criteria:

Participants' Inclusion Criteria:
Qualification: Teacher-Participants
1. Must be a Filipino teacher.
2. Must be assigned in Junior High School at Koronadal National Comprehensive High School, Division of Koronadal City.
3. Must be in 5 years and above in teaching Filipino.

Sampling Technique

This study employed a Purposive Sampling Technique to carefully select fifteen (15) participants comprised of Junior High School Filipino teachers from Koronadal National Comprehensive High School, Division of Koronadal City, who met the researcher's specified inclusion criteria.

This method of sampling patterned after Creswell (2013) mandates that researcher's possess prior knowledge of the objectives underpinning their study so as to effectively pinpoint and make contact with eligible participants through online survey platforms like Alchemer. Researcher's resort to purposive sampling in order to secure access to a distinct subgroup of individuals, whereby all survey respondents are meticulously chosen based on their alignment with a specific demographic or criterion.

Data Gathering Instrument

This research used a semi-structured interview as an investigative instrument during both in-depth interviews and Focus Group Discussions (FGDs). Its purpose was to explore the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

The validity and appropriateness of this tool were substantiated through a rigorous evaluation process conducted by a panel of experts who possess expertise in the development of relevant research instruments.

Data Gathering Procedure

To enhance the trustworthiness of the study, a rigorous adherence to a predetermined set of protocols was maintained. The main aim of this research was to delve into the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

During the preliminary stage, the researcher soughs the approval from both the Superintendent of the Department of Education in Division of Koronadal City and the Dean of the College of Graduate Studies (CGS). The acquisition was crucial to get the

necessary permits for the researcher to carry out the study, hence underscoring the significance of ethical deliberations.

Subsequently, a supplementary letter of authorization was sent to the School Principal, expressly soliciting permission to get access to the precise data necessary for this study. A survey questionnaire was methodically constructed. It underwent rigorous examination and was given to the intended participants.

The researcher used a Purposive Sampling Technique to meticulously choose Junior High School teachers as participants for this investigation. Under the condition of strict compliance with specified health procedures, the researcher proceeded with the implementation of interviews and the facilitation of Focus Group Discussions (FGDs), all of which were carried out through in-person interactions.

The data obtained from interviews and focus group discussions (FGDs) underwent a systematic organization process, followed by a complete analysis and interpretation using the theme analysis technique. This methodology was anticipated to provide a more comprehensive comprehension of the matters being examined.

Data Analysis

The study aimed to examine the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceive and appreciate the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

Following data collection, the transcripts were systematically reviewed to identify common themes and patterns emerging from the participants' responses which patterned after the study of Ngag (2023). Through an iterative process of coding and categorization, key themes were identified, reflecting the participants' perceptions, concerns, and insights regarding the agenda.

To achieve this objective, the researcher employed a content or thematic analysis approach to analyze the collected data. The approach described by Braun and Clarke (2006) that involves a systematic process of organizing textual components, such as sentences, phrases, and words, into organized groups or categories. The categorization of data will be based on either pre-existing frameworks or specifically designed categories that are tailored to the aims of the research.

To execute this analytical technique, a series of crucial stages was meticulously followed.

During the preliminary stage, several data sources, including interview transcripts, notes from Focus Group Discussions (FGDs), and relevant documents, were

systematically organized and readied for analysis. This phase is crucial for ensuring the systematic arrangement and ease of access to the data.

Following this, the researcher was in an extensive examination of interview transcripts and focus group discussion (FGD) notes in order to thoroughly analyze the data. The immersive method facilitated the acquisition of a thorough comprehension of the content and context that was inherent in the acquired information.

The next phase involved commencing a systematic coding procedure. The generation of first codes included the identification of relevant segments or patterns within the data. The aforementioned codes served as a means of encapsulating essential concepts, ideas, or topics that was directly related to the roles of community and culture in shaping the academic motivation of Hiligaynon learners.

After the coding process, the detected codes were organized into preliminary themes based on their common meaning or significance. The objective of this stage was to develop a basic structure for organizing the data.

Following this, the prevalent patterns that have emerged and the associated categories assigned to them were subjected to a rigorous process of examination and improvement. The researchers maintained the consistency and clarity of these topics, making any essential revisions as required. A descriptive title was provided for each refined topic, which conveyed the material it covered. This aided in the simple identification and understanding of the themes.

The selection and linking of relevant data extracts, such as quotes or segments derived from interviews and focus group discussions (FGDs), were conducted concerning the corresponding topics. The provided passages functioned as corroborating evidence for the highlighted themes.

The researcher did a comprehensive analysis to understand the relevance and consequences of each topic within the specific context of the study's aims. The researcher analyzed trends, correlations, and variances within the identified topics to get a full understanding of the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject.

The study employed a rigorous and systematic approach to thematic analysis, enabling researchers to comprehensively examine and comprehend the educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject.

The said methodology provided significant findings that may help the improvement of intervention programs designed to address the issues related to the educational landscape.

Scope and Limitations

The study was conducted at Koronadal National Comprehensive High School, Division of Koronadal City. The research was limited to this school, and the findings may not be generalizable to other regions and divisions. The study was conducted during the School Year 2023-2024. It examined the perceptions and appreciation of the Filipino subject during this specific academic year.

It involved Junior High School teachers in Koronadal National Comprehensive High School, Division of Koronadal City during the specified school year. The research centered on the Filipino subject as a subject of interest. It explored teachers' attitudes, perceptions, and experiences related to this subject.

The study focused on specific grade levels within high school, a specific range, but it did not include all grade levels. The study did not explore variations in language, dialects, or regional languages within Koronadal National Comprehensive High School, Division of Koronadal City that students may be using, as it primarily focused on the Filipino subject.

RESULTS AND DISCUSSION

The education landscape in the Philippines has been undergoing significant transformations in recent years, driven by technological advancements and evolving pedagogical approaches. This research used a qualitative methodology, specifically the phenomenological approach, to delve into the evolving educational landscape, with a particular focus on understanding how high school teachers perceived and appreciated the Filipino subject amidst these changes in the Division of Koronadal City during the School Year 2023-2024. The study involved a total of fifteen (15) participants: comprised of Junior High School teachers from Koronadal National Comprehensive High School in DepEd Koronadal City Division, who meet the researcher's specified inclusion criteria.

This study employed a Purposive Sampling Technique were intentionally utilized to carefully select fifteen (15) participants comprised of Filipino teachers from Junior High School of Koronadal National Comprehensive High School in the Division of Koronadal City, who met the researcher's specified inclusion criteria.

This research used a semi-structured interview will function as an investigative instrument during both in-depth interviews and Focus Group Discussions (FGDs). Its purpose is to explore the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceive and appreciate the Filipino subject amidst these changes in the Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

Based on the results, traditional teaching methods in Filipino education were perceived as predominantly teacher-centered, focusing on lectures, readings, and

didactic instruction. While some teachers may benefit from these methods, there were also concerns about passive learning experiences and limited engagement.

Further, the modernized approaches to teaching Filipino involved integrating technology, such as laptops, tablets, and multimedia resources, to create interactive and dynamic learning experiences. Teachers generally viewed these methods as effective in enhancing engagement and comprehension compared to traditional approaches, particularly for audio-visual learners.

Furthermore, teachers' preferences for either traditional or modernized approaches to learning the Filipino subject were influenced by factors such as their learning styles, engagement levels, and the effectiveness of instructional methods. While some teachers may thrive in traditional environments, others preferred modernized approaches that cater to diverse learning needs.

Finally, results show that the use of technology and digital resources positively impacted teachers' engagement with and appreciation of the Filipino subject. Technology serves as a motivational tool, fostering active participation and providing access to interactive learning materials. However, there is also recognition of the importance of balancing traditional and modern approaches to ensure a comprehensive educational experience.

Generally, these findings collectively highlighted the complex interplay between traditional and modern teaching methods in Filipino education and underscored the importance of catering to diverse student needs and preferences.

Conclusions

Based on the provided results, here are four major conclusions:

First, Junior High School teachers generally perceived traditional teaching methods in Filipino education as teacher-centered, with a focus on lectures, readings, and didactic instruction. While some teachers may find value in traditional methods, others may struggle with passive learning environments and limited engagement.

Second, modernized approaches to teaching Filipino in Junior High Schools included the integration of technology, interactive online platforms, multimedia resources, and collaborative tools for group projects. These modern approaches aim to enhance student engagement, participation, and comprehension by catering to diverse learning styles and preferences.

Third, teachers' preferences for traditional or modernized approaches to learning the Filipino subject were influenced by factors such as teaching environment, availability of instructional materials, and personal learning styles. While some teachers may benefit

from aspects of traditional teaching, others prefer modernized approaches that offer dynamic and interactive learning experiences.

Finally, it has been concluded that the use of technology and digital resources positively impacts Junior High School teachers' engagement with and appreciation of the Filipino subject by providing interactive learning experiences and easy access to academic materials. While technology serves as a motivational tool for students, concerns exist regarding overreliance on gadgets and a potential hindrance to critical thinking skills. Also, teachers' adoption of technology enhanced their connection to the subject and fosters active participation in learning, suggesting a shift towards a more student-centered and innovative approach to Filipino education.

Recommendations

In the light of the findings of the study, the following were recommended:

1. Department of Education (DepEd) of the Division of Koronadal City may encourage professional development opportunities for Filipino teachers to enhance their digital literacy skills and proficiency in integrating technology into their teaching practices.

2. Curriculum Developers/ Education Supervisor in Filipino may ollaborate with educators, researchers, and technology experts to design curriculum frameworks that incorporate modernized teaching approaches while respecting the cultural and linguistic heritage embedded in the Filipino subject.

3. Filipino Teachers may foster a student-centered learning environment by incorporating interactive activities, multimedia resources, and collaborative projects that promote active participation, critical thinking, and creativity among students.

4. Future Researchers may conduct longitudinal studies to assess the long-term impact of modernized teaching approaches on student learning outcomes, academic achievement, and retention in the Filipino subject.

Compliance with Ethical Standards

Before initiating this research, it is imperative to emphasize the paramount importance of ethical considerations in investigating the evolving educational landscape, with a particular focus on understanding how Junior High School teachers perceived and appreciated the Filipino subject amidst these changes in Koronadal National Comprehensive High School, Division of Koronadal City during the School Year 2023-2024.

To facilitate the implementation process, the aforementioned plans and suggestions were presented be formally provided to East-West Mindanao Colleges, Inc.

This step was crucial to guarantee strict compliance with mandated rules and regulations. As a result, the following ethical concepts were given prominence:

The study adhered to rigorous ethical standards to ensure the protection and well-being of participants. Informed consent was meticulously obtained from the school principal, ensuring a comprehensive understanding of the study's objectives, methodologies, risks, and benefits. Participation was entirely voluntary, with participants having the autonomy to withdraw at any time without consequences. To safeguard anonymity and confidentiality, pseudonyms or codes were used instead of actual names, and data were securely stored with restricted access. Sensitive topics were handled with care to minimize emotional and psychological impact, supported by a readily available support system. The researcher maintained a professional and respectful relationship with the school head, strictly avoiding any actions that could harm participants.

Additionally, strict adherence to data protection regulations was ensured, with secure storage and transmission of data. Participants were assured of their voluntary participation without coercion, and the researcher remained vigilant about potential biases, maintaining objectivity and transparency. Ethical clearance was sought from relevant institutional review boards, and the findings were reported truthfully. The research considered the potential benefits to educational practices and policies, contributing positively to the education system. Cultural sensitivity and respect for local customs were maintained, and the research design prioritized inclusivity and diversity, encompassing a wide range of perspectives. This conscientious approach ensured the study was conducted with due regard to the rights and welfare of students and teachers, offering valuable contributions to the field of education within the unique setting of DepEd in Koronadal National Comprehensive High School.

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CLIMATE CHANGE: ITS EFFECT TO THE GROWTH OF PLANTS

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ABSTRACT

This research focuses on the effects of climate change to the growth of plants. Through qualitative methods, the study provides perceptions about what way does climate change affects the living of plants. With the help of interview guided questions, the researchers gathered the data needed. The findings show that plants face a lot of challenges due to climate change, from its quality to the way it develops and grow. As well as ways on how the caretakers of a farm adapt to the changes induced by climate change, how planting dates is relevant to climate change albeit being unpredictable. By understanding the effects and factors contributing to climate change, this study contributes to gaining further knowledge on techniques, precautionary measures, and flexibility on the effect of climate change to the growth of plants; proper management, organic fertilizer, greenhouse, mulching techniques, and organic agriculture are recommended.

Keywords: *climate change, growth of plants, MSU-Sulu Philippines, qualitative, interview, factors*

INTRODUCTION

One of the issues of our day is climate change, which is increasingly evident. It is becoming more and more obvious how climate change affects both humans and environment. The continuous change on weather has a great impact not only to one's physical health but also to the state of our soil, plants, or our agriculture. Although plants

need to be constantly watered and exposed to sunlight, rapid changes may cause problems to the growth of plants.

Climate determines the temperature, weather difference, rainfall totals, and the composition of meteorological phenomena such as the harshness of storms. The reason why we are facing rising temperature, more frequent weather extremes, and natural disasters is because of climate change.

According to Zandalinas et al. (2018), agriculture is calculated to be the most negatively affected by climate change. These climatic problems harshly distress plant progress, yield, and produce massive responses. With sudden differences in environmental conditions, the severe effects on plant productivity are progressing intensely.

One factor of climate change is that it has significant impacts on plant growth. Changes in temperature, atmospheric gases, and carbon dioxide levels can harm microbes, plants, animals, and humans. Additionally, climate change can alter the physiological state of plants, affecting their overall growth. Plants have methods to survive stress which help them combat disadvantageous conditions. Changes in climate metrics, including temperature and climate variability are correlated with the changes in plant rejuvenation and growth quality. The fast reaction in plant traits to climate change may not be sufficient for plants to progress with future climate change

Therefore, the purpose of this study is to ascertain the effects of climate change to the growth of plants as perceived by the agricultural teachers, students, and the farmer themselves. According to the review related literature conducted by the researcher, there have been investigations on this subject. However, no research has been carried out specifically at MSU-Sulu Senior High School.

This gap in research led the researchers to carry out their own study, aiming to delve into the effect of climate change on the growth of plants. The researchers believe that this research will help the teachers, students, farmers, and future researchers help the individual to acclimatize to the changes and combat the effects of climate change.

RESEARCH QUESTIONS

This study aimed to determine the effect of climate change to the growth of plants. Specifically, this study sought to answer the following questions:

1. What do you think are the most significant challenges that plant face due to climate change?
2. Is climate change the sole factor contributing to the reduction in plant quality?
3. How specifically does climate change influence plant development?

4. How are the farmers at the MSU-Sulu College of Agriculture Demo Farm and its other Demo Farm Extensions adapting to the changes in plant growth induced by climate change?
5. What agricultural practices can be implemented to combat the effects of climate change the sole factor contributing to the reduction in plant quality?

RESEARCH METHODOLOGY

Research Locale

This study focused on the effect of climate change on the growth of plants, the research was conducted at Mindanao State University-Sulu, Philippines College of Agriculture, MSU-Sulu College of Agriculture Demo Farm Indanan Extension, Barangay Langtad, Indanan Sulu which is 9km away from Jolo town proper and MSU-Sulu College of Agriculture Demo Farm Maimbung Extension, at Barangy Lawm Maimbung, Maimbung Sulu which is 12.8km away from Jolo town proper.

Mindanao State University-Sulu was formerly known as MSU-Sulu Development and Technical College (SDTC). The public university is located at Capitol Site, Jolo, Sulu. The government established the campus to rehabilitate the educational situation of the province of Sulu in l974; the current campus site is about 550 meters from Jolo town proper.

Sampling Method

The participants in this study consists of (10) teacher from the College of Agriculture, as well as (4) caretakers from the MSU- SULU College of Agriculture Demo Farm Extensions.

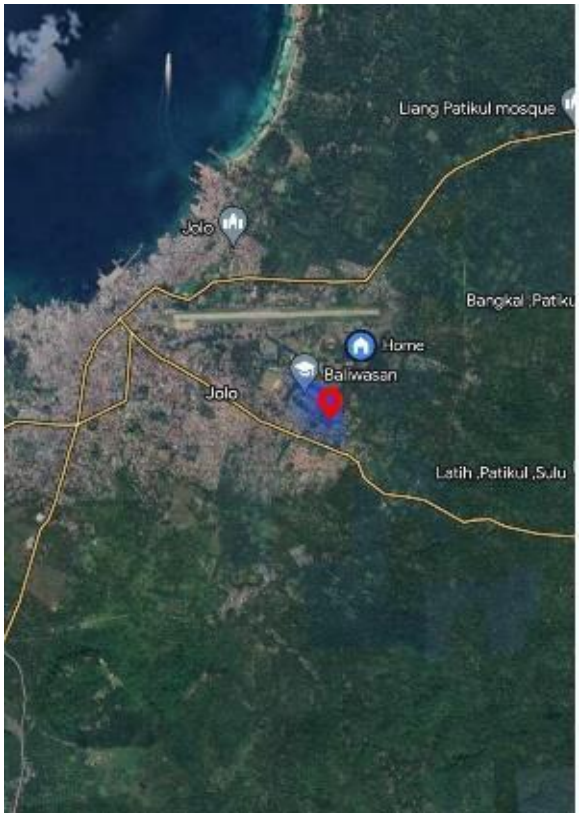
The reason for selecting these participants is because of their direct involvement and experience in the field of agriculture, which is the primary focus of this research. Teachers provide an academic perspective, while the farmers offer a practical viewpoint based on their daily experiences.

In this study, the researchers used Purposive Sampling or Judgement sampling to select the participant of the study. According to Crossman (2020), as cited by Jailani et al. (2024), Basir et. al. (2024), Sasapan et. al. (2024), Jarak et. al. (2024) and Sabbaha et. al. (2024) Purposive Sampling is a non-probability sample that is selected based on characteristics of a population and the objective of the study.


Manila
Philippines
Davao
Home


Home
Indanan
Jolo Island
Luuk
Kalingalan
Caluang
SULU
Brgy. Pangdan


Maimbung
Maimbung Technical
Vocational High School
Darayan patikul
Maimoung
Municipal Hall
Maimbung ,Poblacion
Maimbung ,Sulu
JST EXPRESS
Maimbung Boulevard


Liang Patikul mosque
Jolo
Bangkal ,Patiku
Home
Baliwasan
Jolo
Latih ,Patikul ,Sulu

Research Instrument

In this research, interviews were formulated. To get the appropriate data needed, the researcher used interview questions as the research instrument. This was used to gather data effectively. The respondents were some of the MSU-Sulu College of Agriculture faculties and the caretakers of MSU-Sulu College of Agriculture Demo Farm Extensions.

Thematic Coding and Analysis

Thematic analysis is the technique used to analyze qualitative data, it allowed the researchers to explore and interpret the richness and depth of the data. According to Virginia (2019) it is a method for analyzing, identifying, and reporting patterns within data. These techniques provide a more comprehensive understanding regarding the research topic.

Data Gathering Procedure

After validating the interview guided question, the researchers secured a written permit to the school director, Dr. Norman A. Abdurahman, and to the dean of College of Agriculture, Prof. Merhama M. Sammah to conduct the study.

The interviews were done and the data has been retrieved, the researchers transposed the collected data into its corresponding range and scale and categorized it. The researchers evaluated the data gathered from the interview and analyzed the said data.

RESULTS AND DISCUSSION

The data that are gathered from the participants of this study are coded, analyzed, and categorized into themes in this section to further delve into the effects of climate change to the growth of plants.

3.1 Significant challenges that plant face due to climate change

Climate change determines the temperature, weather difference, rainfall totals, and the nature of meteorological phenomena such as the severity of storms. Significantly, these factors affect crop yield and production. Too much of rain or extreme storms may erode and wash away nutrients in the soil. Moreover, Kopeć, (2024) has stated that extreme weather events, such as droughts, floods, heat waves, and cold snaps, pose threats to crops. The high yield and quality in most cultivated plants depend on the quality of the soil. Additionally, Hatfield et al. (2017) extreme temperature and precipitation can prevent crops from growing. Extreme events, especially floods and droughts, can harm crops and reduce yields.

If the weather is too hot, the plant will either die or wilt. (C1, Excerpt 1)
The fruit of the plant may fall, and it will mature early. (C4, Excerpt 2)
Of course, in hot weather, there's a tendency the plant will wither or the leaves

might get burned. (T2, Excerpt 3)

Sunlight is crucial for plant growth and photosynthesis; excessive heat can have negative effects. Plants exposed to extreme heat can experience wilting, similar to sunburn in humans, leading to withering and eventual death. (T6, Excerpt 4)

In too much heat, there are effects to the plants in which cases the leaves will lighten in color and it can also injure the plant. (T3, Excerpt 5)

Based on the participants' narratives, plants when exposed to extreme heat would lead to wilting or death. Although plants need to be exposed to sunlight and is crucial for plant development, exposure to too much heat has negative effects. According to Cho (2022) Extreme precipitation events can disturb plant growth. Additionally, Hatfield et al., (2017) stated that with extreme temperature, drought, prevents crops from growing. Moreover, Ozdemir (2022) stated that even if sunlight is needed for plants to grow, eventually it will destroy the plants in the long run.

It will die if given too much water, and it won't grow well in too much heat. (C1, Excerpt 6)

With natural disasters like flood, the plants may not catch any nutrients and there is a tendency it will rot. (C4, Excerpt 7)

It can affect not just the plants but also its fruits. When there is flood, there is a possibility of soil erosion. Plant growth depends on the climate. (T2, Excerpt 8)

Rain or precipitation is vital for providing water to plants, as water acts as a universal solvent. Excessive water can flood the area, leading to erosion, particularly in the top layer of fertile soil. The presence of organic matter, known as humus, in the water can aid in plant growth and development. Nevertheless, if the rainfall is too heavy and causes flooding and erosion, it can have detrimental effects and damage the plants. (T6, Excerpt 9)

In flood, plants are highly affected; too much water can destroy the plant since there is a limit in how plants absorb water. With climate change, plants won't grow normally especially now, pollution is the one that caused it. Air pollution made by vehicles can produce harmful toxic gases like nitrogen oxide and ethylene. If it is exposed to these gases, it can be poisoned. (T3, Excerpt 10)

Additionally, even water is also a need of plants; too much of it would have negative effects. In natural occurrences like heavy rain and flood, the soil of the plants would be affected; it may remove the topsoil, leading to the soil being unable to hold the nutrients the plants have. It may be washed out or eroded, hence, soil erosion occurs. Moreover, Cho (2022) stated that extreme precipitation events can disturb plant growth. particularly in recently burned forest and make more vulnerable to flooding and soil to erosion. Then, Lawson et al., (2019) said that heavy rain or flooding may disrupt or alter how the plants develop and grow, disrupting pollination. To add up, Balasubramanian (2017) states that soil that is detached by accelerated water or wind erosion maybe transported considerable distances, since soil erosion is one of the issues and challenges that plants face whenever there is rain or flooding.

Climate change disrupts normal plant growth, leading to abnormal patterns and

reduced yields. (T1, Excerpt 11)

It may still grow but it won't bear yields. (C2, Excerpt 12)

It won't grow normally when it is affected by climate change because a factor that causes climate change is air pollution. Air pollution from vehicles produces harmful toxic gases like nitrogen oxide and ethylene. If the plants inhaled large amounts of those toxic gases, it would poison them that result to dying. (T3, Excerpt 13)

Climate change can have a profound effect on plant growth, particularly through abiotic factors like excessive rainfall, high levels of precipitation, or intense sunlight. These factors can significantly influence the growth and development of plants. (T6, Excerpt 14)

Moreover, climate change can indeed affect the normal growth of plants. Changing in temperature or increase in carbon dioxide has a great impact on plants growth hence it won't grow like how it used to be. This leads to abnormal development, decrease yields, and even plant death. Stated by Cho (2022) elevated levels of CO2 from climate change may enable plants to benefit from the carbon fertilization effect and use less water to grow, but it's not all good news for plants. It's more complicated than that, because climate change is also impacting other factors critical to plants' growth, such as nutrients, temperature, and water. As stated by Rhaman (2021), climate change will alter plant development in ways that will have significant impacts on the function of crop plants and plants in natural ecosystems. Additionally, Gray (2016) Climate change will alter plant development in ways that will have significant impacts on the function of crop plants and plants in natural ecosystems. Future growing conditions will bring increased temperature, increased frequency of extreme events including heatwaves and drought events, and changes in the composition of the atmosphere.

3.2 Climate change as the sole factor of reduction for the quality of plants

Not only climate change could ruin the plants growth, it could also be how the farmers take care of the plants, the way they water the plants, and the type of soil they use. Plants have different types of soil that is suited for them. It's not just climate change. (T4, Excerpt 16)

Actually, climate change can ruin the plants. But sometimes animals can also ruin our plants especially stray animals. (T5, Excerpt 17)

No, actually there are many factors and one of those is climate change. Other factor is the pests. Pests ruin our plants, animals and humans could also ruin the plants. As long as it has the ability to ruin the plants, they are already considered as pests. (T2, Excerpt 18)

Presence of pests can ruin plants. Number 1 causes that damage to growing some plants especially to crops are pests. There are other factors like bacteria, molds, viruses that ruin plants growth and diseases which are caused by animals. It doesn't only focus on climate change; there are many possibilities that contribute to plant quality reduction. (T3, Excerpt 19)

In addition to abiotic factors, biotic factors such as harmful microorganisms and plant pathogens can also affect and damage crops. Living organisms like harmful bacteria, insect pests, and weeds can have a detrimental effect on the growth and

development of plants. (T6, Excerpt 20)

Based on our participants' responses, climate change is not the sole factor contributing to plant quality reduction. Other factors are the presence of pests, stray animals, the suitability of soil, and humans. The participants believe that there are many factors that could ruin the quality of the plants and one of those is climate change. According to Raza et al. (2019) the land and its agriculture are being affected in different ways; variations in annual rainfall, average temperature, heat waves, modifications in weeds, pests or microbes, global change of atmospheric CO2 or ozone level, and fluctuations in sea level. Research from Saliu et al. (2023) stated that sustainable agricultural practices, including crop rotation, cover cropping, conservation tillage, and organic farming, are instrumental in enhancing soil health and increasing crop yields.

You will notice the changes in leaves, and it doesn't grow well. (C1, Excerpt 21)

You will observe the yields mature early, it will wilt and changed in color. (C4, Excerpt 22)

Too much heat and too much coldness could affect the quality of plants that results to decrease in yields, it will produce less yields due to climate change. If the crops are too exposed to heat, it will burn. Although plants need light or heat to grow, sometimes if it is too much, it will harm them. (T3, Excerpt 23)

Climate change affects the quality of plants especially fruit trees. If a fruit trees normally bear fruit in sunny weather however it suddenly rain, then the fruit which is normally sweet will get bitter because it absorbs the water from the rain. (T5, Excerpt 24)

Too much sunlight or extremely hot weather, such as the current conditions with a heat index of 42°C, often referred to as El Niño, negatively affects plants. It causes soil water to evaporate, preventing plants from absorbing it. (T7, Excerpt 25)

According to the responses of our participants, there are so many ways that they observed how climate change negatively affects the quality of plants. The change of color in plant leaves as well as its crops results in decreasing of yields. If the leaves turn yellowish, it is a sign that the plant is affected by climate change. Ostrowsky et al. (2019) stated that if leaves absorb light, they trap that heat. When leaves reflect light, the heat is reflected in the sky as well. This process controls so much heat that leaf reflectance is a large driving factor in the global climate. Stated by Cho (2022) An elevation in temperature accelerates the lifecycle of plants, resulting in faster maturation. This reduced duration for photosynthesis leads to a decline in grain production and diminished yields.

No, because even if you could revive it, if the plant is not taken care of, it would still rot. (C3, Excerpt 26)

We should have soil conservation. We should keep track on when the plants can be watered and be aware of the soil's water content because of extreme heat, it has a massive effect to the plants. If the plant will get burned, to revive the plant, the soil's moisture level should be high, in order for the plants to be revived. (T3, Excerpt 27)

Take care of the plants and we should always eliminate weeds. Weeds are the great competitor of crop in terms of absorbing nutrients in terms of water and agricultural practices can be used to be able to change and the growth would be good despite climate

change. (T4, Excerpt 28)

One of the factors to the climate change is the uses of synthetic fertilizer, some of the farmers using the chemical to have a big income they don't even care the affected by the nutrition of this chemical there any ways can minimize it by minimal use if synthetic in a way of alternative by using the organic fertilizers. (T9, Excerpt 29)

Yes, we can change back the quality of plants thru proper management. There will always a way like application of organic fertilizer. (T10, Excerpt 30)

There is a way to change or revive the quality of the plants and the participants' responses all connect to proper management. With proper techniques; the usage of organic fertilizers, continuous watering of the plants, elimination of weeds and decayed plants. Despite the effects of climate change, the quality of the plants could be revived or changed back. Moreover, Zheng et al. (2024) stated the potential of organic fertilization in restoring polluted soils and maintaining soil health by suppressing the lability of heavy metals and providing nutrients. The importance of organic fertilization in improving soil quality and ecosystem functioning. Also, Hellin (2023) stated that Synthetic fertilizers are a type of fertilizer designed to supplement natural soil fertility by providing essential nutrients to plants and crops. They are a key component for increasing yields and improving crop quality. Hence, we must eliminate weeds for the betterment of the plants.

3.3 Influence of climate change to the development of plants

Water plants in the morning or evening to avoid heat damage. (T1, Excerpt 31)

If it's extremely hot there is a high tendency that the leaves of the plant would be burned, the respiration of the plants would be high which is damaging to the plants. If there is heavy rain, the plants would be flooded; both should be exact or balanced. (T2, Excerpt 32)

It depends, because there are cases that if it's so hot but the water quantity and fertilizer quality is maintained, the growth would be continuous, as long as it is taken care of well. (T3, Excerpt 33)

Climate change has a significant effect on the growth and development of plants, particularly during crucial stages such as flower formation and fruit production. Without flowers, there will be no fruits. Therefore, climate change adversely affects the plants' ability to produce fruits due to its negative effects. (T6, Excerpt 34)

Climate change can slow down plant growth and development by altering crucial environmental conditions. (T8, Excerpt 35)

In conclusion, the impact of climate change on plant growth and development, particularly during critical stages like flower formation and fruit production, underscores the importance of implementing effective watering practices and proper management of agricultural inputs. Addressing these challenges requires proactive mitigation strategies and adaptive measures to sustainably manage agricultural systems and ensure food security amidst changing environmental conditions. According Cho (2022) Climate change will bring more frequent and severe extreme weather events, including extreme precipitation, wind disturbance, heat waves, and drought. Extreme precipitation events can disturb plant growth, particularly in recently burned forests, and make plants more vulnerable to flooding and soils to erosion. More frequent high winds can stress tree

stands. Narayan Lal et al., (2022) also said that higher temperature promotes sun burn and fruit cracking in many fruit crops and cause serious economic losses. Lastly, Fahad et al., (2021) stated that climatic changes influence all agriculture factors, which can potentially adversely affect their productivity. Plant activities are intimately associated with climate and concentration of atmospheric carbon dioxide which greatly influence plant development.

Usually, the plants' growth and development would not be good. It would weaken and the leaves would not grow bigger. (T4, Excerpt 36)

Climate change has a detrimental effect on plant reproduction, as it leads to increased heat and humidity levels. This can be observed during dry and hot nights, where the weather feels arid despite the presence of air. This condition, known as relative humidity, significantly affects the reproductive processes of plants. (T6, Excerpt 37)

Because of migration the reproduction is affected by the climate change. During the hot season they have many pests, so we are now using chemical to counter it. (T9, Excerpt 38)

Yes, there are many signs how climate change affected the productivity of plants like for example fruits of fruit tree or the harvest will also be low. (T10, Excerpt 39)

We can see how climate change slows down the productivity of the plants, because climate change could rapidly change its weather, either sunny or rainy. If it's sunny, it is possible that it won't grow normally. (T5, Excerpt 40)

There are various signs that they observe about the effects of climate change to the growth of plants. Most of the participants said that climate change will affect the productivity of plants and low harvesting of fruits. Hence, climate change indeed affects the productivity of the plants from the way they grow to their physical aspects that leads to less quality yields to harvest. Raza et al. (2019) said by climate change and food insecurity are the two major issues of the 21st century. Agricultural yield is considerably affected by the adverse weather. With the increase in temperature, the production of major crops has been reduced. While Juroszek et al., (2020) has stated that one of the major concerns with potential climate change is that the frequency of extreme weather events may increase, including cold and heat waves, droughts, heavy precipitation, flooding and storms. These extreme weather events may also affect plant pathogens and related crop disease risks. El-Saadony et al., (2022) also added that plant diseases and pests are risk factors that threaten global food security.

Planting depends on crop adaptation; some prefer moderate climates (T1, Excerpt 41)

Climate change can affect flowering and fruiting patterns by altering sunlight availability, crucial for photosynthesis (T8, Excerpt 42)

Climate change poses challenges right from the beginning of the plant's life cycle, starting with the need for fertile soil when sowing seeds. However, the changing climate has disrupted the traditional rainy season, leading to more frequent droughts and excessive sunlight. This has resulted in a scarcity of water, particularly in the Indanan extension, causing damage to crops in terms of growth, development, and fruit production. The lack of water and excessive heat often lead to seeds germinating but

failing to produce fruits, highlighting the absence of development despite growth. (T6, Excerpt 43)

It still depends, smoke can induce flowering. Ethylene is an essential plant hormone. Especially, the plant hormone ethylene can bear. (T3, Excerpt 44)

The ability of plants to produce flowers varies, with some not flowering at all and others known for their flowering capabilities. Climate change can influence the fruiting and flowering patterns of plants. (T7, Excerpt 45)

Based on the participants' responses, it can be concluded that climate change has a significant impact on the flowering and fruiting patterns of plants. The changing climate, including factors like sunlight availability and water scarcity, can disrupt the growth, development, and fruit production of crops. Additionally, the ability of plants to produce flowers can vary, and smoke and ethylene are factors that can induce flowering. Additionally, Rajatiya (2018), said that the changing of climatic parameters disturbs the flowering pattern. A change in field-level climate may alter the need and timing of irrigation. It affects the crop physiology, biochemistry, floral biology, biotic stresses like disease-pest incidence that results to the reduction of yield and quality of fruit crops. To add up, Isoda et al., (2021) stated plant hormones play important roles in plant growth and development and physiology, and in acclimation to environmental changes.

3.4 Farmers adapting to the changes of plants due to climate change

Of course, when the plants are accustomed to the rainy season then sunny season comes, you should really water the plants because once you neglect the plants, and there is a huge tendency that they will die. (C1, Excerpt 46)

If it is sunny season, we water the plants daily, morning and afternoon. (C2, Excerpt 47)

If it is rainy season, we minimize watering the plants. (C3, Excerpt 48)

We adjust to changes in plant growth through fertilizer management. (C4, Excerpt 49)

These responses show that there is more than one way to adjust to the changes in plants' growth caused by climate change one of it is watering the plants daily when the climate is too hot. It may be challenging for them as a caretaker, they still manage to adjust by keen observation and swift adaptation to the shifting of weather patterns. Hence, being flexible and responsive to the needs of plants regardless of climate change is the best way to ensure their survival and growth. Stated by Malhi et al. (2021) The usage of traditional management systems and agroecological management systems, namely biodiversification, soil management, and water harvesting, can help farmers adopt climate-resilient technologies. Co (2019) said the use of pesticides and chemicals can harm plant health and contribute to climate change by releasing harmful substances into the environment. By avoiding these substances, we can help support plant survival and reduce the negative impacts on the environment. As well as, Jin (2019) stated that agriculture is a significant source of greenhouse gas emissions, particularly methane and nitrous oxide. Improving farming practices, such as reducing tillage, incorporating cover crops, and reducing synthetic fertilizer use, can help reduce these emissions. Additionally,

reducing meat and dairy consumption or adopting a vegan diet can help reduce the demand for animal products and reduce the environmental impacts of agriculture. Moreover, Jazeera (2019) said planting trees is a simple and effective way to reduce carbon emissions, combat climate change, and promote sustainable land use practices. By supporting reforestation efforts and planting trees in our own communities, we can help to create a healthier planet for future generations.

It actually depends on the plants, especially in fruit trees you should take care of it well. One example is the petchay plant; you should remove some parts that are rotten in order for it to not contaminate the other plants. (C1, Excerpt 50)

We have planting techniques,the plant should have at least 5 leaves then we could plant it. (C2, Excerpt 51)

Yes, after we plant it, we put plastic on so that if it has fertilizer, the nutrients would go directly to the bottom and to the roots so that it will grow. (C3, Excerpt 52)

We observe the plant, because sometimes the leaves turn yellow it means it is low in nutrients, so we put cow manure then we water the plants. Then after 3 days, you can already see it changing. (C4, Excerpt 53)

In our participants' responses, it can be seen that the techniques used by the farmers are through observing the plant state, what plant it is, removing the rotten parts and then using organic fertilizers. The farmers suggest that we use organic fertilizers rather than chemical fertilizers, for it is not good for the plant it is also a factor contributing to climate change. According to Zhou et al. (2022) Organic fertilization practices can improve crop yields and soil quality. Moreover, Lemery (2023) stated that adopting practices associated with organic and regenerative agriculture, such as cover crops, pesticide use reduction, rotational grazing, and composting, can help nurture the soil and reduce emissions from nitrogen-based fertilizers. Additionally, according to Datta (2023), farmers can utilize climate forecasting tools, plant cover crops, and adopt other strategies to manage climate-related production threats. While Swenson (2022) apply fertilizers, prevent animals from entering streams, and take actions to minimize nutrient-laden runoff.

In my perspective, regarding of using fertilizer, there is such thing we called steps in planting crops. There must be a distance that must be followed; the crops must be arranged when planted. (C1, Excerpt 54)

We taught them the effects of climate change as well as the signs of climate change and also the signs that the crops are not growing well, in that situation, we advised them to use organic fertilizer like Vermi Cas. (C2, Excerpt 55)

They should plant the crops in a good way in order for them to avoid any damages to plants and for it to grow well. (C3, Excerpt 56)

We will check if there are any wilted plants so we can take action immediately. We will apply fertilizers such as Vermi Cas and Cow Manure for them to help themselves. (C4, Excerpt 57)

Based on the caretakers' statements they collectively emphasize the significance of adapting careful management practices in agriculture, especially amidst the challenges posed by climate change. They stress the necessity of careful fertilizer application,

recognition of climate change symptoms, utilization of organic fertilizers such as Vermi Cas, observing appropriate planting techniques, and quick intervention to address crop distress. Overall, their insights advocate for an approach to crop refinement aimed to nourish plant growth and productivity while effectively ease the adverse effects of climate change. Moreover, Czembor (2022) there are agricultural practices that involve changing planting dates. One such practice is the adaptive management of crop growing periods by adjusting sowing dates, as mentioned in a study on global crop yields. Czembor (2019) said that modifying planting dates in agriculture can help farmers maximize yields, improve crop health, and better cope with the impacts of climate change. Czembor (2020) proves in his research that farmers determine the optimal planting date for their crops based on factors like soil temperature, moisture, and expected weather conditions. The planting date is crucial as it influences crop development and yield potential. In practice, farmers consider soil temperature, aiming to plant once it has risen above a certain threshold, typically around 50°F, and is expected to continue to rise.

3.5 Agricultural practices to fight the climate change

As professional in this field, there are many ways to lessen the cause of climate change. Like for example, in farming, we can lessen the cause of climate change like for not burning the residues, instead of burning the residues, we will decompose it, make it into fertilizer. Minimize the use of chemical fertilizers, because burning those remains will produce methane gas which contributes to air pollution. (T9, Excerpt 58)

As professional practices I teach how the proper way to take care of plants by way of watering to minimize and to have a good growth and development of the plants (T4, Excerpt 59)

As a plant professional, I advise against improper garbage disposal, particularly burning materials like plastic soda bottles. This practice can harm the ozone layer and have a detrimental impact on the environment, leading to increased heat. (T7, Excerpt 60)

As a licensed agriculturist, we can provide assistance to the youth, students, stakeholders, and farmers in addressing climate change. There is an importance of patience and that climate change is a result of God's will. However, I also acknowledge the scientific understanding of environmental factors contributing to climate change. I encourage my students to have faith in God, be patient, and view climate change as a reminder to pray. (T6, Excerpt 61)

As a professional in the field of plants, the normal practice: which is planting more trees, plant more on organic. Like now they waste large quantities of fertilizers. But now the latest technology of agriculture, they have precision agriculture. Precision agriculture prevents the waste of the input which is the fertilizer, water and pesticides. A small amount is applied, but it can save more input. Excessive use and waste of inputs contribute to climate change for it causes land, air, and water pollution. So, we apply the actual practice, which is the precision agriculture; precise amount only needed to apply the inputs. (T3, Excerpt 62)

The following participants are licensed agriculturists or professional in field of agriculture, as they teach students about plants, they also preach the effects of climate

change as it is evident and affecting the plants growth. It includes in planting more trees, how to take care of the plants since it contributes to the lessening of the effects of climate change, not burning some residues, practicing proper garbage disposal, and proper use of agricultural input. As stated by Volk et al. (2023) Plants play a critical role in the global carbon cycle and are key to climate change mitigation and adaptation solutions. Through photosynthesis, plants remove carbon dioxide (CO_2) from the atmosphere and store it as plant biomass. Moreover, stated by Khan et al., (2023) the impacts of ecological stresses on plant growth and the mitigation of these impacts using plant growth promoting rhizobacteria (PGPR). The threats to plants due to the increase in global population and desertification, which further accelerate the negative impacts of climate change on plant growth and food supply. To add up, Choudhary et al.,(2022) said that the impact of climate change on the plant holobiont and developing mitigation strategies for sustainable agriculture. Understanding the effects of climate change on the plant holobiont at the agroecosystem level and implementing holistic mitigation strategies.

Adapt by selecting suitable crops each season and managing water effectively. (T1, Excerpt 63)

When it rains heavily, we need to prevent soil erosion that can damage our crops and nutrients. Is it necessary for us to plant copper crosses. These act as barriers to prevent excessive erosion of our plants. (T2, Excerpt 64)

Usually, we are undergoing process to eliminate trades so water the plants as much as possible so we will use organic fertilizers. (T4, Excerpt 65)

Tree planting is an agricultural practice that can contribute to regulating the temperature of our environment. Plants have the ability to stabilize temperatures, making it beneficial to plant more trees. (T7, Excerpt 66)

Agricultural practices promoting carbon sequestration can combat climate change impacts. (T8, Excerpt 67)

Based on the responses provided, adapting to climate change in agriculture involves selecting suitable crops, managing water effectively, preventing soil erosion, using organic fertilizers, planting trees for temperature regulation, and promoting carbon sequestration. These practices are crucial in mitigating the impacts of climate change on agriculture and ensuring sustainable farming. According to Grigorieva et al. (2023) use of different crops or crop varieties, and plant breeding or development of new crop varieties more suitable to the changing climate—higher temperatures and/or reduced precipitation and hence, water availability. In accordance to Belmin et al. (2023) climate change adaptation options that focus on transforming production systems, providing access to knowledge useful for climate change adaptation in agriculture, and coordinating and financing adaptation actions at territorial or sector scale. Then, stated by McCarthy et al. (2022) farmers are implementing various adaptation measures for agriculture, including the use of drought-resistant crops, shifting rain patterns, and investing in climate adaptation measures to tackle climate change challenges.

In plants, in planting date, there is this required month depends on whether if it is hot or cold but now, climate change changes yearly that there are times sunny season comes first than rainy season or vice versa and that affects the planting dates. (T2,

Excerpt 68)

Plants have their own season, especially those big crops like fruit trees, it is by season, and its date cannot be adjusted. We can still plant them anytime however it is hard for them to bear fruit because it has its exact time to produce. In some cases, perennial trees bear fruit once they reach a certain required height. Depending on its soil nutrition, macronutrients like hydrogen, oxygen, carbon, phosphorus, potassium and so on and so forth. If there is no lack of nutrients in the soil, you can still plant anytime. But when it comes to producing yields, it may take time because it has its fruiting season. (T3, Excerpt 69)

In terms of panting dates, yes because we will be looking forward to the climate. In every crop, they have their own different season, so if suited to the climate maybe is the time to plant the crops. (T4, Excerpt 70)

Agricultural practices can be adapted by adjusting planting dates to accommodate changes caused by climate change. Plants are classified as either short-day or long-day plants based on their daylight requirements for growth. However, climate change has disrupted the planting calendar, leading to shifts in the classification of plants. (T6, Excerpt 71)

To mitigate the effects of climate change, adjusting planting dates is a valuable agricultural practice. It is crucial to determine the appropriate seasons or specific dates for planting specific crops or plants. (T7, Excerpt 72)

Adjusting planting dates can help adapt to changing climates and optimize crop growth. (T8, Excerpt 73)

Based on the responses of our participants, it shows that there is changing planting dates to mitigate the effect of climate change. This means closely observing the climate and determining the best time to plant specific crops based on the suitable climate. By being responsive to the effects of climate change, we can optimize crop growth and ensure agricultural productivity regardless of the climate change. According to Grigorieva et al. (2023) 0ne of agricultural adaptation strategies is adjustments in planting dates such as changes in harvest and sowing dates, e.g., later sowings, sowings to suit rainfall variability, etc. Moreover, Jiang et al. (2021) changing planting dates is considered an effective adaptive strategy to mitigate the negative impacts of climate change on crop yields on a global scale, such as in Northeast China. Modelling adaptation strategies to reduce adverse impacts of climate change through adjusting planting dates can enhance crop resilience and productivity in changing climatic conditions.

Conclusions

The significant challenges that plant face when exposed to extreme heat would be wilting or the withering of plants, while in heavy rain or flood, there would be soil erosion whereas the nutrients of the plants would be washed away. The change in weather or increase in carbon dioxide would affect the plant growth, which leads to decreased yields and plant death.

Moreover, even climate change greatly affects plant growth and its quality, there are other factors contributing to it as well. The presence of pests, stray animals, state of

the soil, as well as humans could contribute to the decrease of plant quality. One sign where a plants' quality is affected is by observing its color. If a plant turns yellowish, it is affected by climate change and is not been taken care of. In order to revive or change its quality to its original, healthy state, proper management should be done. Techniques such as continuous watering of plants, removal of decayed parts, and adding organic fertilizers would revive the plant.

Additionally, the effect of climate change to plant growth and development especially during its fruiting stage is very critical. It could result to a low harvest of fruits and low productivity of plants since it affects how plants grow to their physical state. Changing of climate results to sunlight availability and water scarcity, can disrupt the growth, development, and fruit production of crops. Additionally, the ability of plants to produce flowers can vary, and smoke and ethylene are factors that can induce flowering.

As famers are the ones exposed to the actual plantation, it is challenging to adjust to climate change since it is undetermined. However, by keen observation and adaptation to weather patterns, one should still be responsive and flexible to the needs of the plants regardless climate change. In order to heed to plant needs, observing the plant state should be first in order to know what fertilizers and methods are suitable. Careful management and practices are to be observed and usage of organic fertilizers would effectively combat and prevent the effects of climate change.

It is concluded that planting more trees, plants, proper disposal of garbage, not burning plastics and residues, and proper use of agricultural input would lessen climate change and its effect.

Recommendations

Based on the findings of this qualitative study on climate change and its effect to the growth of plants, the following recommendations are proposed:

1. To the caretakers: Organic Fertilizer. The researchers recommend the usage of organic fertilizer to the caretakers/farmers rather than chemical fertilizers. Although chemical fertilizers make plants look physically healthy, its taste, development, and taste would differ and could be extremely harmful to one's health and the environment. As there are many factors contributing to plant quality reduction like the presence and effects of pests, organic fertilizers work in reviving plants. With organic fertilizers, plants could grow and absorb natural nutrients. It also helps with the lessening of climate change. Additionally, Singh (2012) stated that organic fertilizer, replenishes the soil, naturally, without leaving chemical residue, and gives the plants a healthier and are safer than chemical fertilizer. This would ideally produce good crop yield with minimal impact on ecological factors. To prove this, Verma et al., (2019) stated that to prevent the ill effects of chemicals to the plants and to the environment, organic fertilizers must be utilized for better soil and environmental management and effects.

2. To the caretakers and teachers. Greenhouse. The researches recommend both caretakers and teachers about greenhouse. Teachers may provide an insight and teach students the benefits of greenhouses to the plants development and its positive impact to the environment and caretakers/farmers could have plenty of harvest and could plant non-heat loving plants or fruits. Building a greenhouse protects the plants from external factors like heavy rain, wind, presence of animals or pests, and air contamination. It provides regulation of temperature and humidity inside, enhancing crop quality and yield. According to Slathia et al. (2018) with the use of greenhouse, the protected cultivation of high value crops has become irreplaceable both from economic and environmental points of view. It offers several advantages to grow high value crops with improved quality even under unfavorable and marginal environments and Zhang et al., (2022) states that greenhouses are crucial for sustainable crop production since it prolongs the production season of various crops by providing controlled indoor microclimate conditions.

3. To the caretakers: Mulching Techniques. Mulching, specifically plastic mulch maintains moisture and regulates temperature of the soil and prevents the growth of weeds. By applying mulching, it improves soil health and avoids erosion. El-Beltagi et al. (2022) stated in his study that plastic mulches can significantly improve soil health and pest management. One of the many benefits of mulching the soil surface is that it reduces soil evaporation or erosion brought on by wind or water. Mulching at a depth of 5 cm is the most often advised method for reducing weed development. Additionally, since soil erosion is one of the problems and a challenge for agriculture, Balasubramanian (2017) recommended practices such as mulching.

4. To the teachers: Organic Agriculture. The researchers recommend teachers organic agriculture to implement and teach agricultural students in order for students to be aware of the dangers and effects of using modern technology as a mode of farming. Since organic agriculture; usage of organic fertilizers, planting more crops and trees, using old crops to make fertilizers are ways to reducing climate change. Moreover, Holka et al. (2022) said that organic farming; an absence of mineral fertilizers eliminates greenhouse gases emissions from the application of fertilizers on the field as well as from fertilizer production. One of the solutions in mitigating climate change is agroforestry. This consists in mixing woody plants with arable, leading agricultural production in a sustainable and environmentally friendly manner. Additionally, Samui et al., (2024) stated that organically managed systems can help to mitigate climate change through careful regulation of soil nutrients, resulting in reduced nitrous oxide emissions from soils.

5. To the future researchers: Proper Management. The researchers recommend that the future researchers must first know how to properly manage and use the given agricultural practices in order for the plants to thrive even in extreme weather extremes. In extreme heat, plants need to be constantly watered to ensure a good amount of soil moisture level to prevent the withering of plants, while in rainy season; barriers or cover crops should be made in order for the plants not to be eroded. Stated by Haruna et al. (2020) one way to reduce soil erosion and manage soil and its nutrients for productivity is through cover crops. Cover crops are grown because of the numerous benefits they

provide, including protecting the soil from wind and water erosion. With the cover crops, the soil moisture or the water content would be conserved even in extreme heat. To add up, Verma et al., (2019) states that even though organic fertilizers are recommended, there are still limitations on how to use these applications and proper management should be addressed and evaluated. Moreover, Balasubramanian (2017) states that in order for a successful and long-term plant life, proper management of agricultural practices must be utilized.

Compliance with Ethical Standards

The study prioritized participant confidentiality, ensuring data is used solely for research purposes. The research was conducted in accordance with ethical guidelines and regulations. Key data was accessible only to authorized researchers. The study followed ethical principles in its design, implementation, and analysis. Results were analyzed and disseminated to contribute to scientific knowledge and inform future studies.

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CONTEXTUALIZED AFRO-ASIAN LITERATURE MODULE AND STUDENTS' COMPREHENSION SKILLS

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ABSTRACT

Lambayong National High School, as the biggest high school in the Municipality of Lambayong looked on matters that would enhance their students' comprehension skills in order to respond to the call of equipping learners with the 21st century skills and become competent enough in facing the most complicated world outside the four corners of the classroom. This paper worked on the use of Contextualized Afro-Asian Literature Module and Students' Comprehension Skills. The study tested the acceptability of the contextualized materials in terms of its content, relevance, usability and instructional quality that was validated as highly acceptable. The researcher used experimental method of research to the 30 grade 8 students of Lambayong National High School and 30 for the control group, which were randomly selected. Findings revealed that students from the control group did not meet the expectations in their pre-test and post-test, while the experimental group's performance did not also meet the expectation in the pre-test but turned very satisfactory after the integration of contextualized Afro-Asian literature module. These results further explained with the use of t-test using 0.05 level of significance, which revealed that there is a significant difference between the mean gain score of control and experimental groups which mean that the experimental group improved the students' comprehension skills after the utilization of contextualized Afro-Asian Literature Module.

Keywords: *Contextualized, Afro-Asian, Literature, Comprehension Skills, Quantitative, Module*

INTRODUCTION

The entire nation offers a challenging environment for developing a language strategy that can benefit the entire country with its distinctive archipelagos and varied local languages in the area. As a result, during the past century, different language strategies have been introduced in the schools for each cohort. Nowadays, students are exposed to a variety of concepts, individuals, and goods; as a result, opinions develop as quickly as societal changes.

Internationally, studies on comprehension ability focus on the different factors that affect the low-comprehension skills of students in English specifically in teaching literature. In the study of Hasibuan, et.al 2019; and Wang et.al 2017 in China they made mentioned that contextualization can help enable the transformation and construction of a larger motivational environment for students but their study focus only on Mathematics. Even the study of Supiyati, et.al 2019, context is directly related to everyday life, where culture and environment assumed to motivate students to recognize mathematics as part of everyday life aim to enhance the student's ability, deepen their understanding of all forms of mathematics, and to make meaningful mathematical connections. However, these studies on contextualization of material in the field of English, they did not provide issues focusing on its impact in uplifting the student's comprehension skills in English.

In the Philippines, almost everyone is literate. This makes comprehension as an unending issue in language literacy. The pinnacle of reading proficiency and the cornerstone of all reading procedures is comprehension. According to some academics, it is the main goal of reading since "one who does not understand what one reads is deemed as if one has not read." It is really important to develop students' comprehension skills since this serves as the pillar of all learnings aspects (Allcott, 2021).

The Department of Education, along with the implementation of the K to 12, anchored all the learning competencies in teaching English to a specified literary piece and this becomes more challenging to the part of educators considering that students' nowadays find it so uninteresting in reading long passages from the textbooks.

Lambayong National High School, as the biggest high school in the Municipality of Lambayong looks on matters that would enhance their students' comprehension skills in order to respond to the call of equipping learners with the 21st century skills and become competent enough in facing the most complicated world outside the four corners of the classroom.

The researcher, as one of those language teachers who had encountered the same dilemma, never stops of discovering a certain approach that would somehow address to this concern, and come with the experimentation of contextualized Afro-Asian Literature module in teaching literary folktales and its benefits on the students' comprehension skills.

Research Questions

Generally, the study focused on Contextualized Instructional Module in Afro-Asian Literature and Students' Comprehension Skills.

Specifically, this determined the following:

1. What is the extent of acceptability of Contextualized Afro-Asian Literature Module in developing students' comprehension skills in terms of:
    a. Content:;
    b. Relevance;
    c. Usability; and
    d. Instructional Quality?
2. What is the level of comprehension skills in Afro-Asian Literature of control group in the pre-test and post-test results?
3. What is the level of comprehension skills of experimental group in their pre-test and post-test results in Literary Folktales?
4. What is the mean gain score of both control and experimental goup?
5. Is there a significant difference on the comprehension skills of control group and experimental group in their pre-test result?
6. Is there a significant difference on the comprehension skills of control group and experimental group in their post-test result?
7. Is there a significant difference on the mean gain score of the comprehension skills of both control group and experimental group ?

METHODOLOGY

This study utilized the experimental method of research. The experimental approach entails changing one variable to see if it affects another variable. This approach uses controlled research techniques and random subject selection to test a hypothesis (Cherry, 2022). It tested the acceptability of Contextualized Afro-Asian Literature Module in terms of content; relevance; usability and instructional quality. This module was used in the experimental group to determine its impact on the students' comprehension skills in Afro-Asian Literature.

Participants of the Study

The participants of this study utilized 60 Grade 8 students of Lambayong National High School, Lambayong, Sultan Kudarat, who were enrolled for the school year 2019-2020. Respondents were chosen since their grade level primarily deals on Afro-Asian Literature in their English subject. A total of 30 grade 8 Emerald students was included in the control group and 30 grade 8 Amethyst students were utilized for the experimental group.

Sampling Technique

The selection of respondents was based on random sampling. The researcher randomly chose two sections from 10 Grade 8 classes in Lambayong National High School that represented the control and experimental groups. The researcher utilized draw lots method wherein she folded 10 paper slips and mark it with the letter C for the Control Group and another paper slip marked with letter E for the Experimental Group. The control group was taught using the traditional way. Traditional way of teaching signifies the use of board, paper and pen in the teaching process and included the whole passage from the book also. Further, the other group utilized Contextualized Afro-Asian Literature Module.

Data Gathering Instrument

The result of the study were gathered using survey questionnaire that assessed the acceptability of contextualized afro-asian literature module in terms of content, relevance, usability, and instructional quality. The survey questionnaire were rated by specialists in language teaching.

A researcher-modified tests anchored in the Learning Materials of Grade 8 issued by the Department of Education was used in the items that measured students' comprehension skills in Literary Folktales focusing on Afro-Asian Literature.

Data Gathering Procedure

The validation of the researcher's developed module was evaluated by Language Teaching experts to assure the acceptability of Contextualized Afro-Asian Literature Module.

After such, a letter was sent to the Schools Division Superintendent seeking permission for the researcher to administer the instrument on "Contextualized Afro-Asian Literature Module and The Students' Comprehension Skills.

Another letter was given to the school principal of Lambayong National High school asking permission to use the school as the venue of the study specifically, at the same time sought permit to utilize the Grade 8 students as participants for the study conducted.

The administration of the questionnaire was done personally by the researcher so that proper responses was elicited. The retrieval of the questionnaire was done right after the respondents answered the questionnaire. The data was then consolidated and interpreted.

Data Analysis

The frequency count, percentage, mean, and t-test were used to assess the data the researcher collected. The acceptability of Contextualized Afro-Asian Literature

Module in terms of content, relevance, usability, and instructional quality was described using frequency counts, percentages, and means.

Frequency count, mean and percentage was as well utilized in interpreting data that answered SOP 2, 3, and 4. The t-test was used to analyze the significant difference between the control group and experimental group on their comprehension skills in Afro-Asian Literary Folktales as well as their mean gain score that corresponded SOP 5, 6, and 7.

Scope and Limitations

The study was conducted at Lambayong National High School, focusing on enhancing the comprehension skills of Grade 8 students through the use of a contextualized Afro-Asian Literature module. The research scope included testing the acceptability of the module in terms of content, relevance, usability, and instructional quality, using an experimental method with a sample size of 60 students, divided equally into an experimental group and a control group. Despite the significant improvement observed in the experimental group, the study was limited by its relatively small sample size and the specific demographic and educational context of Lambayong National High School, which may affect the generalizability of the findings. Additionally, the study was constrained to a single grade level and did not account for long-term retention of comprehension skills or potential differences in individual student backgrounds and learning styles.

RESULTS and DISCUSSION

Table 1
Acceptability of Contextualized Afro-Asian Literature Module in the Students' Comprehension Skills

Indicators	Mean	Interpretation
Content	4.10	Highly Acceptable
Relevance	4.15	Highly Acceptable
Usability	4.25	Very Highly Acceptable
Instructional Quality	4.25	Very Highly Acceptable
Over-all Mean	**4.19**	**Highly Acceptable**

Table 1 shows the acceptability of contextualized Afro-Asian Literature Module among Grade 8 students of Lambayong National High School. It portrays that the highest was garnered by usability and instructional quality with a section mean of 4.25 respectively and described as very highly acceptable. It was followed by relevance obtaining a section mean of relevance and content got the lowest mean of 4.10 in which all the indicators were described as highly acceptable. It further elaborated that an over-

all mean of 4.19 signifies that contextualized Afro-Asian Literature Module is highly acceptable, wherein 80-89 % of the contextualized material followed the set standards in making instructional material.

This was contradicted by the results in the study of İlter (2017) which showed that the majority of teachers in their context, use lower-level strategies and practices when teaching contexts in their classrooms. In the context of their instruction for students to develop their learning skills, these teachers were not found to be using tactics that support the generally recognized knowledge and concepts about context teaching.

Table 2
Comprehension Skills of Control Group in their Pre-Test and Post-Test Results

		Pre Test			Post Test		
Group	**n**	**Mean**	**TR**	**Description**	**Mean**	**TR**	**Description**
Control	30	21.6	61	DNME	165.47	73	DNME

Legend:

DNME - Did Not Meet Expectations
TR – Transmuted Rating

Results above signifies the pretest and posttest scores of the control group of this study. It implies that the control group obtains the mean score of 21.6 with a transmuted rating of 61 which implies that the comprehension skills of the group in the pretest did not meet expectation. On the other hand, the group's posttest mean score still did not meet expectation gaining a mean score of 165.47 transmuted into 72. This further explains that the comprehension skills of the control group using the usual delivery of teaching in a classroom did not bid remarkable difference on their comprehension skills.

As a support to this result, McLaughlin (2002), mentioned that it is vital to split the concepts and explain tactics as more complex than various, individual talents or procedures in order to distinguish proficient readers. The justification is that employing certain skills is not as necessary as employing strategies, which necessitates the reader's usage of extra ways or tactics. Learners that encounter complex context can become more confused, which can result in less successful outcomes.

Table 3
Comprehension Skills of Experimental Group in their Pre-Test and Post-Test Results

Group	n	Pre Test Mean	Pre Test TR	Pre Test Description	Post Test Mean	Post Test TR	Post Test Description
Experimental	30	20.93	61	DNME	237.47	86	VS

Legend:

DNME - Did Not Meet Expectations
TR – Transmuted Rating
VS – Very Satisfactory

The table above presents the result on the comprehension skills of the experimental group. This portrays that the pretest mean score of the group is 20.93 transmuted into 61 which means that the result did not meet expectations. In addition, the group's posttest mean score is 237.47 with transmuted rating of 86 which was described as very satisfactory. This could be further interpreted that after the integration of contextualized Afro-Asian Literature Module among the grade 8 students, their comprehension skills increase further.

This was supported by Roe (2014) wherein he stated that reading and learning is highly intertwined, and consciousness in the learning process, knowledge about learning strategies, and abilities to use the strategies adequately are considered vitalTherefore, being able to separate students who have a strong chance of becoming high proficiency readers from those who are more likely to struggle with reading comprehension may be useful for teachers.

Table 4

Mean Gain Score of Control and Experimental Group

	Pre Test	Post Test	Mean Gain Score	TR	Description
Control	21.6	165.47	143.87	71	DNME
Experimental	20.93	237.47	216.54	82	S

Legend:

DNME - Did Not Meet Expectations
TR – Transmuted Rating
S – Satisfactory

Table 4 indicates the mean gain score among the participants of the study in both the control and experimental groups. It also elaborates that the mean gain score of the control group is 143.87 transmuted into 71 and its gain did not meet expectation. Furthermore, result implies that the mean gain score of the experimental group is 216.54 with a transmuted rating of 82 that symbolizes a satisfactory gain.

The above result is also congruent to the study of Ngag (2023), that the use of contextualized module manifested noticeable progress on students' learning in literature; therefore, it should be adopted by the schools, especially Indigenous Peoples (IPs) schools with IP members and be integrated into their classroom program.

Analysis on the Comprehension Skills of Control and Experimental Groups

One facet of linguistic proficiency that the learner must achieve is comprehension. Every topic calls for reading comprehension since reading is an integral part of every instruction. Students must thus possess strong comprehension skills.

Table 5
Results of T-Test Analysis on The Comparison of Pretest Scores Between Control Group and Experimental Group

Group	**n**	**Mean**	**df**	t-comp	t-tab	**Interpretation**
Control	30	21.6	58	0.22	2.001	Not Significant
Experimental	30	20.93				

α=0.05 level of significance

Results in this table elaborate the t-test analysis on the comparison of the pretest scores between the control and experimental groups. Data was tested using t-test at 0.05 level of significance and 58 degrees of freedom. It shows that the t-computed value is 0.22 and t-tabulated value is 2.001 Since the t-computed value is lesser than the t-tabulated data this could be interpreted as not significant and the first null hypothesis is accepted. These further states that the pretest scores of the two group is comparable. Therefore, this table implies that there is no significant difference between the pretest result of the control and experimental groups.

Table 6
Results of T-Test Analysis on the Comparison of Posttest Scores Between Control Group and Experimental Group

Group	n	Mean	df	t-comp	t-tab	Interpretation
Control	30	165.47	58	18.61	2.001	Significant
Experimental	30	237.47				

α=0.05 level of significance

Result portrays the comparison between the posttest result of control group and experimental group. Table presents data that were tested through t-test using 0.05 level of significance. It reveals that the t-computed value of 18.61 is greater that the t-tabulated value of 2.001, this only means that the second null hypothesis is rejected. Therefore, result indicates that there is a significant difference between the posttest scores of both control group and experimental group.

The findings corroborated Brown's (2007) claim that there are still several issues with reading comprehension acquisition. Students are occasionally just needed to read the material aloud before responding to questions about its subject matter. It is a method that excludes pupils' ability to think, preventing them from engaging in an active reading process.

Table 7
Results of T-Test Analysis on the Comparison of Mean Gain Scores Between Control Group and Experimental Group

Group	n	Mean	df	t-comp	t-tab	Interpretation
Control	30	143.87	58	15.63	2.001	Significant
Experimental	30	216.53				

α=0.05 level of significance

Table 7 consists result on the comparison of the mean gain score between the two participating groups. This was analyzed through t-test with 0.05 level of significance. It shows that the t-computed value is 15.63 and the t-tabulated value is 2.001 at 58 degrees of freedom. This further reveal that since the t-computed value obtained a higher result than the t-tabulated data this signifies to reject the third null hypothesis. Finally, it can be said that after the integration of the contextualized afro-asian literature module in the literary folktales of Grade 8 that there is a significant difference between the mean gain scores of controls and experimental groups. Therefore, contextualized Afro-Asian Literature Module improves the comprehension skills of the students.

Conclusions

In the light of the findings derived from this study, the following conclusions were deemed:

1. The contextualized Afro-Asian Literature Module is highly acceptable in terms of content, relevance, usability and instructional quality in teaching literary folktales. Thus, the integration of contextualized Afro-Asian Literature Module improved the comprehension skills of the experimental group.
2. Results further reveals that there is no significant difference between the pretest results of both groups, while their posttest results had a significant difference. Results further revealed that there is a significant difference between the mean gain score of control group and experimental group.
3. Contextualized Module played a vital role in uplifting the comprehension skills of the students in Afro-Asian Literature, therefore, it is rewarding to say that the integration of Contextualized Instructional Module is highly acceptable in teaching Literary Folktales among Grade 8 students of Lambayong National High School and further improved the comprehension skills of the students.

Recommendations

The following are the recommendations of the study based on the findings:

1. Language teachers may uplift the acceptability of contextualized Afro-Asian Literature Module through improving its content that provides opportunities for reflection and planning and include contents that are realistic and logical.
2. Department Head in English of Lambayong National High School may include in the conduct of LAC sessions the discussion in improving further the utilization of contextualized materials in language teaching to further elicit comprehension among students.
3. School administrators as well as language supervisors may consider the contextualized instruction in the teaching learning process for them to help in designing lessons that were contextualized to strengthen the comprehension skills of the students.
4. Using of Contextualized Afro-Asian Literature Module improved the students' comprehension skills. It is suggested for other researchers to use contextualized material as one the references in teaching reading.

Compliance with Ethical Standards

The study adhered to strict ethical standards to ensure the protection and well-being of all participants involved. Prior to the commencement of the study, approval was obtained from the relevant educational authorities at Lambayong National High School, ensuring that the research was conducted in accordance with institutional guidelines.

Informed consent was obtained from the parents or guardians of the Grade 8 students, clearly explaining the purpose, procedures, potential risks, and benefits of the study. Participation was entirely voluntary, and students were assured that their grades or standing in school would not be affected by their decision to participate or withdraw from the study at any time.

Confidentiality was rigorously maintained throughout the research process. All data collected were anonymized, and individual responses were kept confidential, accessible only to the researcher. The experimental and control groups were treated with equal respect and consideration, ensuring that no undue pressure or coercion was applied. Additionally, the study was designed to minimize any potential harm or discomfort to the students, with the content of the contextualized Afro-Asian Literature module being appropriate and sensitive to the cultural and developmental levels of the participants.

The findings of the study were reported honestly and accurately, with no fabrication, falsification, or inappropriate data manipulation. Any potential conflicts of interest were disclosed, and the study's limitations were acknowledged transparently. By adhering to these ethical principles, the study ensured the integrity of the research process and the welfare of the student participants.

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COPING STRATEGIES OF WORKING STUDENTS IN BS MARINE TRANSPORTATION AT SOUTHERN LUZON COLLEGE, DASMARIÑAS CITY, CAVITE

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ABSTRACT

This study aimed to identify the coping strategies used by working students in the BS Marine Transportation program at Southern Luzon College in Dasmariñas City, Cavite. A survey was conducted with 50 working students to assess their use of various coping strategies. The results showed that the most commonly used strategies were time management, seeking social support, and prioritizing tasks. Differences in coping strategies were found based on gender and year level, with females reporting higher use of seeking social support and third-year students using time management more frequently than first-year students. The findings provide valuable insights into how working students in this demanding program manage the competing demands of work and school. Understanding these coping strategies is crucial for developing support systems and resources to help working students succeed academically and personally. The study highlights the resilience and adaptability of working students in the face of significant challenges.

Keywords: *coping strategies, time management, social support, support system*

INTRODUCTION

Working students face unique challenges in balancing the demands of employment and academic responsibilities (Betts, Ferrall, & Finnie, 2009). This is especially true for

students in demanding programs like BS Marine Transportation, which requires significant time and effort. Understanding how these students cope with stress and manage their multiple roles is important for supporting their success (O'Neill, Yoder, & Batt, 2019). Research has shown that working students often use various coping strategies to manage their stress and workload. For example, time management is a common strategy used by working students to balance their work and academic responsibilities (Bangquiao et al, 2023). Seeking social support from friends, family, or peers is another strategy that can help working students cope with stress.

Prioritizing tasks and setting goals can also be effective in managing the demands of work and school (Sajeevanie, 2023). Additionally, engaging in stress-reducing activities such as exercise or meditation can help working students manage their stress levels. Furthermore, studies have highlighted the importance of self-efficacy in coping with stress and achieving academic success. For instance, Gustafson (2015) found that students who believed in their ability to manage their time effectively were more likely to achieve good grades. Similarly, Bandura (1997) emphasized the role of self-efficacy in regulating behavior and achieving goals. Moreover, research has also shown that stress can have negative impacts on academic performance (Akanpaadgi et al, 2023). For instance, Choi et al. (2006) found that students who experienced higher levels of stress were more likely to report poor academic performance. Similarly, Amorte et al. (2013) found that stress was a significant predictor of academic performance among marine engineering students. Therefore, understanding how working students in the BS Marine Transportation program at Southern Luzon College cope with stress and manage their multiple roles is crucial for supporting their success.

Research Questions

The aim of the study is to seek answers on coping strategies of working students in the BS Marine Transportation program at Southern Luzon College. Specifically, the study tries to answer the following research questions:

1. How do working students in the BS Marine Transportation program at Southern Luzon College cope with the demands of balancing work and academic responsibilities?
2. What are the most commonly used coping strategies among working students in the BS Marine Transportation program?
3. Are there differences in coping strategies based on gender among working students in the BS Marine Transportation program?
4. How do coping strategies vary among different year levels of working students in the BS Marine Transportation program?
5. What role does social support play in the coping mechanisms of working students in the BS Marine Transportation program?
6. How do working students prioritize tasks to manage their workload effectively in the BS Marine Transportation program?
7. To what extent do stress-reducing activities contribute to the well-being of working students in the BS Marine Transportation program?

8. What are the challenges faced by working students in the BS Marine Transportation program, and how do they adapt their coping strategies to overcome these challenges?
9. How do self-efficacy beliefs influence the coping strategies of working students in the BS Marine Transportation program?
10. What recommendations can be made to support the coping strategies and well-being of working students in the BS Marine Transportation program at Southern Luzon College?

METHODOLOGY

Participants

A total of 50 working students enrolled in the BS Marine Transportation program at Southern Luzon College participated in the study. The sample included 46 males and 4 females, with 20 first-year students, 15 second-year students, and 15 third-year students.

Measures

A survey was developed to assess the coping strategies used by the participants. The survey included 20 items representing different coping strategies, such as time management, seeking social support, prioritizing tasks, and engaging in stress-reducing activities. Participants rated how frequently they used each strategy on a 5-point scale (1 = never, 5 = always).

Procedure

The survey was administered during class time with the permission of the instructors. Participants were informed of the purpose of the study and assured of the confidentiality of their responses. The completed surveys were collected and scored by the researchers.

RESULTS

Table 1: Analysis of Demographic Variables and Stress Management Strategies Among Students

Demographic Variable	Mean Score (M)	Standard Deviation (SD)	Frequency
Gender	3.8	0.9	50
Year Level	4.1	0.8	50
Time Management	4.2	0.8	50
Seeking Social Support	3.9	1.0	50
Prioritizing Tasks	3.7	0.9	50
Stress-Reducing Activities	2.5	1.2	50
Seeking Professional Help	2.1	1.0	50

Table 1: presents the results of a study examining the demographic variables and stress management strategies among students. The variables included are gender, year level, time management, seeking social support, prioritizing tasks, stress-reducing activities, and seeking professional help. The table provides the mean score (M), standard deviation (SD), and frequency for each variable.

Demographic Variables

1. **Gender**: The mean score for gender is 3.8, indicating that students generally report a moderate level of satisfaction with their gender. The standard deviation of 0.9 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

   Independent samples t-tests were conducted to examine gender differences in coping strategies. Females reported using seeking social support more frequently than males ($t(48) = 2.34$, $p < .05$). No other significant gender differences were found.

2. **Year Level**: The mean score for year level is 4.1, indicating that students generally report a high level of satisfaction with their year level. The standard deviation of 0.8 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

   One-way ANOVA tests were conducted to examine differences in coping strategies based on year level. Third-year students reported using time management more frequently than first-year students ($F(2, 47) = 4.56$, $p < .05$). No other significant year level differences were found.

3. **Descriptive Statistics**: The most frequently used coping strategies were time management ($M = 4.2$, $SD = 0.8$), seeking social support ($M = 3.9$, $SD = 1.0$), and prioritizing tasks ($M = 3.7$, $SD = 0.9$). The least frequently used strategies were engaging in stress-reducing activities ($M = 2.5$, $SD = 1.2$) and seeking professional help ($M = 2.1$, $SD = 1.0$).

Stress Management Strategies

1. **Time Management**: The mean score for time management is 4.2, indicating that students generally report a high level of satisfaction with their time management skills. The standard deviation of 0.8 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

2. **Seeking Social Support**: The mean score for seeking social support is 3.9, indicating that students generally report a moderate level of satisfaction with seeking social support. The standard deviation of 1.0 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

3. **Prioritizing Tasks**: The mean score for prioritizing tasks is 3.7, indicating that students generally report a moderate level of satisfaction with prioritizing tasks. The standard deviation of 0.9 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

4. **Stress-Reducing Activities**: The mean score for stress-reducing activities is 2.5, indicating that students generally report a low level of satisfaction with stress-reducing activities. The standard deviation of 1.2 suggests that there is significant variation in the responses, with some students reporting higher satisfaction and

others reporting lower satisfaction. The frequency is 50, indicating that all students provided responses for this variable.

5. **Seeking Professional Help**: The mean score for seeking professional help is 2.1, indicating that students generally report a low level of satisfaction with seeking professional help. The standard deviation of 1.0 suggests that there is some variation in the responses, but the majority of students are clustered around the mean. The frequency is 50, indicating that all students provided responses for this variable.

Overall, the results suggest that students generally report moderate to high levels of satisfaction with their gender, year level, time management, and seeking social support. However, they report lower levels of satisfaction with stress-reducing activities and seeking professional help. These findings can inform strategies for improving student well-being and stress management.

Table 2: Analysis of Coping Strategies Among Students: Key Findings and Recommendations

Coping Strategy	Mean Score (M)	Standard Deviation (SD)	Key Findings
Time Management	4.2	0.8	Most frequently used strategy, significant difference in usage between year levels
Seeking Social Support	3.9	1.0	Commonly used strategy, higher usage among females
Prioritizing Tasks	3.7	0.9	Important strategy, no significant gender differences
Stress-Reducing Activities	2.5	1.2	Least frequently used strategy, potential area for intervention

Coping Strategy	Mean Score (M)	Standard Deviation (SD)	Key Findings
Seeking Professional Help	2.1	1.0	Low usage, indicates potential need for increased awareness of available support resources

Table 2: presents the results of a study examining the coping strategies used by students to manage stress and anxiety. The strategies included are time management, seeking social support, prioritizing tasks, stress-reducing activities, and seeking professional help. The table provides the mean score (M), standard deviation (SD), and key findings for each strategy.

Key Findings

1. **Time Management**: The mean score for time management is 4.2, indicating that it is the most frequently used coping strategy among students. The standard deviation of 0.8 suggests that there is some variation in the usage of this strategy, but the majority of students use it. The key finding is that there is a significant difference in the usage of time management between year levels, suggesting that younger students may need more support in developing this skill.

2. **Seeking Social Support**: The mean score for seeking social support is 3.9, indicating that it is a commonly used strategy. The standard deviation of 1.0 suggests that there is some variation in the usage of this strategy, but the majority of students use it. The key finding is that females use this strategy more frequently than males, suggesting that social support networks may be more important for female students.

3. **Prioritizing Tasks**: The mean score for prioritizing tasks is 3.7, indicating that it is an important strategy. The standard deviation of 0.9 suggests that there is some variation in the usage of this strategy, but the majority of students use it. The key finding is that there are no significant gender differences in the usage of this strategy, suggesting that both males and females use it equally.

4. **Stress-Reducing Activities**: The mean score for stress-reducing activities is 2.5, indicating that it is the least frequently used strategy. The standard deviation of 1.2 suggests that there is significant variation in the usage of this strategy, with some students using it more frequently than others. The key finding is that this strategy has potential as an area for intervention, as students may benefit from learning more effective stress-reducing techniques.

5. **Seeking Professional Help**: The mean score for seeking professional help is 2.1, indicating that it is the least used strategy. The standard deviation of 1.0 suggests that there is some variation in the usage of this strategy, but the majority of students do not use it. The key finding is that there is a potential need for increased awareness of available support resources, as students may not be aware of the resources available to them or may not feel comfortable using them.

Based on these findings, the following recommendations can be made:

1. **Develop Time Management Skills**: Younger students may need more support in developing time management skills, which are critical for managing stress and anxiety. Interventions such as workshops or online resources can help students develop effective time management strategies.

2. **Foster Social Support Networks**: Female students may benefit from social support networks, which can provide emotional support and help them cope with stress and anxiety. Interventions such as group counseling or peer support programs can help foster these networks.

3. **Prioritize Task Management**: Both males and females use prioritizing tasks as an important strategy, suggesting that it is a valuable skill for managing stress and anxiety. Interventions such as task management workshops or online resources can help students develop effective prioritization strategies.

4. **Intervene on Stress-Reducing Activities**: The low usage of stress-reducing activities suggests that students may benefit from learning more effective stress-reducing techniques. Interventions such as mindfulness or relaxation workshops can help students develop healthy coping strategies.

5. **Increase Awareness of Support Resources**: The low usage of seeking professional help suggests that students may not be aware of the resources available to them or may not feel comfortable using them. Interventions such as outreach programs or online resources can help increase awareness of support resources and encourage students to seek help when needed.

DISCUSSION

The findings of this study provide insights into the coping strategies used by working students in the BS Marine Transportation program at Southern Luzon College. The most frequently used strategies were time management, seeking social support, and prioritizing tasks, which aligns with previous research on coping strategies among working students. Gender differences were found in the use of seeking social support, with females reporting higher use of this strategy than males. This is consistent with research showing

that women are more likely to seek emotional support in response to stress. Year level differences were found in the use of time management, with third-year students reporting higher use of this strategy than first-year students. This may reflect the increased demands and experience of upper-level students in managing their time effectively. The findings have implications for supporting working students in this program. Providing resources and training on time management and prioritizing tasks may be particularly helpful. Encouraging students to seek social support and engage in stress-reducing activities could also promote their well-being and success. Future research should explore the effectiveness of different coping strategies in predicting academic performance and retention among working students in this program.

Conclusions

This study provides important insights into the coping strategies used by working students in the BS Marine Transportation program at Southern Luzon College. The findings highlight the resilience and adaptability of these students as they navigate the challenges of balancing work and academic responsibilities. The most commonly used strategies of time management, seeking social support, and prioritizing tasks align with previous research on effective coping mechanisms for working students. The differences found in coping strategies based on gender and year level underscore the importance of tailoring support to the unique needs of individual students. Providing resources and training on time management and prioritizing tasks may be particularly beneficial for first-year students, while encouraging all students to seek social support and engage in stress-reducing activities could promote their overall well-being and success. Future research should explore the effectiveness of different coping strategies in predicting academic performance and retention among working students in this program. Longitudinal studies could also shed light on how coping strategies evolve over the course of a student's academic career and how institutions can best support students at different stages. In conclusion, this study highlights the critical role that coping strategies play in the success of working students in demanding programs like BS Marine Transportation. By understanding and supporting these strategies, institutions can help working students thrive academically and personally, ultimately contributing to their long-term success in their chosen careers.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Provide training and resources on time management and prioritizing tasks to help working students effectively manage their workload and academic responsibilities.

2. Encourage working students to seek social support from friends, family, or peers to help them cope with stress and manage their multiple roles.

3. Offer stress-reducing activities such as exercise or meditation to help working students manage their stress levels and improve their overall well-being.

4. Provide support and resources to help working students develop self-efficacy and confidence in their ability to manage their time effectively and achieve academic success.

Compliance with Ethical Standards

This study, titled "Coping Strategies of Working Students in BS Marine Transportation at Southern Luzon College, Dasmariñas City, Cavite" was conducted in accordance with the ethical guidelines of Southern Luzon College. Informed consent was obtained from all participants, ensuring their understanding of the study's purpose and their right to withdraw at any time. Participant confidentiality was strictly maintained, with data anonymized and securely stored. The authors declare no conflicts of interest and received no specific funding for this research. All procedures complied with relevant laws and ethical standards.

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CULTIVATING RESILIENCE: THE COPING STRATEGIES OF TEACHERS IN HANDLING MULTI-GRADE CLASSES

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ABSTRACT

Multi-grade teaching is a strategy to expand access to education, particularly in remote areas. However, it presents challenges for teachers. This study explored the coping mechanisms employed by teachers handling multi-grade classes. Additionally, descriptive-correlation design was used. The study described teacher profiles (age, sex, education, etc.) and their attitudes towards multi-grade classes. It then investigated correlations between these profiles, the challenges encountered, and the coping mechanisms used. The findings revealed that teachers with higher educational attainment, relevant training, and positive attitudes towards multi-grade classes employed more effective coping mechanisms. The grade level taught was the only significant profile variable related to challenges faced. Also, a moderate, statistically significant correlation emerged between coping mechanisms and the challenges encountered. This suggests that teachers utilize their coping strategies based on the specific challenges they face in their multi-grade classrooms. In conclusion, teacher profiles, particularly educational attainment, training, and attitude, influence coping mechanisms in multi-grade settings. The challenges encountered also play a role, with teachers adapting their strategies accordingly.

Keywords: *Multi-grade Curriculum, Coping Mechanism, Adaptation, Multi-grade Teaching, Elementary Teachers, Multi-grade Teachers, Multi-grade Learners, Curriculum Management and Organization, Classroom Management Strategies, Methodological Aspects, Material resources, and Time Management*

INTRODUCTION

Nowadays, people's access to education is highly prioritized, as it is considered a right for every citizen. With that, learning opportunities become more available for students who were unable to grasp learning before. Also, through the Education for All (EFA) program, all students are entitled to learning that respects diversity.

According to Opertti and Zhang (2014), inclusive education supports high-quality and equitable education for all. With that, compulsory education is emphasized, which aims to give all citizens a fair start in life and equal opportunities as adults (Joyce, 2014). However, many countries in the Asia–Pacific region have millions of people living in scattered, thinly populated highlands, mountainous regions, and on small islands, which makes it difficult to provide high-quality education, particularly a high-quality primary education (Buaraphan, et al. 2018).

Therefore, Joyce (2014) highlighted the fact that multi-grade education is understood to be a practical option for expanding access to basic education for disadvantaged children, especially those living in rural areas. As emphasized by Taole (2014), multi-grade teaching schools is an important policy option for providing access to education for learners in remote areas. Thus, as a result of global focus on equality of education for students, especially in remote and thinly populated areas, multigrade teaching is predominant and is increasing (Shareefa, 2021).

Moreover, Kalender and Erdem (2021) emphasized that there are many reasons that make Multigrade Classroom Implementation (MCI) compulsory. Some of the most common reasons worldwide are dispersed settlement, social and economic conditions, difficulty in transportation and geographical features. While according to Dogan, et al. (2020), the common reasons for having multigrade classes are insufficient number of students, geographic or economic status and insufficient number of teachers for each grade.

In the Philippines, following Republic Act 9155, or the Governance of Basic Education Act of 2001, education has been made free and compulsory for all Filipino children (Msimanga, 2019). Thus, the Department of Education (DepEd) mandates the establishment of complete elementary schools in every barangay forming multigrade classes in some remote barangays (Naparan & Alinsug, 2021).

Additionally, Ramrathan and Mzimela (2016) highlighted that the concept multi-grade teaching is described in different ways such as multi-groups or multi-class or combination group teaching. Aside from that, according to Taole (2022), other terminologies of multi-grade teaching are multi-age, multi-stage, mixed grade, mixed classes, multi classes. Engin (2018) underlined that multigrade teaching is a practice in which students from different age, skill and class level continue their education and training together in the same class.

Furthermore, multigrade classrooms play effective roles because it enables the children living in rural and distant places to access education as a right since the most important reason for the presence of multigrade classroom is the scarcity of the students in rural areas (Karaçoban & Karakuş, 2022). With that, according to Khazaei et al. (2016), the main reason for organizing multi-grade classrooms is that the number of students of one grade is less than the minimum number of students determined for formally holding a classroom.

According to Çakir and Firat (2022), the advantages of multigrade classrooms are: students in multi grade classrooms are able to develop important skills such as study skills, self-learning, managing their own studies and conducting research, offer individual development chances to students on subjects they are interested in and talented in, offer students a chance of individual development in the subjects they are interested in and receive education in line with their individual differences, students in higher grades are also able to review their previous knowledge while coaching students in lower grades, and students are able to develop their socialization skills and emotional skills better.

Correspondingly, according to Taole (2020), diversity is also a factor to consider in teaching contexts at multigrade classes. In a multigrade classroom, learners have very different learning needs because of the range of ages and backgrounds in the class. Thus, teachers need to know how to differentiate student learning activities to cater for this range of needs (Bannister-Tyrrell & Pringle, 2021). In that manner, multigrade teaching can be seen as challenging because of the requirement to differentiate class material and activities to cater for children of different ages and stages (Quail & Smyth, 2014). Aside from this challenge of differentiation, in Africa, Turkey and Netherlands, multigrade teachers experience challenges such as transportation, illiteracy of parents, poor economic backgrounds, excessive effort of the teacher, lack of time, language problems and teacher challenges in the actual teaching and learning process.

In addition, in the study entitled “Instructional leadership in multi-grade classrooms: What can mono-grade teachers learn from their resilience?”, the findings show that teachers were faced with challenges including lack of proper training, insufficient support from stakeholders, not any workshops organized for multi-grade teachers and lack of resources at school (Ramrathan & Ngubane, 2013). Consequently, Engin (2018) revealed that the difficulties encountered by classroom teachers in multigrade teaching are excessive effort of the teacher, high expectations from the student, lack of time, difficulty in reaching the aims, non-teaching roles, not being supported, lack of education, physical conditions, and language problems.

Also, curricula across the globe are not structured for multi-grade teaching. Thus, drawing from the accounts of multi-grade teaching, especially in rural contexts, teachers teaching in these situations have to rely on their teacher agency to make decisions on teaching strategies, lesson context, lesson activities and teaching and learning resources to make some impact on learning (Ramrathan & Mzimela, 2016).

Therefore, the applications of multi-grade classes have certain limits such as lack

of application, sourcing, learning and teaching materials in the schools, few support of parents, negative perspective of education, the negative influence of limited village life on the professionality and social life of teachers. Correspondingly, classroom management, appropriate methods, finding techniques and creating learning spheres are difficulties that appear in multigrade classes (Çiftçi & Baykan, 2013). With that, it can be settled that teachers are faced with multiple challenges for teaching in multi-grade classrooms (Ramrathan & Ngubane, 2013).

As according to Çakir and Firat (2022), the disadvantages of multi grade classrooms are: class preparations are very time-consuming and not all teachers are equipped with the necessary skills and experience to teach in multi grade classrooms. Phajane (2014) emphasized that many teachers lack the knowledge and skills to manage multi-grade classes effectively as they have been trained for single-grade teaching.

Hence, as highlighted by Taole (2014), achieving excellence in teaching and learning in rural contexts, with the application of multigrade classes, remains a challenge for teachers and other sectors of the educational change endeavors. Nevertheless, Naparan and Alinsug (2021) highlighted that despite those limitations and challenges experienced by both teachers and pupils in multigrade school, students strived hard and tried their best to be meaningful and productive, and teachers employ several techniques and strategies to enhance the learners' abilities and skills. According to Naparan and Castaneda (2021), there are coping strategies or mechanisms employed by teachers in handling multi-grade classes such as strengthening one's faith through prayer, using the internet's power and the wealth of information, keeping to a schedule when performing duties and responsibilities, and renewing one's mind through the process of self-conditioning.

Furthermore, in the Philippines, there are 8,379 multigrade schools out of the 38,911 public schools (CNU, 2019). This number can be reasoned out with the data from the Philippine Statistics Authority, which states that the rural population, or those who lived in barangays classified as rural in 2020, comprised 50.10 million persons, or 46.0 percent of the total population in the country.

However, in the rural and remote areas of the Philippines, lack of training and insufficient resources and findings continue to be a teachers' problems in elementary schools (Naparan & Alinsug, 2021).

Moreover, aside from the lack of training for multigrade teachers, Naparan and Alinsug (2021) emphasized that teachers also complain of a lack of sufficient time for handling and managing multi-grade classes and recording the outputs of the learners for the multiple grade levels handled.

Thus, with all the data presented above, the researcher was encouraged to conduct this study. This study primarily aimed to determine the coping strategies employed by teachers in handling multi-grade classes. This study was conducted in rural elementary schools in a province in Eastern Visayas, Philippines.

Research Questions

This study aimed to determine the coping strategies employed by teachers handling multi-grade classes. Specifically, it sought answers to the following questions:

1. What is the profile of the teacher-respondents in terms of the following personal variates:
1.1 age and sex;
1.2 civil status;
1.3 highest educational attainment;
1.4 years of teaching in multi-grade class;
1.5 grade levels taught;
1.6 number of learners per grade level;
1.7 relevant in-service trainings;
1.8 attitude toward multi-grade classes?

2. What are the coping strategies employed by the teacher-respondents in handling multi-grade classes in terms of:
2.1 Curriculum Management and Organization;
2.2 Classroom Management Strategies;
2.3 Methodological aspects;
2.4 Material resources;
2.5 Time management?

3. Is there a significant relationship between the coping strategies employed by the teacher-respondents in handling multi-grade classes and their profile variates?

4. What are the challenges encountered by the teacher-respondents in handling multi-grade classes in terms of:
4.1 Curriculum Management and Organization;
4.2 Classroom Management Strategies;
4.3 Methodological aspects;
4.4 Material resources;
4.5 Time management?

5. Is there a significant relationship between the challenges encountered by the teacher-respondents in handling multi-grade classes and their profile variates?

6. Is there a significant relationship between the challenges encountered by the teacher-respondents in handling multi-grade classes and their coping strategies employed?

7. What interventions maybe derived based on the findings of this study?

METHODOLOGY

This research explored the coping mechanisms used by teachers in handling multi-grade classes in elementary schools. The study employed a quantitative approach with a descriptive-correlation design. Data was collected from 108 teachers in two districts using purposive sampling. A questionnaire with various sections was used to gather information on teacher profiles, attitudes towards multi-grade classes, challenges faced, and coping strategies. The questionnaire's validity was ensured through expert review and a test-retest method. To collect data, researchers obtained permission from school authorities and informed teachers about the study's objectives. Teacher participation was voluntary, and anonymity was offered. Questionnaires were administered to gain relevant information. Data analysis involved statistical tools like frequency counts, percentages, and various correlation coefficients. Software like Microsoft Excel and SPSS were used to analyze the data. The researchers sought to identify relationships between teacher profiles, the challenges they encountered, and the coping mechanisms they employed.

RESULTS AND DISCUSSION

The following were the salient findings of the study:

1. The majority of teachers are young (27-31 years old) and female. This suggests a youthful and predominantly female teaching force in the sample.

2. Most teachers are married (51.85%) but single teachers represent a still substantial portion of the respondents (48.15%). This could be correlated with the young age or influenced by the demands of the profession.

3. The majority of the teachers fall within the Master's Degree Unit Earner category. This can be linked to the ranking and promotion processes of teachers, wherein level of education is part of the criteria.

4. There was a split between relatively newer teachers (<10 years' experience) and those with longer tenure. Notably, teachers are absent with 16-20 years of experience.

5. The majority of teacher-respondents handle two grade levels: Grade 5 and Grade 6 learners (20.37%). However, it was revealed that there are teachers who are handling three classes.

6. The majority of teacher-respondents have 11 to 15 learners. This distribution reflects its alignment with DepED Order. No. 96, s. 1997 on the policies and guidelines in the organization and operation of multi-grade classes, as it was clearly stated in this policy guideline that a maximum of 35 pupils per multi-grade class shall be observed.

7. District and school-level in-service training is most common. National and

regional training is reported as less frequent.

8. Teacher-respondents have a generally positive attitude toward multi-grade classes. It was revealed that they enjoy dealing with pupils in the multi-grade classrooms.

9. The statements with the highest weighted means, suggesting the most frequent utilized coping mechanism along Curriculum Management and Organization are: “Provide a good sequence of topics to suit classroom and learners’ levels of learning” (4.54) and “Design a classroom activity starting from an easy level and going to a more complex one” (4.51).

10. The statements with the highest weighted means, suggesting the most frequent utilized coping mechanism along classroom management strategies are: “Establish verbal and nonverbal communication in the classroom” (4.38), “Provide students’ flexible grouping in multi-grade classroom” (4.29), and “Learners’ individual and group work is on display so they can see the value of their efforts” (4.07).

11. The statements with the highest weighted means, suggesting the most frequent utilized coping mechanism along Methodological Aspects are: “I take into account the learning styles and the type of intelligence of the students” (4.81) and “I design engaging activities, direct and indirect, that permanently capture the interest of students” (4.56).

12. The statement with the highest weighted mean, suggesting the most common utilized coping mechanism along Material Resources is “There is sufficient school and learning facilities for conducting lessons in good condition” (3.20).

13. The statement with the highest weighted means, suggesting the most frequent utilized coping mechanism along time management are: “I teach by grouping learners to maximize time for lesson discussion and activity” (4.36), “I craft the daily lesson log per learning area on time or in advance” (4.00), and “I prepare learning and instructional material a week before you discuss the lesson” (3.76).

14. The variables that have a significant correlation with teachers’ coping mechanisms are: highest educational attainment (weak correlation), relevant in-service training (weak), and attitude toward multi-grade classes.

15. The correlation between the variable highest educational attainment of teachers and their coping mechanisms suggests that teachers with higher educational levels tend to use more coping mechanisms to adjust to handling multi-grade classes. Also, the correlation between the variable attitude of teachers toward multi-grade classes and their coping mechanisms indicates that teachers who have a positive outlook towards multi-grade classes tend to

utilize more coping and adaptation mechanisms in handling multi-grade classes. Moreover, the variable relevant in-service training and their coping mechanisms indicates that teachers who have more trainings attended tend to use more coping or adaptation techniques in teaching.

16. The statements with the highest weighted means, suggesting curriculum management and organization as highly challenging are: “The crafting of questions for assessment purposes for multi-group learners is difficult” (3.56) and “The topics discussed with multi-grade learners are of varying complexity” (3.51).

17. The statements with the highest weighted means, suggesting classroom management strategies as highly challenging situations, are: “Unavailability of technologies such as computers and other gadgets” (3.67), “A noisy environment cannot be avoided during multi-grade classes” (3.62), and “Providing flexible grouping in a multi-grade classroom is hard to achieve” (3.57).

18. The statements with the highest weighted means, suggesting methodological aspects as highly challenging are: “Lack of relevant training about multi-grade teaching” (3.71), “Submission of weekly design or plan of the multi-grade activities” (3.65), and “Switching the lesson activity from a direct activity of one class to an indirect activity of the other class” (3.63).

19. The statements with the highest weighted means, suggesting material resources as highly challenging are: “There are no computers available in each classroom or for each teacher” (3.74), “There is no accessible Internet connection” (3.73), “Lack of resources such as learning materials, equipment, and facilities” (3.70), and “There is no functional library within the school” (3.57).

20. The statements with the highest weighted mean, suggesting time management as highly challenging is “There is difficulty in maximizing time for lesson discussion and activity” (3.55).

21. The variables (age and sex, civil status, years of teaching in multi-grade classes, number of learners handled, relevant in-service trainings, attitude toward multi-grade classes) showed moderate to very weak associations with challenges encountered by teacher-respondents in handling multi-grade classes, and their correlations were determined to be not statistically significant. Only one variable has a significant correlation with teachers’ challenges encountered: grade level handled.

22. The coping mechanisms employed by the teachers in handling multi-grade classes and the challenges encountered showed a moderate correlation. Also, their correlations were determined to be statistically significant. Thus, this indicates that the type of coping mechanism and strategy employed by the

teacher-respondents were relatively affected by the challenges encountered while handling multi-grade classes.

23. There was a strong desire for professional development opportunities, such as trainings, due to the reported less frequent national and regional training of the teacher respondents.

24. There was a strong encouragement to follow the principle of providing classroom discussion and activity, starting from an easy level and going to a more complex one, as the teachers revealed that it provides more effective learning.

Relationship Between the Coping Mechanism Employed by the Teachers in Handling Multi-Grade Classes and Their Challenges Encountered

The study found a significant connection between the challenges teachers face in multi-grade classrooms and the coping strategies they use. Researcher started with the assumption that no such relationship existed (null hypothesis). However, the analysis (p-value of 0.005, lower than the significance level of 0.05) showed strong evidence to reject this assumption.

Table 1

Relationship Between the Coping Strategies employed in Handling Multi-Grade Classes and Their Challenges Encountered

Indicator	Association		Chi-square Value	p-Value @ α=.05	Evaluation/ Decision
	Correlation	Degree			
Coping Strategies Employed in Handling Multi-grade classes and their Challenges Encountered	.267	Moderate	0.000	0.005	S / Reject Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm

S = Significant
NS = Not Significant

Additionally, a moderate correlation was identified. This means teachers likely adjust their coping mechanisms based on the specific difficulties they encounter. For

example, a teacher struggling with assessments for multiple grade levels might adopt a coping strategy focused on creating differentiated assessments. Recognizing this link between challenges and coping mechanisms allows schools and professional development programs to offer more targeted support. Training on specific coping mechanisms could be combined with training on how to address common challenges in multi-grade settings. Ultimately, this finding emphasizes the importance of acknowledging these challenges and equipping teachers with the resources and strategies to effectively manage them.

Conclusions

This study investigated the experiences of teachers handling multi-grade classes. The findings reveal a profile of the teachers and the challenges they encounter, along with the coping mechanisms they employ.

1. The majority of teachers are young (27-31 years old) and female.

2. Most teachers have a Master's Degree and some experience teaching multi-grade classes.

3. There's a split between newer teachers and those with longer tenure, with a gap in the 16–20-year experience range.

4. Teachers reported a generally positive attitude towards multi-grade classes.

5. Common challenges included crafting assessments, managing a noisy environment, and a lack of relevant training on multi-grade teaching.

6. Teachers frequently used coping mechanisms like grouping students, planning lessons in advance, and differentiating instruction based on learning styles.

7. There was a weak but significant correlation between teachers' educational attainment, positive attitude, and the number of coping mechanisms they used.

8. The challenges faced by teachers significantly influence the coping mechanisms they adopt.

9. Schools and professional development programs can better support teachers by providing training on multi-grade specific strategies and addressing resource limitations.

10. A positive attitude towards multi-grade classes appears to be beneficial.

11. Invest in professional development focused on multi-grade teaching methods.

Recommendations

This study provides valuable insights into the experiences of teachers handling multi-grade classes. Here are some recommendations based on the findings:

1. Develop coping mechanisms: The study highlights the importance of using various coping mechanisms to manage multi-grade classrooms. Teachers should continue to explore and develop these strategies, particularly in areas like curriculum management, classroom management, and time management.

2. Seek professional development: Teachers with higher educational attainment and those who attended relevant in-service training reported utilizing more coping mechanisms. This suggests that professional development opportunities can be beneficial. Schools and districts should prioritize providing training on multi-grade teaching strategies.

3. Maintain a positive attitude: A positive attitude towards multi-grade classes correlated with using more coping mechanisms. Teachers who see the value in multi-grade teaching are likely to be more proactive in finding solutions to challenges.

4. Support teachers: Many challenges were reported, particularly regarding a lack of resources and training. Schools and districts should find ways to support teachers by providing adequate learning materials, equipment, and access to technology. Additionally, they should prioritize offering training programs specifically focused on multi-grade teaching methods.

5. Invest in professional development: The desire for more professional development opportunities was strong. Schools and districts should offer more frequent in-service training on multi-grade teaching, and advocate for participation in national and regional training programs.

6. The study suggests a youthful and predominantly female teaching force in this sample. This may be a factor to consider when designing professional development programs.

7. While the majority of teachers reported a positive attitude towards multi-grade classes, there is still room for improvement. Schools and districts can explore ways to foster a more positive view of multi-grade teaching through mentorship programs or sharing success stories.

By implementing these recommendations, schools and districts can better support teachers in multi-grade settings, ultimately leading to a more positive and effective learning environment for students.

Compliance with Ethical Standards

The research was conducted following ethical guidelines. This included getting approval beforehand, clearly explaining the study's purpose to participants (both in writing and verbally), and emphasizing their right to withdraw at any point without needing to explain their decision. Additionally, confidentiality of the participants' information was guaranteed.

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DAYALEKTOLOHIYANG PAGDALUMAT NG WIKANG SURIGAONON-CLAVERNON SA MUNISIPALIDAD NG CLAVER, SURIGAO DEL NORTE: ISANG PRELIMINARYONG PAGSUSURI

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ABSTRACT

Ang pagsusuri na ito ay hinggil Dayalektolohiyang Pagdaluma't sa Wikang Surigaonon Clavernon sa Munisipalidad ng Claver. Nakaangkla ang pagsusuri na ito sa *Lexicostatistic* na lapit sa pagsusuri ng *dialect geography* ni Mckhaughan na kung saan pinaghahambing ang 200 *wordlist* ni Swadesh Morris sa 14 barangay na nabanggit. Ipinasalin sa 28 impormante ang *eliciting material* na *wordlist* na nagsisilbing instrumento para matukoy ang *cognate counts, cognate percentage* at *isogloss* ng mga leksikon. Natuklasan sa isinagawang pananaliksik na ang 14 barangay ng Claver, Surigao del Norte ay nagsasalita ng mga dayalekto ng iisang wika ang Surigaonon na may 81-96 *shared cognates percentage*. Mayroong barayti ng mga salita ang nabuo batay sa pagpapangkat-pangkat ng mga isogloss. Nakapagtala rin ang ilang mga barangay ng mahigit sa isang bilang ng mga leksikal aytem na masusuring doon lamang matatagpuan sa nasabing. May mga pormang *cognate* at hindi *cognate* naman ang nabuo. Sa mga cognate, paglilipat-diin sa isang salita, pagkakaltas na ponema, nagkakaroon ng pagkakaiba sa isang patinig at katinig. Napatunayan sa pag-aaral na ito na bagaman nagkaroon ng leksikal na varyasyon dulot ng heograpikong lokasyon ay nagkakaroon pa rin ng mutwal na pagkakaunawaan ang mga Surigaonon sa munisipalidad ng Claver. Inirerekomenda na minarapat na pag-aralan pa ang mga dayalektal na varyasyon ng Surigaonon-Clavernon na may tuon ponolohikal na batayan ng dayalektolohiya sa pamamagitan ng mga karagdagang saklaw ng lugar at bilang ng impormante at

minarapat na tangkilikin at pag-aralan nang mabuti ang dayalektong Surigaonon bilang midyum sa pagtuturo ng mga mag-aaral sa kindergartin hanggang baitang 3.

Keywords: *Pagsusuri, Dayalektolohiyang Pagdalumat, Wikang Surigaonon-Clavernon, Preliminaryong Pag-aaral, Lexicostatistic, at Dialect geography*

INTRODUCTION

Ang Pilipinas ay isa sa mga bansang may pinakamaraming wika sa buong daigdig. Isa sa mga dahilan ng pagkaiba-iba ng dayalekto sa Pilipinas ay ang heograpiya ng ating bansa. Ang bansang ito ay may isang kapuluan o grupo ng mga pulo at binubuo ito ng mahigit 7100 pulo. Ito ang naging dahilan ng pagkakaroon ng iba't ibang dayalekto dito sa bansa, ang pagkakaroon ng hiwa-hiwalay na mga pulo. Matagal nang interesado ang mga linggwista sa pagtukoy sa mga dahilan ng pagkakaiba-iba ng umiiral na mga wika at dayalekto. Bagama't marami sa mga dayuhan at lokal na pagsusuri ang naitala, marami pa rin ang natitira pang matutuklasan tungkol sa mga wika at dayalektong sinasalita sa maliliit na bayan gaya ng Claver, na sakop ng lalawigan Surigao del Norte na hindi pa napag-aaralan, naidokumento, o nailalarawan.

Itinuturing na lingua franca ng mga Clavernon ang Wikang Surigaonon na kung saan naman ay hindi nalalayo sa Wikang Cebuano. Gayunpaman, kahit parehong Surigaonon ang ginagamit ng mga Clavernon na naninirahan sa bayan ng Claver, na ang kapitolyo ay ang Surigao del Norte hindi pa rin maikakaila na may pagkakaiba sa tono, bigkas at maging sa leksikon bagamat nagkakaroon pa rin ng mutwal na pagkakaintindihan o mutual intelligibility ang mga taong naninirahan sa nasabing bayan. Ayon pa kay Endriga (2010) ang Binisaya (na sinasalita sa Mindanao) ay mulasa Cebuano, inilalarawan ang mga ito bilang natatanging wika sa kabila ng pag- aangkin ng mutual intelligibility sa wikang Cebuano ng Cebu. Dagdag pa niya, Cebuano at Binisaya bilang isang wika at ang Cebuano at Bisaya bilang isang taoaymapagpapalit.

Ayon kay McFarland (2004), mahirap ang paglapat ng depinisyon sa aktuwal na pag-aaral ng wika dahil kadalasang hindi malinaw ang hangganan ng isang wika o dayalek sa isa pang wika o dayalek, lalo na sa mga kaso ng *dialect continuum*. Sa isang *dialect continuum*, lumalaki ang pagkakaiba ng mga variety habang papalayo ang mga ito sa isa't isa. Ang mutwal na pagkakaintindihan o *mutual intelligibility* ay kapag ang dalawa o higit pang tao ay magkakaintindihan sa isang wika o mga wika na magkakaugnay. Ito ay isang konsepto na nagmumula sa hindi pagkakaintindihan sa isa't isa hanggang sa pagkakaintindihan ng mabuti sa isa't isa. Isa itong lihis o gradient, na may iba't ibang tao na nagkakaintindihan sa iba't ibang antas.

Ginagamit na batayan ng mga lingguwista ang *mutual intelligibility* sa pagkakaiba ng wika at dayalekto. Kapag ang dalawang tao ay nag-uusap at gumamit ng magkaibang speech variety at hindi sila nagkaintindihan, magkaibang wika ang kanilang ginamit. Samantala, kung ang dalawang nag-uusap ay gumamit ng magkaibang *speech variety*

at nagkaroon ng kaunting *disturbance* sa pag-unawa (dahil magkaiba ang punto o pagbigkas ng mga salita o gumamit ng ibang salita para sa iisang kahulugan), nagsasalita lang sila ng magkaibang dayalekto ng iisang wika. Halimbawa, ang Tagalog na sinasalita sa Metro Manila ay may mga dayalekto na: Tagalog-Bulacan, Tagalog-Batangas, Tagalog-Cavite, Tagalog-Laguna at iba pa.

Ang mga salita sa iba't ibang wika ay maaaring magkaroon ng iba't ibang kahulugan, kaya't ang mga wika na may magkatulad na kahulugan ay magkakaugnay. Ang mga pangkat ng mga wika na may katulad na mga tampok ay nagmula sa parehong pinagmulan. Gayunpaman, ang lahat ng uri ng pananalita kahit opisyal na wika ay maaaring maiklasipika bilang dayalek at ang lahat ng uri ng pananalita.

Sa kahulugang ibinigay ni Fishiak (1988) ang dayalektolohiya aypag-aaral sa mga dayalek. Ang pagkakaiba at pagbabago ay karaniwang nangyayari bilang resulta ng relatibong heyograpiko o panlipunang paghihiwalay at maaaringmakakaapekto sa bokabularyo, gramatika, o pagbigkas.

Ang mga dialectologist ng lahat ng mga persuasion, tradisyonal o sosyolinggwistiko, ay naglalagay ng malaking diin sa pagkolekta ng mahusay na data – ang disiplina ay mabigat na empirical. Ang lahat ng dialectology ay umaasa sa impormasyong nakuha mismo mula sa mga nagsasalita ng mga dayalekto mismo, at kaya ang *fieldwork* ay isang mahalagang bahagi ng paksa. Ang *fieldwork* na ito ay kadalasang nakakaubos ng oras (lumalabas ang mga isyu tulad ng kung paano ‘pumasok’ sa isang komunidad na sapat na sensitibo upang makuha ang tiwala ng mga miyembro nito; kung paano maghanap ng mga may katuturang tao na pag-aaralan, kung paano sila hikayatin na maging bahagi ng imbestigasyon, kabilang ang pagiging naitala; kung paano bawasan ang pagkagambala na dulot ng proseso ng pagkolekta ng data sa kanilang buhay; at kung paano gagantimpalaan ang komunidad para sa pakikipagtulungan nito) at nangangailangan ng dialectologist na maging makapal ang balat, nababaluktot, madaling pakisamahan at isang mahusay na kausap.

Ayon kina Chambers at Trudgill (1999), mayroong pitong uri ng batayan sa dayalektolohiya: (1) *lexical*, o ang paglalarawan ng mga pagkakaiba-iba ng mga salitang ginagamit ng speaker ng bawat lugar sa pagtukoy ng bagay, kalagayan, o kilos; (2) pagbigkas, kung saan tinitingnan ang paraan ng pagbigkas sa mga *lexical item* sa iba’t ibang lugar kung mayroong pagkakaiba; (3) *phonetic*, ang paghahanap ng pagkakaiba o contrast sa phonetic output; (4) *phonemic*, o ang pagtingin sa imbentaryo ng mga distinctive na segment at suprasegmental ng mga dayalektong pinag-aaralan; (5) *morphological*, kung saan kabilang ang mga paradigmatic, inflectional, at derivational na mga pagkakaiba sa bawat lugar; (6) *syntactic*, kung saan ang tinitingnan ay ang pagkakaiba sa aspekto ng pagbubuo ng pangungusap; at (7) *semantic*, o ang pagkakaiba sa pagbibigay-kahulugan sa mga linguistic unit sa bawat lugar na pinagaaralan.

Dagdag pa nina Chambers at Trudgill (1998), ang heyograpikal continua ay tumuturing sa malaking impluwensya ng distansya ng lugar sa pagkakaiba ng wika. Habang lumalayo sa isang lugar ang orihinal na wika, lumalaki rin ang posibilidad ng

pagbabago ng wika at maaaring hindi maunawaan ng mga pangunahing tagapagsalita ang pagbabagong iyon sa wika.

Ang *dialect geography* ay isang subfield ng dialectology. Sa mas malawak na kahulugan nito, sinasaklaw nito ang lahat ng pag-aaral na may kinalaman sa mga *spatial* na *variation* ng *linguistic phenomena*. Mas partikular na tumutukoy ito sa mga pag-aaral na gumagamit ng mga *linguistic* na mapa.

May iba't ibang paraan ng pag-aaral ng *dialect geography* ginagamit. Ang isang halimbawa ay sa pamamagitan ng pag-*survey* sa mga tao. Gayunpaman, nagmungkahi rin si Mckaughan (1964) ng tatlong pangunahing lapit o pamamaraan para sa pag-aaral ng dialect geography ito ay ang sumusunod: *comparative, lexicostatistics, at phonostatistics.*

Kung alin man sa tatlong ito ang mainam gamitin ay nagdedepende sa antas ng pagkakaiba sa pagitan ng mga dayalektong pinag-aaralan. Saad pa ni Mckaughan (1964), ang *phonostatistics* na metodo ay mas epektibong gamitin kung mayroong maliit lamang na pagkakaiba sa pagitan ng mga dayalek isang konkretong halimbawa nito ang maliit na pagbabago sa tunog. Habang ang *lexicostatistics* naman ay mainam na pamamaraan para sa paghahambing ng mga dayalektong may makabuluhang pagkakaiba upang karamihan sa mga leksikal aytem ay hindi na nakikilala pa ang pinagmulang angkan nito. Dagdag pa, ang pagtukoy ng *cognate percentage* ng mga inihahambing na word list ay proseso ng *lexicostatistics*. At ang pinakagamiting pamamaraan naman sa pagkokompara ng mga radikal na pagkakaiba ng wika sa loob ng *langauge family* ay ang *comparative* na metodo na kung saan ang maingat na pag-aaral ay kakailanganin para matukoy ang komon na pinagmulan ng mga leksikon sa mga wikang pinag-aaralan o di kaya'y sa gramatikal na mga pattern ang mga wika (Walrod,1978).

Ang layunin ng mga mananaliksik ay mailarawan at masuri ang mga dayalektal na baryasyon ng Wikang Surigaonon-Clavernon sa Munisipalidad ng Claver, Surigao del Norte.

Research Questions

Ang pag-aaral na ito ay hinggil sa paksang Dayalektolohiyang Pagdalumat ng Wikang Surigaonon-Clavernon sa Munisipalidad ng Claver, Surigao Del Norte: Isang Preliminaryong Pagsusuri. Upang matamo ang mga layuning ito, sinikap ng mananaliksik na masagot ang mga tiyak na katanungan batay sa mga sumusunod:

1. Ano ang magiging *cognate percentage* ng magkatulad at magkaibang *cognates* ng Wikang Surigaonon na sinasalita sa 14 na barangay sa bayan ng Claver, Surigao del Norte?
2. Paano mailalarawan ang mga leksikal aytem at ang nabuong porma ng isogloss ng Wikang Surigaonon na sinasalita sa 14 na barangay ng Claver, Surigao del Norte?

3. Paano masusuri ang mga dayalektal na varyasyon na nabubuo sa 14 na barangay ng Claver, Surigao del Norte?

METHODOLOGY

Ang pag-aaral na ito ay isang kwalitatibong uri ng pananaliksik na nilapatan ng deskriptibong pamamaraan sa linggwsitika sa pagdodokumento ng wika batay sa mga nakolektang datos. Ginamit din ng mananaliksik ang *lexicostatistic* na lapit sa pagsusuri at pag iinterpret ng dialect geography alinsunod sa balangkas ni Mckaughan. Ipinasalin ng mananaliksik ang 200 *wordlist* ni Morris Swadesh sa dalawamputwalong (28) mga impormante na nagmula sa 14 na barangay na sakop ng Munisipalidad ng Claver ayon sa kanilang wikang ginagamit.

Inihahambing ang talaan ng mga leksikon sa 14 na barangay ng Claver, Surigao del Norte upang malaman ang cognate percentage ng magkatulad at magkaibang mga leksikon; sa gayon matuklasan kung gaano kalapit o kalayo na ang mga dayalekto ng Surigaonon sa isa't isa. Binigyang interpretasyon ang dalawa bilang magkakogneyt at ginawan ng dialectal map ang mga leksikon na may nabuong pattern ng isogloss na inirerepresentang wika. Purposive sampling ang pamamaraang ginamit ng mananaliksik sa pagkuha ng mga impormante sa pag-aaral na ito. Sila ay nagmula sa 14 Barangay ng Claver, Surigao del Norte.

Ang instrumentong gagamitin sa pananaliksik na ito ay pakikipanayam na kung saan ang mga mananaliksik ay magtatanong sa mga respondente na siyang pagkukunan ng mga datos. Ang pagkuha ng impormasyon sa isang impormante ay may awtoridad o may personal na pagkaunawa sa paksa ng pananaliksik. *Eliciting Material* ang pangunahing instrumento na ginamit sa pangongolekta ng datos. Ito ay binubuo ng (200) na mga salita ng *Basic Core Vocabulary* ni Morris Swadesh na ginamit sa pag-aaral ni Zorc (1977) na *Bisayan Dialects of the Philippines*. Ang mga nakalap na datos ay pagsama-samahin at tutukuyin ang mga pangunahing opinyon ng mga respondente hinggil sa suliranin.

Ang nakalap na datos ay susuriin upang mas mapadali ang pagtataya rito. Gagamit ng *Lexicostatistics Analysis* ang mga mananaliksik na nilapatan ng *cognates percentage* ng dalawang *representative* languages upang ipresenta ang mga datos kung saan gagamit ng mga talaan upang suriin ang mga datos. Makikita sa ibaba ang interpretasyon ng *cognate percentage* ng dalawang representative language (Crowley:173; Javier, 2012). Ginamit itong batayan upang mabigyan ng angkop na paglalarawan ang dalawang nirepresentang wika bilang magka-ugnay o cognate.

Term	Cognate Percentage
Language	81-100
Family	36-81
Stock	12-36
Microphylum	4-12
Mesophylum	1-4
Macrophylum	<1

Talaan 1. Interpretasyon ng Cognate Percentage ng Pagkakaugnay-ugnay ng mga Wika

Maituturing na dayalekto ng isang wika, kung ang dalawang representative languages ay may 81- 100 *cognate percentage*. Kung ang dalawang representative languages naman ay may 36-81 *cognate percentage*, sila ay ipinapalagay na dalawang daughter languages na nanggaling sa isang ancestral proto language. Ganoon din ang interpretasyon para sa *stock, microphylum, mesophylum*, at *macrophylum*. Sa malawakang pagtanaw, ang dalawang magkaibang wikang gaya ng Tagalog at Ingles na pawang kasapi ng magkaibang *language family* (Tagalog ay sa Austronesian at ang Ingles ay sa Indo-European), ay ipinapalagay na mga kasapi ng magkaibang *macrophyla* (Javier, 2012).

RESULTS

Sa bahaging na ito ng pag-aaral ay inilalahad ang mga nalikom na datos na isinalin sa Surigaonong Claveronon mula sa batayang wika na Filipino. Binigyang pagpapakahulugan at pagsusuri ang mga ito upang matugunan ang mga layunin ng nasabing pag-aaral.

Makikita sa ibaba ang talaan ng mga *correspondence* ng mga probable cognate na pinaghambing-hambing sa bawat barangay (tingnan ang talaan 1). Sumunod dito ang talaan ng *percentages* ng cognates para sa bawat barangay (tingnan ang talaan 2).

Talaan 1. Lexicostatistical na paghahambing ng cognates counts sa bawat barangay.

CAB												
81	**URB**											
77	76	**WAN**										
74	73	76	**TAG**									
67	71	73	78	**HAY**								
67	69	69	69	69	**LAP**							
68	69	66	66	66	82	**SAP**						
65	67	67	63	61	77	79	**LAD**					
60	63	62	57	56	73	75	94	**BAG**				
66	71	70	68	60	74	73	76	74	**TAY**			
71	71	73	62	65	68	74	74	70	67	**MAG**		
73	70	71	64	68	66	73	70	65	65	75	**DAY**	
65	66	66	64	66	81	75	64	61	66	64	65	**CAG**
60	69	60	62	59	67	67	71	67	66	61	56	62

PAN												

Talaan 2. Lexicostatistical na paghahambing ng cognate percentages sa bawat barangay.

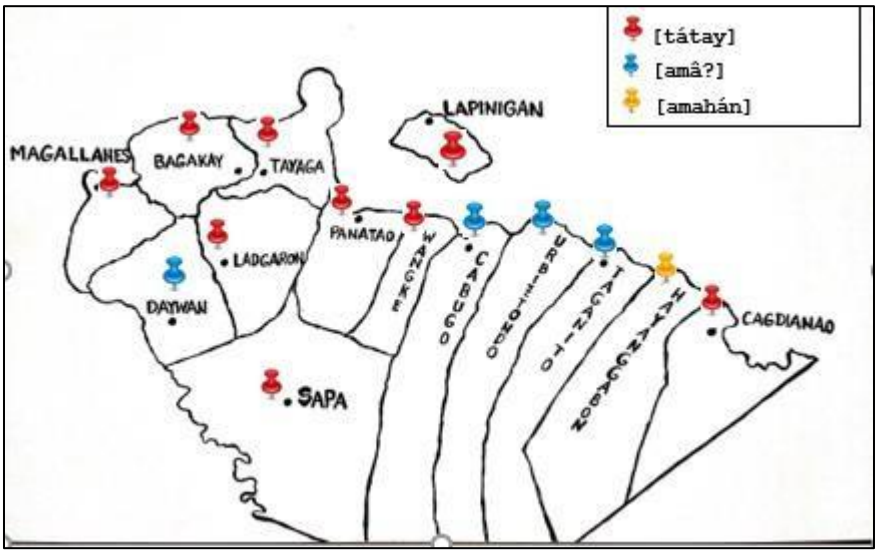
CAB											
82	**URB**										
78	77	**WAN**									
75	74	77	**TAG**								
68	72	74	79	**HAY**							
68	70	70	70	70	**LAP**						
69	70	67	67	67	83	**SAP**					
66	68	68	64	62	78	80	**LAD**				
61	64	63	58	57	74	77	96	**BAG**			
67	72	71	69	61	75	74	77	76	**TAY**		
72	72	74	63	66	69	67	74	71	68	**MAG**	
74	71	72	65	69	67	74	71	66	66	76	**DAY**
66	67	67	65	67	82	76	65	62	67	65	66	**CAG**

61	70	61	63	60	68	68	72	68	67	62	57	63	**PAN**

MGA *SET* NG *ISOGLOSS*

1. Isang Porma sa lahat maliban sa **Urbiztondo (Urb), Taganito (Tag), Daywan (Day), Cabugo (Cab), at isang porma sa Hayanggabon (Hay).**

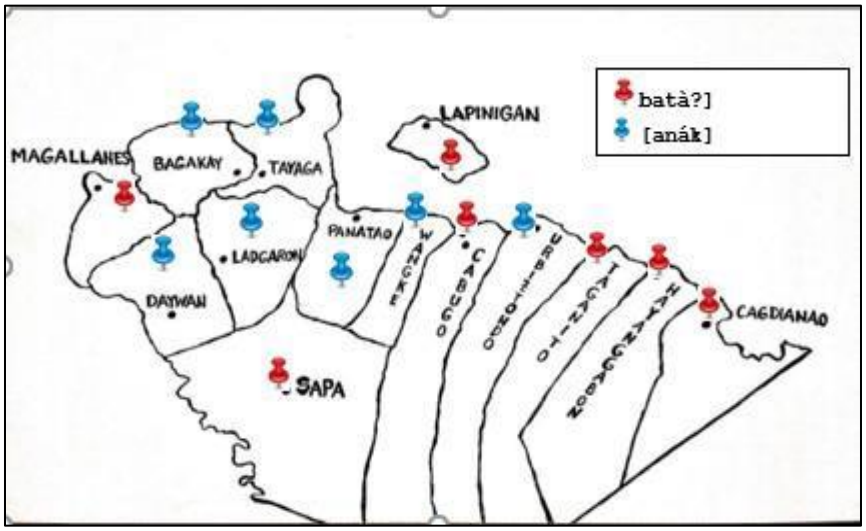
“ama”	**[tátay]** (Wan, Mag, Sap, Lad, Lap, Pan, Tay, Cag)
	[amâ?] (Bag, Urb, Tag, Day, Cab)
	[amahán] (Hay)



Mapa 1 – Isang Porma sa lahat maliban sa Urb, Ta, Day, Cab, at isang porma sa Hay.

2. Isang Porma sa lahat maliban sa **Urbiztondo (Urb), Daywan (Day), Panatao (Pan), Ladgaron (Lad), Tayaga (Tay), at Wangke (Wan).**

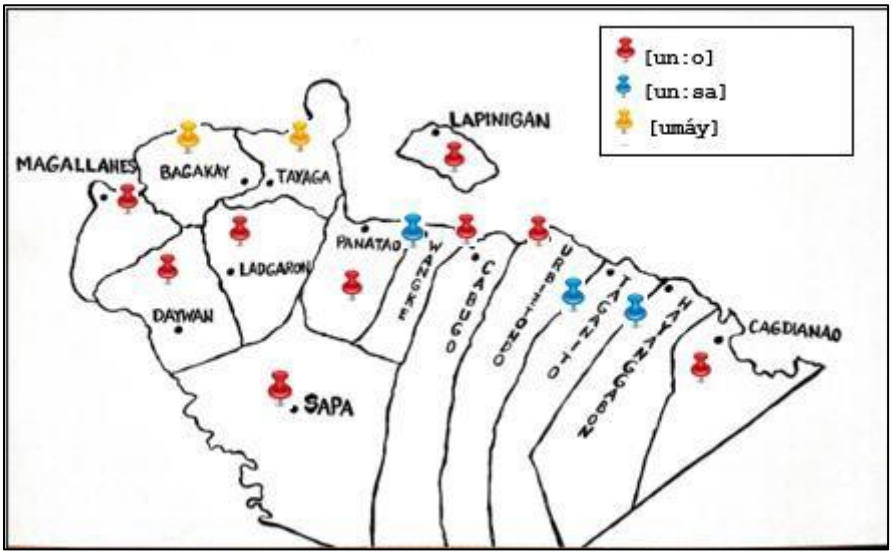
“anak”	**[batà?]** (Tag, Hay, Cag, Sap, Mag, Lap, Cab)
	[anák] (Bag, Urb, Day, Pan, Lad, Tay, Wan)



Mapa 2 – Isang porma sa lahat maliban sa Urb, Day, Pan, Tay, Wan.

3. Isang Porma sa lahat maliban sa **Wangke (Wan), Taganito (Tag), Hayanggabon (Hay), Cabugo (Cab) at Bagakay (Bag), Tayaga (Tay).**

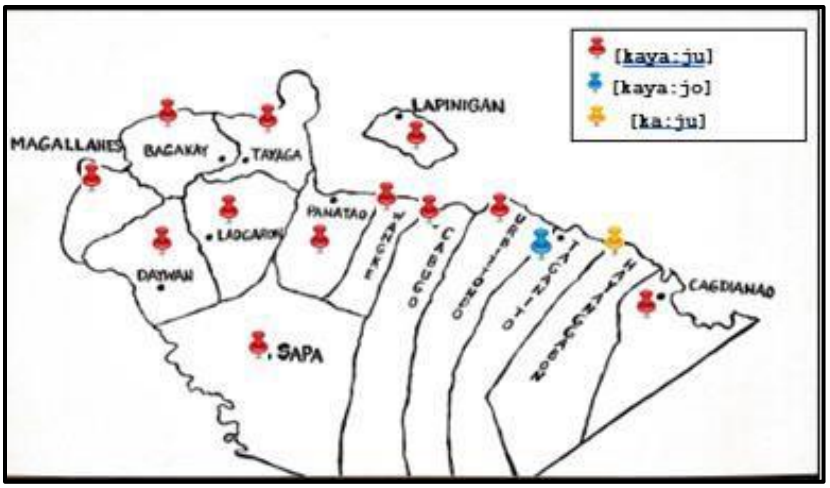
“ano”	**[un:o]** (Pan, Mag, Cag, Lap, Lad, Sap, Cab, Day, Urb)
	[un:sa] (Wan, Tag, Hay)
	[umáy] (Bag, Tay)



Mapa 3 – Isang Porma sa lahat maliban sa (Wan), (Tag), (Hay), at Bagakay (Bag), (Tay).

4. Isang Porma sa lahat maliban sa **Hayanggabon (Hay), at Taganito (Tag).**

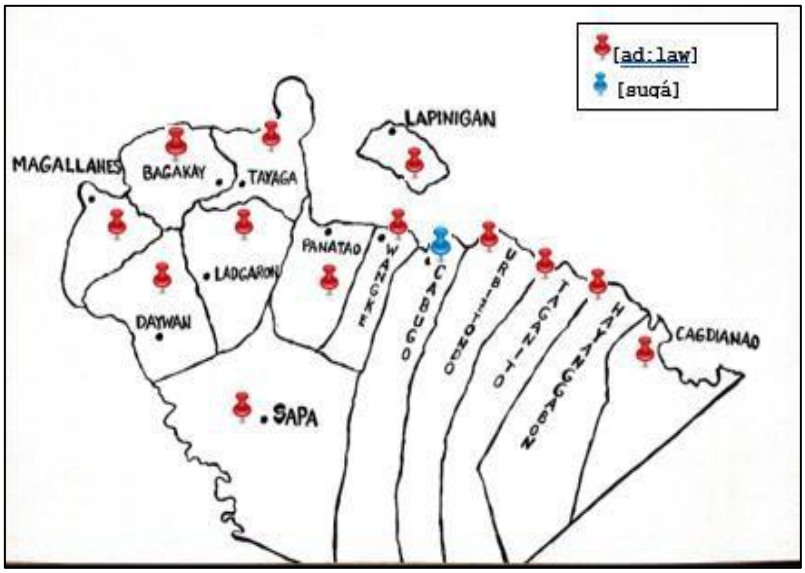
“apoy”	**[kaya:ju]** (Sap, Lad, Lap, Cag, Mag, Urb, Pan, Tay, Wan, Day, Cab, Bag)
	[kaya:jo] (Tag)
	[ka:ju] (Hay)



Mapa 4 – Isang porma sa lahat maliban sa Hay at isang porma sa Tag.

5. Isang Porma sa lahat maliban sa **Cabugo (Cab).**

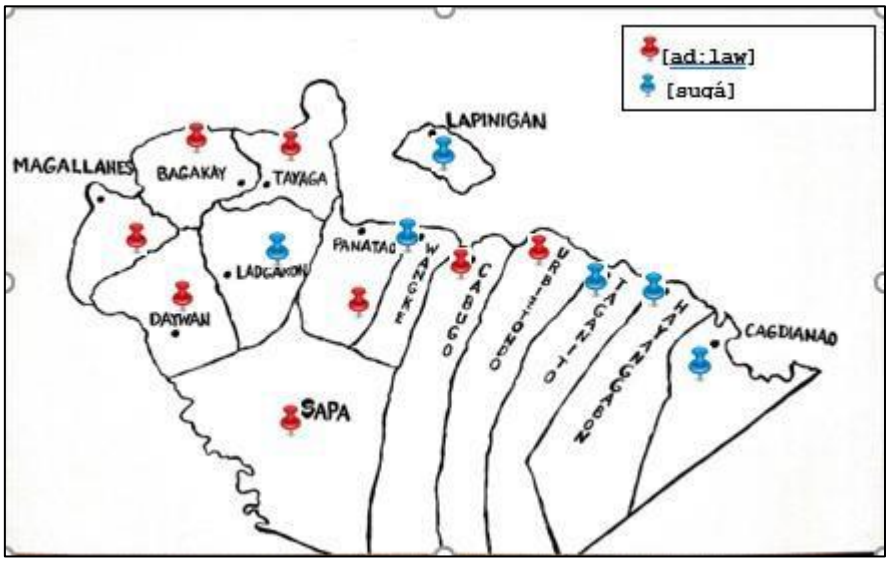
“araw”	**[ad:law]** (Pan, Day, Wan, Cag, Lap, Tay, Mag, Sap, Tag, Hay, Lad, Urb, Bag)
	[sugá] (Cab)



Mapa 5 – Isang porma sa lahat maliban sa Cab.

6. Isang Porma sa lahat maliban sa **Lapinigan (Lap), Ladgaron (Lad), Cagdianao (Cag), Hayanggabon (Hay), Wangke (Wan), at Taganito (Tag).**

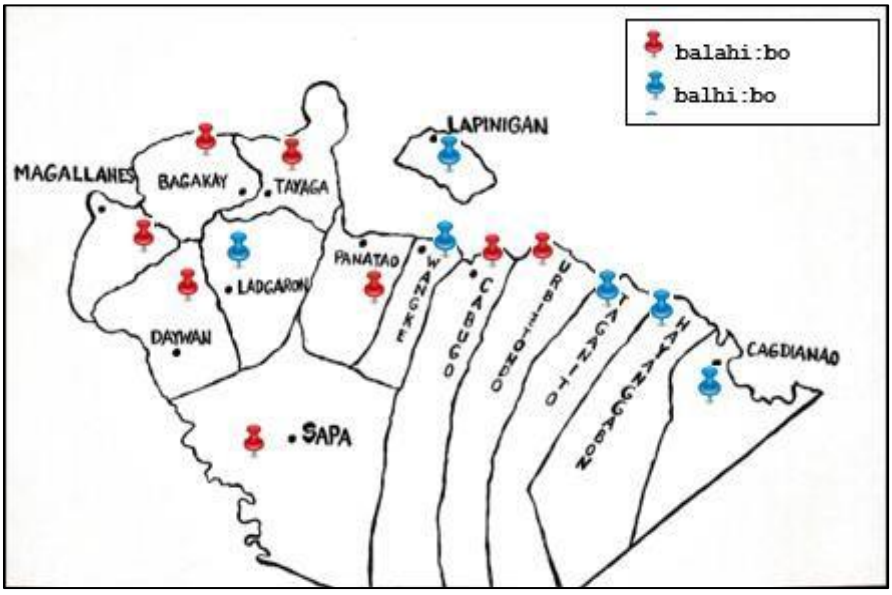
“aso”	**[idù?]** (Sap, Cab, Tay, Mag, Pan, Day, Urb, Bag)
	[irô?] (Lap, Lad, Cag, Hay, Wan, Tag)



Mapa 6 – Isang porma sa lahat maliban sa Lap, Lad, Cag, Hay, Wan, Tag

7. Isang Porma sa lahat maliban sa **Taganito (Tag), Hayanggabon (Hay), at Daywan (Day)**

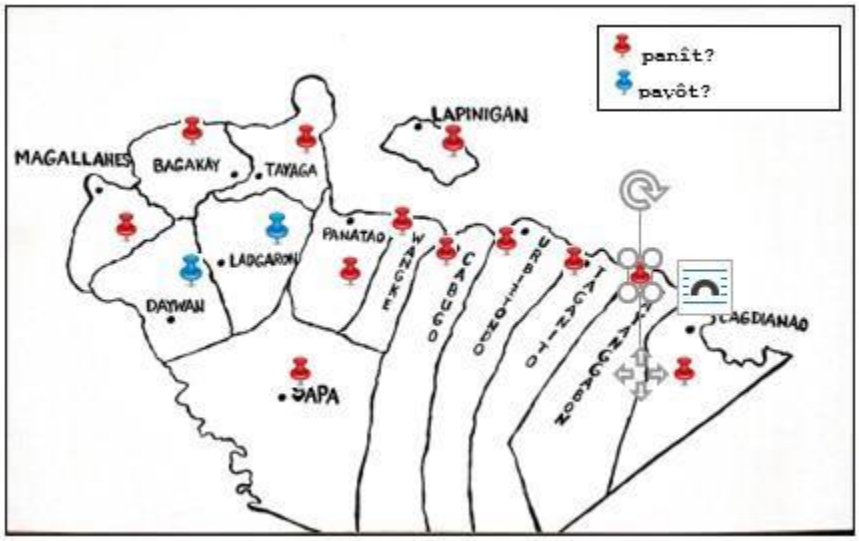
“balahibo”	**[balahi:bo]** (Sap, Cab, Tay, Mag, Pan, Day, Urb, Bag)
	[balhi:bo] (Lap, Lad, Cag, Hay, Wan, Tag)



Mapa 7 – Isang porma sa lahat maliban sa Cag, Hay, Tag, Wan, Lap, Lad

8. Isang Porma sa lahat maliban sa **Ladgaron (Lad), at Daywan (Day).**

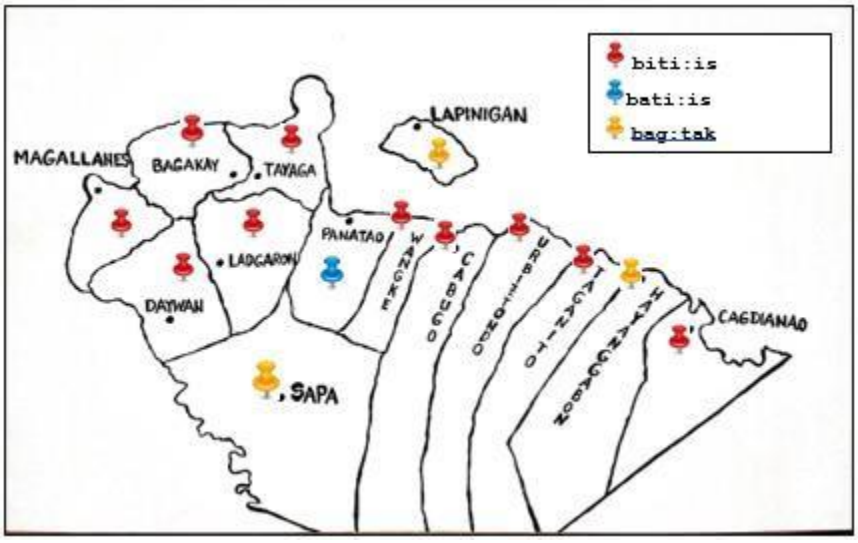
“balat”	**[panît?]** (Cag, Cab, Tay, Hay, Tag, Mag, Pan, Urb, Wan, Sap, Lap, Bag)
	[payôt?] (Lad, Day)



Mapa 8 – Isang porma sa lahat maliban sa Day at Lad.

9. Isang Porma sa lahat maliban sa **Panatao (Pan), Lapinigan (Lap), Hayanggabon (Hay), Sapa (Sap).**

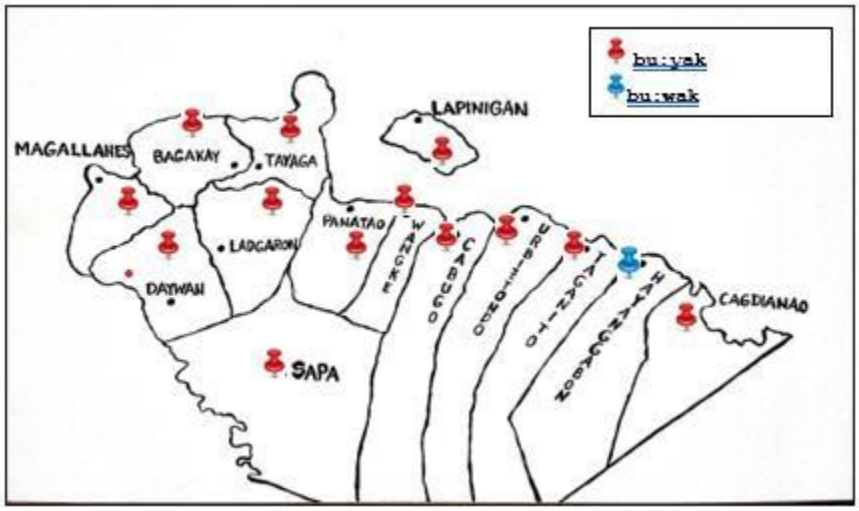
“binti”	**[biti:is]** (Wan, Tay, Urb, Lad, Day, Cab, Cag, Tag, Mag, Bag)
	[bati:is] (Pan)
	[bag:tak] (Lap, Hay, Sap)



Mapa 9 – Isang porma sa lahat maliban sa Pan at isang porma sa Sap, Lap, Hay.

10. Isang Porma sa lahat **maliban sa Hayanggabon (Hay).**

“bulalak”	**[bu:yak]** (Urb, Lad, Wan, Day, Tag, Mag, Tay, Lap, Pan, Cag, Cab, Sap, Bag)
	[bu:wak] (Hay)



Mapa 10 – Isang porma sa lahat maliban sa Hay.

MGA PATTERN NA NABUO

Mga Leksikal na Hindi *Cognate.*

Makikita sa ibaba ang mga sumusunod na ilang leksikal hindi *cognate*.

“ama”	**[tátay]** (Wan, Mag, Sap, Lad, Lap, Pan, Tay, Cag) **[amâ?]** (Bag, Urb, Tag, Day, Cab) **[amahán]** (Hay)
“bulalak”	**[bu:yak]** (Urb, Lad, Wan, Day, Tag, Mag, Tay, Lap, Pan, Cag, Cab, Sap, Bag) **[bu:wak]** (Hay)
“gabi”	**[duyóm]** (Urb, Cab, Tay, Lap, Sap, Pan, Lad, Hay, Cag, Mag, Day, Tag) **[gabií]** (Wan)
“gubat”	**[bu:kid]** (Wan, Sap, Day, Lap, Cag, Mag, Hay) **[lasáng]** (Tag, Cab, Pan, Urb) **[guyangán]** (Tay, Lad, Bag)

“hayop”	**[hajòp?]** (Urb, Cab, Bag, Tay, Lap, Sap, Pan, Lad, Hay, Cag, Mag, Day, Wan) **[mananâp?]** (Tag)

Mga Cognate na salita.

a) Paglilipat-diin sa isang salita.

[inâ?]	[inahán]
[amâ?]	[amahán]
[kaya:ju]	[ka:ju]

b) Pagdaragdag at Pagkakaltas na Ponema.

“apoy”	[kaya:ju] [ka:ju]
“balahibo”	[balahi:bo] [balhi:bo]
“itulak”	[itukyôd?] [ituyôd?] [tukyôd]
“mabuti”	[maradjáw] [marajáw]
“madumi”	[lipâ?] [malipâ?]

c) Pagkakaiba ng isang patinig ng salita.

- **Ponemang o-u**

1)	**“**apoy”	[kaya:jo]	[kaya:ju]
2)	“bulok”	[hayô?]	[hayû?]
3)	“iyan”	[jaón]	[jaún]
4)	“malayo”	[lajô?]	[lajû?]

- **Ponemang i-u**

1)	“sumipsip”	[nisupsôp?]	[nusupsôp?]
2)	“sumuka”	[nisu:ka]	[nusu:ka]
3)	“tumayo”	[nitin:dog]	[nutin:dog]

4) “dumating” [niabôt?] [nuabôt?]

5) “dumura” [niludâ?] [nuludâ?]

- **Ponemang a-i**

1) “lawa” [la:naw]
[li:naw]

d) Pagkakaiba ng isang patinig ng salita.

- **Ponemang y-j**

✓ “umihip” [nuhuyòp?]
[nuhujòp?]

✓ “lupa” [jutà]
[yutà]

- **Ponemang m-n**

✓ “umalam” [nuhibayó]
[muhibayó]

✓ “magsabi” [maglaóng]
[naglaóng]

✓ “lumangoy” [mulangóy]
[nulangóy]

✓ “lumaban” [mua:to]
[nua:to]

- **Ponemang d-l**

✓ “putulin” [putlón]
[putdón]

- **Ponemang k-m**

✓ “makapal” [kabagâ?]
[mabagâ?]

- **Ponemang d-r**

✓ “liparin” [lupadón]
[luparón]

DISCUSSION

Batay sa talaan 1, sa 200 leksikal aytems nakapagtala ng pinakamataas na bilang ang magkapares na barangay Ladgaron at Bagakay na may (94) *cognates*. Sumunod ang bilang na (82) na ito'y natamo ng barangay Lapinigan at ang barangay Cabugo na nakakuha ng (81) *cognates*. Pinakamababang cognates ang naitala ng Hayanggabon (59) *cognates* batay sa paghahambing nito sa barangay Panatao. Pumapangalawa sa pinakamababang bilang na (56) *cognates* ang naitala sa barangay Daywan.

Batay sa talaan 3, pinamataas na *cognate percentage* na 96% ang naitala ng barangay Ladgaron. Sumunod rito ang barangay Lapinigan na may *cognate percentage* na (83) at ang magkatabing barangay ng Cabugo at Wangke ay umabot sa (82) *cognate percentage*. Ang pinakamababa naman na *cognate percentage* (57) ang nakuha ng barangay Daywan sa paghahambing ng mga lesikon sa barangay Panatao. Sumunod rito ang barangay Hayanggabon na nakatamo ng (60) *cognate percentage*. Gayunman, kapansin-pansin din na bagaman malayo sa isa't isa ang mga barangay Lapinigan (75), Sapa (74), Ladgaron (77), at Bagakay (76), kakikitaan naman ng mataas na *cognate percentage* kung ikokompara ang kanilang kogneyts sa barangay Hayanggabon na may (61).

Makikita rin sa talaan na magkapareho ang *cognates percentage* na barangay ng Urbiztondo (70), Wangke (70), Taganito (70), Hayanggabon (70) kung ikokomapora sa kalapit na barangay na Cabugo (68). Magkapareho rin ng cognate percentage ang kalapit na mga barangay sa Hayanggabon (67), Taganito (67), Wangke (67) kung ikokompara natin sa kalapit na barangay na Urbiztondo (70).

Kung susuriin ang talaan sa itaas, masasabing ang bawat representative language ayon sa kanilang leksikon ay pawang mga dayalekto ng iisang wika ang Surigaonon. Maliban sa interpretasyong ito, nasuri rin sa pag-aaral ng mga datos na ang porsyento ng shared cognates ng barangay Sapa, Ladgaron at bagakay ay lubahang mataas sa kanila ng kanilang heograpikal na lokasyon. Bagaman magkalayo ang kanilang lokasyon sa mapa ng barangay Cabugo, masasabing iisang dayalekto lamang ang kanilang ginagamit ng mga ispiker na ninirahan sa mga lugar na nabanggit.

Ang kalagayang ito ay kahawig sa pag-aaral ni Walrod na pinamagatang Three criteria for establishing dialect boundaries. Sa pagtukoy ni Walrod sa *dialect boundaries* ng dayalektong Ifugao, napatunayan na ang Caba, Hapid, Ayangan, at Mayoyao ay nakapagtala ng mataas na *cognate percentage* ayon sa paghahambing ng mga leksikon sa lugar ng Batad. Patunay lamang na ang limang lugar na nabanggit ay nagsasalita ng iisang dayalekto, na ipinalagay na ang Batad ang linguistic center ngunit hindi ang geographical center (Walrod, 1978:7).

Kapansin-pansin din sa pagsusuri ng mga datos na habang papalayo nang papalayo ang mga lugar na pinaghahambing ay bumababa naman ang porsyento ng pagkakatulad ng mga leksikon nito. Isang magandang halimbawa rito ang mababang

porsyento ng 63, 58, 57 na naitala sa barangay ng Ladgaron, Bagakay at Tayaga sa paghahambing nito sa barangay Daywan.

Mga Set ng Isogloss

Tinitingnan sa dayalektolohiya ang pagkakaiba ng mga varayti ng isang wika. Isogloss ang tawag sa boundary kung saan nagkakaroon ng pagkakaiba sa isang linguistic na feature ang iba't ibang varayti (Chambers at Trudgill 89; Cunanan, 2015). Ang linguistic feature na ito ay maaaring tunog, diin, bokabularyo, atbp. Ang pagpatong-patong o kumpulan ng magkakatulad na isogloss ay tinatawag namang bundle ng isogloss, na maaaring tumukoy sa boundary ng mga dialect sa isa't isa (Chambers at Trudgill 96; Cunanan, 2015).

Ipapakita sa bahaging ito ang iba't ibang porma ng isogloss na nabuo mula sa pagsusuri.

1. Makikita sa grapiko bilang 1 na ang barangay Wangke, Magallanes, Sapa, Ladgaron, Lapinigan, Panatao, Tayaga, Bagakay, Cagdianao ay parehong gumagamit ng salitang "tátay" samantala ang barangay ng Urbiztundo, Taganito, Daywan Cabugo ay sila lamang ang gumagamit ng salitang "amâ?" at ang barangay Hayanggabon lamang ang gumagamit ng salitang "amahán". Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang "tátay" bilang panumbas sa wikang tagalog na Ama.

2. Makikita sa grapiko bilang 2 na ang barangay Taganito, Hayanggabon, Cagdianao, Sapa, Magallanes, Lapinigan, Cabugo ay parehong gumagamit ng salitang "batà?" samantala ang barangay ng Urbiztundo, Daywan, Panatao, Ladgaron, Tayaga, Bagakay, Wangke ay ang gumagamit naman ng salitang "anák". Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang "batà?" bilang panumbas sa wikang tagalog na Anak.

3. Makikita sa grapiko bilang 3 na ang barangay Panatao, Magallanes, Cagdianao, Lapnigan, Ladgaron, Sapa, Cabugo, Daywan, Urbiztundo ay parehong gumagamit ng salitang "un:o" samantala ang barangay ng Wangke, Taganito, Hayanggabon ay ang gumagamit naman ng salitang "un:sa" at tanging barangay Tayaga lamang ang gumagamit ng salitang "umáy". Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang "un:o" bilang panumbas sa wikang tagalog na ano.

4. Makikita sa grapiko bilang 4 na ang barangay Sapa, Ladgaron, Lapinigan, Cagdianao, Magallanes, Urbiztundo, Panatao, Tayaga, Bagakay, Wangke, Daywan, Cabugo ay parehong gumagamit ng salitang "kaya:ju" samantala ang barangay Taganito ay gumagamit ng salitang "kaya:jo" at tanging barangay Hayanggabon lang din ang gumagamit ng salitang "ka:ju". Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang "kaya:ju" bilang panumbas sa wikang tagalog na Apoy.

5. Makikita sa grapiko bilang 5 na ang barangay Panatao, Daywan, Wangke, Cagdianao, Lapinigan, Tayaga, Bagakay, Magallanes, Sapa, Taganito, Hayanggabon, Ladgaron, Urbiztundo ay parehong gumagamit ng salitang “ad:law” samantala tanging barangay Cabugo lamang ang gumagamit ng salitang “sugá”. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “ad:law” bilang panumbas sa wikang tagalog na Araw.

6. Makikita sa grapiko bilang 6 na ang barangay Sapa, Cabugo, Tayaga, Bagakay, Magallanes, Panatao, Daywan, Urbiztundo ay parehong gumagamit ng salitang “idù?” samantala ang barangay Lapinigan, Ladgaron, Cagdianao, Hayanggabon, Wangke, Taganito ay gumagamit naman ng salitang “irô?”. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “idù?” bilang panumbas sa wikang tagalog na Aso.

7. Makikita sa grapiko bilang 7 na ang barangay Sapa, Cabugo, Tayaga, Bagakay Magallanes, Panatao, Daywan, Urbiztundo ay parehong gumagamit ng salitang “balahi:bo” samantala ang barangay Lapinigan, Ladgaron, Cagdianao, Hayanggabon, Wangke, Taganito ay gumagamit naman ng salitang “balhi:bo”. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “balahi:bo” bilang panumbas sa wikang tagalog na Balahibo.

8. Makikita sa grapiko bilang 8 na ang barangay Cagdianao, Cabugo, Tayaga, Bagakay, Hayanggabon, Taganito, Magallanes, Panatao, Urbiztundo, Wangke, Sapa, Lapinigan ay parehong gumagamit ng salitang “panît?” samantala ang barangay Ladgaron, Daywan ang tanging gumagamit ng salitang “payôt?”. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “panît?” bilang panumbas sa wikang tagalog na balat.

9. Makikita sa grapiko bilang 9 na ang barangay Wangke, Tayaga, Bagakay, Urbiztundo, Ladgaron, Daywan, Cabugo, Cagdianao, Taganito, Magallanes ay parehong gumagamit ng salitang “biti:is” samantala ang barangay Panatao lamang ang tanging gumagamit ng salitang “bati:is” at ang salitang “bag:tak” naman ay parehong ginagamit ng barangay Lapinigan, Hayanggabon, at Sapa. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “biti:is” bilang panumbas sa wikang tagalog na Binti.

10. Makikita sa grapiko bilang 10 na ang barangay Urbiztundo, Ladgaron, Wangke, Daywan, Taganito, Magallanes, Tayaga, Bagakay, Lapinigan, Panatao, Cagdianao, Cabugo, Sapa ay parehong gumagamit ng salitang “bu:yak” samantala ang barangay Hayanggabon lamang ang tanging gumagamit ng salitang “bu:wak”. Samakatuwid mapapansin na karamihan sa mga barangay ang gumagamit ng salitang “bu:yak” bilang panumbas sa wikang tagalog na Bulaklak.

Mula sa nabuong porma ng mga isogloss gayundin sa pagmamapa ng dialectal variation gamit ang mga leksikal aytems, kapansin-pansin na halos magkakapareho lamang ang isinasalita o lingwahing ginagamit ng mga barangay na sakop ng

munisipalidad ng Claver, ngunit lumilitaw parin ang varyasyon o pagkakaiba sa mga lexicon, sa tuno o bigkas at maging sa diin. Higit na nakamamanha ang mga lexical na varyasyong nagaganap sa mga magkalapit na barangay.

Gayunpaman, may mga barangay din na kahit na malayo sa isa't isa ay kakikitaan parin ng maraming lexicon na magkakapareho, gayundin ang iilang mga barangay na di gaanong malapit ngunit maraming pagkakatulad at pagkakaiba sa kanilang mga lexicon.

Halimbawa sa salitang "gabi" labingtatlo sa labing apat na barangay ng Claver ang magkakapareho sa paggamit o pagbigkas nito sa wikang Sinurigaonon na kung saan ito ay tinatawag na "duyom" samantalang isang barangay lamang ang namumukodtanging gumagamit ng salitang "gabii" at ito ang barangay Wangke. Gayundin ang salitang "hayop" na kung saan ang barangay Taganito lamang ang nag-iisang barangay na mayroong ibang pagkasabi, ito ay tinatawag na "mananap" samantalang ang karamihan na barangay ay parehong gumagamit ng salitang "hajop" bilang katumbas ng salitang "hayop" sa wikang tagalog.

Mga Pattern na Nabuo

Ayon sa ginawang pagsusuri, makikitang mayroong mga cognate at hindi cognate na porma ang lumitaw sa mga datos na nakalap. Pinapahiwatig na ang cognate ay dalawa o higit pang mga salita na magkahawig ang porma at kahulugan ng mga ito o maaaring isiping nanggaling sa iisang naunang porma (Crowley 89; Javier, 2012). Kung kaya't sinanisikap ng mga mananaliksik na ilahad at ilarawan ang mga sumusunod na mga suring datos ayon sa mga nakalap sa iba't ibang barangay.

Sa ginawang pananaliksik mayroong 200 na mga leksikal aytems na ginamit sa pag-aaral at lumalabas sa pag-aaral na ito na mayroong 105 na leksikal aytem ang iisang porma para sa lahat ng barangay sa munisipalidad ng Claver Surigao del Norte, Ang ilan sa mga halimbawa nito ay ang mga sumusunod:

butó	bukóg	buwán	bu:yan	u:sok	asó
ugât?	gamôt?	butuín	bitu:on	pulá	puyá
itím	itóm	taón	tu:ig	i:log	subâ?

Makikita sa ginawang pagsusuri ang pagkakaroon ng hindi *cognate* na mga salita na ginagamit ng mga mamamayan sa pang-araw-araw na pakikipagkomunikasyon ibig sabihin, nagkakaroon ng barayti ng mga salita na ginagamit ng bawat barangay sa munisipalidad ng Claver.

Sa mga nasuring na datos, mapapansin ang pagkakaroon ng paglilipat diin sa mga salita na ginagamit ng iba't ibang barangay ng Claver na kung saan kasabay sa pagbabago nito ay ang tuldik lalo na kapag nagkakaroon ng panlapi sa isang salitang ugat at kapag kinakaltasan. Matutunghayan sa bilang 1, at 4 na pangkat ng isogloss ang pagkakaroon ng paglilipat ng diin, ibig sabihin, hindi magkakapareho ang diin ng mga

salita sa tatlong variety na ito sa lahat ng pagkakataon lalo na kapag nagkakaroon paglalapi at pagkakaltas ng isang ponema.

Makikita sa mga halimbawa ang pagkakaroon ng pagkakaltas at pagdaragdag ng mga ponema sa isang leksikal na salita. Bawat barangay ay nagpakita ng iba't ibang kaparaan sa kung paano ginamit ang isang salita sa pagbuo ng isang pangungusap na ginagamit nila sa barangay na kanilang kinabibilangan.

Sa ginawang pagsusuri ng cognates at hindi cognates na mga leksikal na salita, mapapansin na may mga pagbabagong nagaganap sa mga leksikon gaya ng paglilipat-diin sa isang salita, pagdaragdag at Pagkakaltas na Ponema, nagkakaiba sa isang patinig at katinig. Saad pa ni Paz et al., ang leksikal ay tumutukoy sa katuturan ng salita na maaaring magbago ang kahulugan sa pamamagitan ng pagsasama o pagdaragdag ng mga morpema na maaaring nasa anyong malaya at di-malayang morpema.

Conclusions

Mula sa mga datos at resultang nakalap ay nabuo ang mga sumusunod na konklusyon: 1) Natuklasan sa pagaaral na ito na ang 14 barangay ng Claver, Surigao del Norte ay nagsasalita ng mga dayalekto ng iisang wika ang Surigaonon na may 81-96 shared cognates percentage. 2) Natunghayan na may kabuuang 95 na barayti ng mga salita ang nabuo batay sa pagpapangkat-pangkat ng mga isogloss. Nakapagtala rin ang ilang mga barangay ng mahigit sa isang bilang ng mga leksikal aytem na masusuring doon lamang matatagpuan sa nasabing. At 3) May mga pormang cognate at hindi cognate naman ang nabuo. Sa mga cognate, paglilipatdiin sa isang salita, pagkakaltas na ponema, nagkakaroon ng pagkakaiba sa isang patinig at katinig. Napatunayan sa pag-aaral na ito na bagaman nagkaroon ng leksikal na varyasyon dulot ng heograpikong lokasyon ay nagkakaroon pa rin ng mutwal na pagkakaunawaan ang mga Surigaonon sa Claver, Surigao del Norte.

Recommendations

Batay sa mga natuklasan sa pagsusuri na ito, inirerekomenda ang mga sumusunod:

1. Para sa linguist, inirerekomendang pag-aralan ang mga dayalekto sa Claver, Surigao del Norte gamit ang iba pang antas na batayan sa pag-aaral ng dayalektolohiya.
2. Para sa mga mananaliksik, minarapat na pag-aralan pa ang mga dayalektal na varyasyon ng Surigaonon-Clavernon na may tuon polohikal na batayan ng dayalektolohiya sa pamamagitan ng mga karagdagang saklaw ng lugar at bilang ng impormante.
3. Para sa mga guro ng MTB-MLE sa Munisipalidad ng Claver, minarapat na tangkilikin at pag-aralan nang mabuti ang dayalektong Surigaonon bilang midyum sa pagtuturo ng mga mag-aaral sa kindergartin hanggang baitang 3.

Compliance with Ethical Standards

Ang mga mananaliksik ay tiyak na sumunod sa mga alituntunin at pamantayan sa pagsasagawa ng kanyang pananaliksik. Isang linggo ang araw na iginugol ng mananaliksik sa pangangalap ng datos. Nagsagawa rin ng sistematikong hakbang ang mga mananaliksik para maging maayos ang pangonglekta ng datos sa panahon ng fildwork. Una, pagpunta sa Opisina ng Municipal Planning & Development Office. Humingi ng pahintulot ang mananaliksik sa pamunuan ng MPDO (Municipal Planning and Development Office) para malaman ang kabuuang populasyon ng Surigaonong ispiker sa 14 na barangay ng Munisipalidad ng Claver na sakop ng pag-aaral na ito. Pangalawa, paghingi ng Pahintulot sa Barangay Kapitan ng 14 na Barangay. Sumulat ng liham ang mananaliksik sa Barangay Kapitan ng mga barangay na sakop ng pag-aaral na ito upang humingi ng pahintulot para makakuha ng datos. Ipinaliwag din ng mananaliksik ang layunin ng pag-aaral maging ang krayterya sa pagpili ng dalawang impormante sa bawat barangay. Pangatlo, pagbisita sa bawat Barangay. Pinuntahan ng mga mananaliksik ang lugar at ipinasalin ang (200) leksikal aytem sa mga piling impormante ayon sa kanilang wikang sinasalita. Isinailalim ang pananaliksik sa pagsusuri ng Research Ethics Committee ng paaralan upang tiyakin ang pagsunod sa mga alituntunin at maiwasan ang paglabag sa karapatan ng sinuman. Inilahad din ang pananaliksik sa plagiarism checker upang matiyak ang orihinalidad nito. Sumunod rin ang pananaliksik sa Data Privacy Act of 2012 para sa proteksyon laban sa hindi kanais-nais na publisidad.

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DEVELOPING THE READING LEVEL OF GRADE THREE NON-READERS THROUGH PROJECT GRP (Guided Reading Procedure)

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ABSTRACT

The study dealt with the developing of the reading level of Grade Three Non-Readers by using the Project GRP (Guided Reading Procedure). It was quantitative-descriptive research conducted at Candelaria Elementary School-Main, specifically within the Grade 3 Faith learners, using a purposive sampling technique. The study aimed to assess the impact of the Guided Reading Procedure on non-reader learners and how it affected the classroom's standing in the reading program. To gather data in the acceptability level, a survey-questionnaire (self-made) was used, and data was collected in March 2023 using Google Forms. The data was presented in tabular form and analyzed using the Likert Scale. A conference with the parents and guardians of the non-reader learners was conducted, which resulted in a memorandum of understanding regarding the implementation of the program. This suggests that there was a collaborative effort to support the learners in their reading journey. The results showed progress among the non-reader learners through everyday reading monitoring and progress checks. However, the study faced challenges with absenteeism among the participants, which hindered the full implementation of the program. Despite this issue, seven learners managed to complete the program and demonstrated progress in their reading level, transitioning from non-readers to slow readers. This indicates that using a suitable reading material or program can be effective in improving the reading level of learners. In summary, the study showcased the positive impact of the Guided Reading Procedure in improving reading level among Grade Three Faith Non-Readers. It also highlighted the importance of addressing absenteeism to ensure the successful implementation of such reading interventions.

Keywords: *Guided-Reading Procedure, Non-readers, absenteeism*

INTRODUCTION

The global pandemic brought deprivation to learners' opportunity to develop their reading comprehension skills. The lack of support and guidance from home; and teacher-presence in the reading program, and access to internet during the two-year battle hindered the reading progress.

The future success of children lies in the ability to read fluently and understand what is read. Studies show that at least one out of five students significantly have difficulty in reading acquisition (Therrien, 2004). It can now be inferred that difficulty and the child's struggle in reading, to some extent, is an indication of an underlying learning disability. Basically, the problems are related to several varying factors exclusively related to reading. Usually, learners are not phonemically aware, failing to grasp the alphabetic principle and then applying these skills in a rapid and fluent manner and somehow relate reading to their own simple experiences (Belbes et al, 2022).

According to Mays (2008), many minority children are labeled as "at-risk," "developmentally delayed," and "not ready to learn" according to academic achievement in U.S. public schools today. As the minority population in the United States continues to grow, the rapidly increasing epidemic of students left behind academically is a concern for early childhood educators nationwide. According to Carter (2008), the term "at-risk" primarily refers to those students from families and communities with limited resources and correspondingly low educational outcomes. That is, at-risk students are those who are most likely to fail or drop out of school due to the challenges of poverty, broken homes, violence, limited English language proficiency, and other disadvantages in their family and community contexts. Furthermore, because the associations among race, ethnicity, and low academic performance and/or school failure are positive, the term "at risk" has become increasingly code or synonymous with low-income (or poor) and racial and ethnic minority students. Additionally, although "at risk" mainly pertains to class, ethnicity, gender, language skills, race, and academic achievement; however, many other classifications of students could be assigned to the at-risk category such as alcohol- and drug-dependent youth; physically and learning-disabled students; rural students; and students with mental health conditions.

With this matter, learners with problem in the phonemic awareness cause numerous non-readers to be remediate right away. The result of this study will help both the learners and the school to have zero non-readers, at the very least lessen its number. Reading is core to academic progress, because it underpins content-area learning in all subjects.

Researcher Küçükoğlu (2013), has found that teaching reading strategies is a key element in developing student comprehension. However, many teachers lack a solid foundation for teaching these reading comprehension strategies. Therefore, teachers need to be prepared on how to design effective comprehension strategies and how to

teach these strategies to their students. Therefore, this study aims to study the effective reading strategies in order to improve reading skills in language classes.

Upon coping up with the pandemic situation, schools give way to focus on the reading skills of the learners through various reading program, interventions, and remediations. Despite of the efforts, still a high number of non-readers were reported among grade three learners especially in the Grade Three Faith Section.

In the study of Davis et al, (2016), stated that adjustment means the act or process of changing or adjusting something or the cognitive flexibility of the teacher to respond to non-readers.

Strategies are high level plan to achieve one or more goals under conditions of uncertainty or simply the skill of making or carrying out plans to achieve a goal.

Students needed to be trained or guided on the use of different reading strategies so that they would know how to apply these strategies for successful comprehension of academic materials. Teachers will require the skills in order to teach reading strategies that will assist learners in understanding and applying the appropriate strategies to become skilled readers.

Scaffolds refer to the temporary support that the teacher uses to help the learners reach higher levels of comprehension and skill acquisition that they would not be able to achieve without assistance. Scaffolding refers to a variety of instructional techniques, which are used to move students progressively toward better understanding and, ultimately, greater independence in the learning process. This study endeavors to help novice reading teachers adjust their strategies in teaching nonreaders.

According to Adapon and Mangila (2020) education in the Philippines is hindered by poverty, technology, and lack of motivation and inspiration, especially reading education. Despite the socio-economic status, many Filipinos are unable to learn. Some families don’t have enough money to send their kids to school; thus, kids grow up without being able to read and write. Some families are marginally fortunate that they can send their children to a public school; however, their children are learning basic reading at a plodding pace as there are not enough teachers and up-to-date reading materials in this school.

Remedial reading program has been established for a long time in Philippine basic education system. As a matter of fact, Genero’s study (as cited in Gatcho & Bautista, 2019) disclosed how elementary and secondary schools of the country established their remedial reading programs to aid struggling readers. Principals should encourage their teachers to evaluate their learners’ reading levels so they could provide appropriate interventions for them. Even though remediation among struggling readers has been practiced for several decades, it has reached it optimum only through the Department of Education (DepEd) Order 45, series of 2002 – Reading Literacy Program in the Elementary Schools.

According to Kennedy (2010), provision of a multifaceted professional development program for teachers is essential in addressing underachievement in literacy. When professional development is customized rather than pre-packaged, takes place over an extended period of time, and supports use of a range of research-based approaches (including a strong, ongoing focus on student achievement), it can have a major impact on student achievement, motivation, and engagement. Additionally, it is important that teacher creativity and individuality is honored throughout the professional development. Teachers in the study valued the opportunity to design a literacy program that aligned with the research base, responded to the needs of students, and provided autonomy for them to respond in unique and personal ways to the pedagogical content strategies they had learned. A systematic, coherent, integrated, and cognitively challenging curriculum is especially important in a high-poverty context. The design of the balanced literacy framework allowed for the development of students' creativity and agency, capitalized on their interests, and offered them choice and control over activities.

Parental involvement is another important factor in encouraging literacy and building proficient readers. Parental involvement in children's education has long been believed to promote a range of academic outcomes, including higher achievement, greater engagement in schoolwork, and lower dropout rates (Park & Holloway, 2017).

Guided Reading is a school-based intervention to improve the literacy achievement in students. All students benefit when teachers use the Guided Reading instructional model. Guided Reading is a component of a balanced literacy program providing differentiated, small-group reading instruction to four to six students with similar strengths and instructional needs or to heterogeneously grouped students. This approach to reading instruction provides teachers the opportunity to explicitly teach children the skills and comprehension strategies students need, thus facilitating the acquisition of reading proficiency. Some of the benefits of using the Guided Reading instructional model include individualized instruction, the use of books at students' reading levels, the opportunity to create and sustain meaning, the exposure to language that is context embedded, the structured format of the lesson, and the systematic evaluation of students' progress (Avalos, Plasencia, Chavez, & Rascon, 2007).

Likewise, this study is also beneficial to them in strategic management, when they employ effective learning in the classroom. Thus, this study provides new perspectives in seeing teachers' needs in teaching nonreaders more effectively.

Research Questions

This research aimed to develop the reading level of Grade Three Faith non-readers through Project GRP (Guided Reading Procedure).

Specifically, it sought to answer the following:

1. What is the reading level of grade three non-reader pupils during pre-test?
2. What is the reading level of grade three non-reader pupils during post-test?
3. Is there any significant difference between the pre-test and post-test results of grade three non-readers in reading level?

4. What is the acceptability level of Project GRP in terms of:
   A. Teacher-Respondents
      a. Content
      b. Presentation
      c. Appropriateness in target users
   B. Learner-Respondents
      a. Content
      b. Presentation
      c. Appropriateness in target users

Hypothesis:

There is no significant difference in the MPS pre-test and post-test results of Grade Three Non-readers in reading level using Project GRP.

METHODOLOGY

A. Participants and/or other Sources of Data and Information

The study involved seven selected learners from Grade III-Faith of Candelaria Elementary School – Main for SY 2022-2023 who were identified as non-readers. The reading intervention was facilitated by the researcher himself and lasted for the whole quarter.

Furthermore, Primary Teachers were also involved in the study to validate the reading materials used in Project GRP. Their role was likely to review and ensure the appropriateness and effectiveness of the materials in helping the non-reader learners enhance their reading skills.

The use of purposive sampling technique indicates that the researcher deliberately selected the participants based on specific criteria, in this case, non-readers from Grade III-Faith. This approach allowed the researcher to focus on the target group most in need of reading intervention.

With these details, it's evident that the study had a well-defined approach to address the reading difficulties of non-reader learners. The combination of Project GRP and the involvement of primary teachers for material validation, contributed to the positive progress observed in the seven participating non-reader learners.

B. Data Gathering Methods

The data collection followed a systematic timeline to assess the effectiveness of the reading intervention (Project GRP) and validate the reading materials used.

Upon crafting the Project GRP reading material and the pre-test, it was validated by the primary teachers; and the result were gathered, collected, analyzed, and tabulated. Before implementing the reading intervention (Project GRP), a pre-test

was conducted. This pre-assessment likely measured the baseline reading level of the seven selected non-reader learners. It aimed to establish their starting point before receiving any intervention. After the pre-assessment, the reading intervention was facilitated by the researcher. During this period, the non-reader pupils received targeted instruction and support to improve their reading skills. Following the completion of the intervention, a post-test was conducted to measure the reading level of the non-reader pupils after they had received the intervention. This post-assessment allowed the researcher to evaluate the impact of Project GRP on the participants' reading level.

In parallel with the implementation of Project GRP, the primary teachers were involved in validating the reading materials used in the intervention. The validity of the materials was assessed to ensure that they were appropriate, effective, and aligned with the objectives of the study. The results of both the pre-assessment and post-assessment, as well as the findings from the material validity measurement, were gathered and tabulated. The data were then analyzed to determine the effectiveness of the reading intervention and the validity of the materials used.

By following this timeline and systematically collected and analyzed data, the study can provide valuable insights into the impact of Project GRP on developing the reading level of Grade III-Faith non-reader learners. It also ensured that the reading material used was reliable and valid for the target audience.

C. Data Analysis

It is evident that the researcher employed a quantitative-descriptive research approach. Specifically, a pre-experimental design was utilized to investigate the significant difference between the pre- and post-assessment results of 3rd grade pupils' reading level. Instead, the researcher focused on measuring the changes in the reading level of the seven selected 3rd grade learners before and after the intervention. By comparing the pre-assessment and post-assessment results, the researcher aimed to determine if there was a significant improvement in the learners' reading level as a result of the intervention. The study's quantitative nature allows for the use of statistical analyses to assess the significance of the differences observed in the pre- and post-assessment results, providing more objective evidence of the intervention's impact on the learners' reading level.

To determine the reading level of the respondents, the researcher adopted the computation of the Phil-IRI Reading Level.

Using the result of the pre- and post-test assessment, dependent t-test was used to analyze the significant difference of the two assessments.

For the validity of the material, weighted mean was used to determine its level of acceptability in terms of content, presentation, and appropriateness to target user.

Paired samples dependent t-test is used to accept the null hypothesis. Impression at 0.05 level of significance for one-tailed since the study used the same group of pupils on both pre- and post-reading assessment.

Data were gathered, tabulated, and analyzed accordingly. Tabular method was used in the presentation of numerical data and validity of the material.

RESULTS

Table 1
Reading Level of the Grade Three Faith during Pre-Test

Learners' Name	# of Miscues	Word Reading Level	# Words in the Pre-Test	Reading Level
Learner 1	45	49.438	89	FRUSTRATION
Learner 2	39	56.180	89	FRUSTRATION
Learner 3	55	38.202	89	FRUSTRATION
Learner 4	29	67.416	89	FRUSTRATION
Learner 5	47	47.191	89	FRUSTRATION
Learner 6	18	79.775	89	FRUSTRATION
Learner 7	21	76.404	89	FRUSTRATION

Table 2
Reading Level of the Grade Three Faith during Post-Test

Learners' Name	# of Miscues	Word Reading Level	# Words in the Pre-Test	Reading Level
Learner 1	11	87.640	89	FRUSTRATION
Learner 2	25	71.910	89	FRUSTRATION
Learner 3	32	64.045	89	FRUSTRATION
Learner 4	18	79.775	89	FRUSTRATION
Learner 5	33	62.921	89	FRUSTRATION
Learner 6	15	83.146	89	FRUSTRATION
Learner 7	17	80.899	89	FRUSTRATION

Table 3
Comparison of the Pre-Test and Post-Test Mean Scores of the Respondents after Using the Material

	MEAN	SD	MEAN DIFFERENCE	DIFFERENCE	COMPUTED VALUE	TABULAR VALUE	INTERPRETATION
PRE-TEST	11.714	2.119	14.429	0	**6.975**	2.00	**SIGNIFICANT**
POST-TEST	26.143	5.986					

Table 4.1.1

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Content (Teacher-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. Contains ideas and concepts that are well-expressed in the material.	17	68	13	39	0	0	0	0	3.567	Highly Acceptable
2. Provides sufficient learning/information through appropriate examples in the reading lesson.	15	60	15	45	0	0	0	0	3.500	Acceptable
3. Gives different techniques and concrete concepts about the lessons in reading.	14	56	16	48	0	0	0	0	3.467	Acceptable
4. Provides appropriate sequences and concrete ideas for better understanding of the reading lesson.	19	76	11	33	0	0	0	0	3.633	Highly Acceptable
5. Provides aid for beginning readers.	18	72	12	36	0	0	0	0	3.600	Highly Acceptable
AVERAGE WEIGHTED MEAN									**3.553**	**Highly Acceptable**

Table 4.1.2

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Presentation (Teacher-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. Has organized and systematically arranged concepts.	16	64	10	30	4	8	0	0	**3.400**	Acceptable
2. Presents consistency in the lesson with reading-habit.	17	68	13	39	0	0	0	0	**3.567**	Highly Acceptable
3. Is attractive, reliable and easy to understand which provides ample experiences to the learners.	19	76	11	33	0	0	0	0	**3.633**	Highly Acceptable

4. The material has adequate margins, legible, type font and comfortable type-sized.	15	60	15	45	0	0	0	0	**3.500**	Acceptable
5. The layouts and graphics in the materials are attractive.	18	72	12	36	0	0	0	0	**3.600**	Highly Acceptable
6. Presents a lesson with originality suited for the learner for studying.	16	64	14	42	0	0	0	0	**3.533**	Highly Acceptable
	AVERAGE WEIGHTED MEAN								**3.539**	**Highly Acceptable**

Table 4.1.3

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Appropriateness in the Target Users (Teacher-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. The lessons are well-arranged to provide clear sequence for understanding.	15	60	15	45	0	0	0	0	**3.500**	Acceptable
2. The material is appropriate to the age, maturity, and experience of the learners.	18	72	12	36	0	0	0	0	**3.600**	Highly Acceptable
3. The ideas and concepts are well-expressed in the reading material.	17	68	13	39	0	0	0	0	**3.567**	Highly Acceptable
4. The material gives the lessons and values to be earned by the learners.	16	64	14	42	0	0	0	0	**3.533**	Highly Acceptable
5. The contents of the material gives itself moral lessons and values to be learned by the learners.	15	60	15	45	0	0	0	0	**3.500**	Acceptable
6. Serves as the new instructional/reference reading material for beginning reading.	16	64	10	30	4	8	0	0	**3.400**	Acceptable
	AVERAGE WEIGHTED MEAN								**3.517**	**Highly Acceptable**

Table 4.2.1

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Content (Pupil-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. Contains ideas and concepts that are well-expressed in the material. *(Naglalaman ng mga ideya at konsepto na mahusay na ipinahayag sa materyal.)*	4	16	3	9	0	0	0	0	3.571	Highly Acceptable
2. Provides sufficient learning/information through appropriate examples in the reading lesson. *(Nakapagbibigay ng sapat na pagkatuto o impormasyon sa pamamagitan ng mga angkop na halimbawa sa aralin sa pagbasa.)*	5	20	2	6	0	0	0	0	3.714	Highly Acceptable
3. Gives different techniques and concrete concepts about the lessons in reading. *(Nakapagbibigay ng iba't ibang teknik at konkretong konsepto tungkol sa mga aralin sa pagbasa.)*	6	24	1	3	0	0	0	0	3.857	Highly Acceptable
4. Provides appropriate sequences and concrete ideas for better understanding of the reading lesson. *(Nagbibigay ng angkop na pagkakasunod-sunod at konkretong ideya para sa higit na pag-unawa sa aralin sa pagbasa.)*	7	28	0	0	0	0	0	0	4.000	Highly Acceptable
5. Provides aid for beginning readers. *(Nagbibigay ng tulong para sa mga nagsisimulang mambabasa.)*	7	28	0	0	0	0	0	0	4.000	Highly Acceptable

AVERAGE WEIGHTED MEAN	**3.829**	**Highly Acceptable**

Table 4.2.2

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Presentation (Pupil-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. Has organized and systematically arranged concepts. *(May organisado at sistematikong pagkakaayos ng mga konsepto.)*	5	20	2	6	0	0	0	0	**3.714**	Highly Acceptable
2. Presents consistency in the lesson with reading-habit. *(Nakapaglalahad ng pagkakapare-pareho sa aralin na may ugali sa pagbasa.)*	4	16	2	6	1	2	0	0	**3.429**	Acceptable
3. Is attractive, reliable and easy to understand which provides ample experiences to the learners. *(May kaakit-akit, maaasahan at madaling maunawaan na nagbibigay ng sapat na karanasan sa mga mag-aaral.)*	6	24	1	3	0	0	0	0	**3.857**	Highly Acceptable
4. The material has adequate margins, legible, type font and comfortable type-sized. *(Ang materyal ay may sapat na mga margin, nababasa, uri ng font at komportableng laki ng uri.)*	5	20	1	3	1	2	0	0	**3.571**	Highly Acceptable
5. The layouts and graphics in the materials are attractive. *(Ang mga layout at graphics sa mga materyales ay kaakit-akit.)*	6	24	1	3	0	0	0	0	**3.857**	Highly Acceptable

6. Presents a lesson with originality suited for the learner for studying. *(Naglalahad ng isang aralin na may orihinalidad na angkop para sa mag-aaral para sa pag-aaral.)*	5	20	2	6	0	0	0	0	**3.714**	Highly Acceptable
	AVERAGE WEIGHTED MEAN								**3.690**	**Highly Acceptable**

Table 4.2.3

Weighted Mean Distribution of the Perceived Level of Acceptability of the Project GRP Reading Material in Terms of Appropriateness in the Target Users (Pupil-respondents)

STATEMENTS	4	f	3	f	2	f	1	f	WEIGHTED MEAN	REMARKS
1. The lessons are well-arranged to provide clear sequence for understanding.	5	20	2	6	0	0	0	0	**3.714**	Highly Acceptable
2. The material is appropriate to the age, maturity, and experience of the learners.	6	24	1	3	0	0	0	0	**3.857**	Highly Acceptable
3. The ideas and concepts are well-expressed in the reading material.	5	20	2	6	0	0	0	0	**3.714**	Highly Acceptable
4. The material gives the lessons and values to be earned by the learners.	7	28	0	0	0	0	0	0	**4.000**	Highly Acceptable
5. The contents of the material gives itself moral lessons and values to be learned by the learners.	6	24	1	3	0	0	0	0	**3.857**	Highly Acceptable
	AVERAGE WEIGHTED MEAN								**3.829**	**Highly Acceptable**

DISCUSSION

Table 1 showed that all of the respondents fall under the Frustration Reading Level during the Pre-test Assessment. Learner 6 has the least number of misread words during the pre-test while Learners 1, 3, and 5 got the highest number of misread with 45, 55, and 47 respectively.

Table 2 showed that the respondents were fall under the Frustration Reading Level after using the validated Project GRP reading material. On the other hand, the respondents were remained in the Frustration Reading Level after using the reading material. Hence, it showed a drop down in the number of miscues and increase their word reading level.

Table 3 presents the summary of values for testing the significant difference between the pre-test and post-test scores of the respondents.

Among the seven respondents, the mean of the obtained pre-test scores is 11.714 with a standard deviation of 2.119 and the mean of the post-test scores is 26.143 with a standard deviation of 5.986, respectively resulting to a mean difference of 14.429.

There is a notable difference in the standard deviation of pre- and post-test. The standard deviation of post-test is higher than of the pre-test. When subjected to t-test, it garnered a t-value of 6.975 which is higher than the tabular value of 2.00 at 0.05 level of significance. Thus, the hypothesis which states that there is a significant difference between the scores of the learners in the pre- and post-test before and after the use of the Project GRP reading material is approved.

Table 4.1.1 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of content. The evaluators evaluated the content with five statements with the following weighted mean – statement 1 got 3.567, statement 2 got 3.500, statement 3 had 3.467, statement 4 received 3.633 and statement 5 got 3.600 with a remark of highly acceptable (statements 1, 4 and 5) and acceptable for statements 2 and 3.

Over-all, the Project GRP Reading Material in terms of content got an average weighted mean of 3.553 that falls on highly acceptable remark.

Poor reading level among children and youth is an ongoing concern. Data show stagnant performance in reading achievement over the past decades only about one-third of fourth-graders exhibiting proficient reading skills (Snyder, De Brey, & Dillow, 2016). Low reading achievement is associated with adversities in several areas, including educational progress, employment opportunities, and health outcomes (Ritchie & Bates, 2013).

Absolutely, teaching reading strategies to students is crucial for their successful comprehension of academic materials. When students are trained or guided in using different reading strategies, they become equipped with the necessary tools to understand and engage with various texts effectively.

Teachers play a vital role in this process as they need to be skilled in teaching these reading strategies effectively. Professional development and ongoing training for teachers are essential to equip them with the necessary skills and knowledge to instruct students in reading strategies. Teachers should model the use of these strategies and provide ample opportunities for students to practice and apply them independently.

By integrating reading strategies instruction into the curriculum, educators can foster a classroom environment where students become skilled readers capable of comprehending and analyzing a wide range of academic materials. This, in turn, will have a positive impact on their overall academic performance and success.

Table 4.1.2 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of presentation. The evaluators evaluated the presentation with six statements with the following weighted mean – statement 1 got 3.400, statement 2 got 3.567, statement 3 had 3.633, statement 4 received 3.500, statement 5 got 3.600 and statement 6 got 3.533 with a remark of highly acceptable (statements 2, 3, 5 and 6) and acceptable for statements 1 and 4. Over-all, the Project GRP Reading Material in terms of presentation got an average weighted mean of 3.539 that falls on highly acceptable remark.

There are lots of strategies for improving the reading skills of a learner. As cited in Pourhosein & Sabouri (2016), the following are some of the effective ways: activating and using background knowledge; generating and asking questions; making inferences; predicting; summarizing; visualizing; and comprehension monitoring.

In response to the pupils' poor reading skills, the Department of Education issued DepEd Memorandum No. 173, s. 2019 to make every learner a proficient reader where schools across the country are tasked to develop their reading skills. There is a need to strengthen every learner's reading proficiency and nurture a culture of reading, which is a requisite skill in all content areas (Cabalo & Cabalo, 2019).

As important as foundational word-reading and bridging skills are to reading comprehension, research has shown that they are not sufficient for strong comprehension. For example, just because a reader can fluently read the words in "Not Just a Hole in the Ground" does not mean that the reader will glean from the article the characteristics of summer and winter woodchuck burrows. That understanding requires a broader range of knowledge, strategies, and dispositions (Duke, Ward, & Pearson, 2021).

Consistency in providing suitable reading materials is crucial in supporting learners' optimal learning and development, allowing them to progress at their own pace. Here are some reasons why consistency in reading materials is beneficial for learners.

Consistent reading materials ensure that learners receive a continuous and structured learning experience. This continuity helps build upon previously acquired knowledge and skills, fostering a deeper understanding of concepts over time. Regular exposure to consistent reading materials allows learners to practice and build fluency in reading. Familiarity with the format and content of the materials enables them to read with greater ease and speed. Consistency creates a sense of comfort and confidence in learners. When they know what to expect from the reading materials, they are more willing to engage with them and take ownership of their learning.

Providing consistent reading materials tailored to learners' needs and interests allows for personalized learning experiences. Learners can focus on topics and themes that resonate with them, which enhances their motivation and engagement. Repeated exposure to key concepts and vocabulary in consistent reading materials reinforces learning and aids in long-term retention. Consistency does not mean a one-size-fits-all approach. Educators can use a consistent framework while differentiating reading materials to accommodate learners' diverse needs and abilities. Using consistent reading materials makes it easier for educators to monitor learners' progress effectively. They can assess how learners are mastering concepts and skills over time. Consistent exposure to reading materials encourages learners to develop regular reading habits. As they become accustomed to engaging with reading materials, they are more likely to pursue independent reading beyond the classroom.

Consistency allows educators to scaffold learning appropriately, gradually introducing more complex reading materials as learners advance their skills. Consistent reading materials streamline lesson planning for educators, allowing them to focus on instructional strategies and differentiation rather than constantly seeking new materials.

By maintaining consistency in the selection of reading materials, educators can create a stable and supportive learning environment that empowers learners to explore, grow, and succeed in their reading journey at their own pace. This approach fosters love for reading and lifelong learning in students, which is essential for their academic and personal development.

Table 4.1.3 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of appropriateness to the target users. The evaluators evaluated the presentation with six statements with the following weighted mean – statement 1 got 3.500, statement 2 got 3.600, statement 3 had 3.567, statement 4 received 3.533, statement 5 got 3.500 and statement 6 got 3.400 with a remark of highly acceptable (statements 2, 3 and 4) and acceptable for statements 1, 5 and 6. Over-all, the Project GRP Reading Material in terms of appropriateness to the target users got an average weighted mean of 3.517 that falls on highly acceptable remark.

In considering the science of reading, many researchers cite the National Reading Panel’s (National Institute of Child Health and Human Development, 2000) review and analysis of research related to reading instruction, which identified five key concepts in

reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Although these “big five” are certainly important, and each has received attention in this piece, they do not represent an exhaustive list of contributors to reading that teachers should consider when designing literacy instruction. Scientific research has shown that motivation for reading is another important determinant of reading comprehension; one that we ignore at our peril.

Absolutely, presenting suited reading materials is essential in helping learners acquire the necessary knowledge and skills. When reading materials are appropriately selected, they cater to the learners' current level of comprehension, interests, and learning needs. This alignment ensures that learners can effectively engage with the material, which enhances their learning experience and outcomes.

When learners find the reading materials interesting and relevant to their lives, they are more likely to be motivated to read and learn from them. This engagement fosters a positive attitude towards reading and learning. Reading materials that match the learners' current reading abilities and background knowledge increase the chances of successful comprehension. Learners are more likely to understand and retain the information presented.

Suited reading materials allow learners to practice and apply the reading strategies they have been taught. This practice helps them develop their reading skills further. Success in comprehending suited reading materials boosts learners' confidence in their reading abilities. This confidence encourages them to tackle more challenging texts in the future. Providing reading materials that reflect the learners' culture, experiences, and backgrounds validates their identities and creates a more inclusive learning environment. Suited reading materials allow educators to differentiate instruction, catering to the diverse needs and abilities of individual learners within the classroom.

When learners can read and understand materials on their own, they become more independent learners, able to explore and acquire knowledge beyond the classroom setting. It is essential for educators to consider learners' proficiency levels, interests, and learning goals when selecting reading materials. This may involve using various texts, including fiction, non-fiction, poetry, and digital resources. Regularly assessing learners' progress and adjusting the materials accordingly ensure that they continue to receive appropriately suited content as they advance in their reading abilities.

Ultimately, providing suited reading materials is a foundational aspect of effective reading instruction, contributing significantly to learners' overall academic growth and lifelong learning journey.

Table 4.2.1 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of content. The pupil-respondents evaluated the content with the following weighted mean of 3.571, 3.714, 3.857, 4.000 and 4.000 respectively from the statements 1 to 5 with highly acceptable remarks on all the statements.

All five statements received weighted mean scores indicating "highly acceptable" levels of perceived acceptability from the pupil-respondents. Specifically, statements 4 and 5 garnered the highest ratings with a weighted mean of 4.000, suggesting strong approval and satisfaction regarding certain aspects or criteria of the reading material's content.

Based on the pupil-respondent’s evaluations, this average weighted mean of 3.829 falls within the "highly acceptable" range. This indicates that, collectively, the respondents view the content of the Project GRP Reading Material favorably, highlighting its quality, relevance, and effectiveness in meeting their instructional or learning needs.

In summary, the findings underscore a positive perception among pupil-respondents regarding the content of the Project GRP Reading Material. The consistently high weighted mean scores across all statements reflect a consensus of "high acceptability," affirming the material's overall quality and suitability from the perspective of those directly engaging with it.

Table 4.2.2 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of presentation. Statements 1, 3, 4, 5, and 6 received weighted mean scores indicating a "highly acceptable" level of perceived acceptability from the pupil-respondents. Specifically, these statements reflect strong approval and satisfaction concerning various aspects or criteria related to the presentation of the reading material. Statement 2 garnered a weighted mean score of 3.429, falling within the "acceptable" range. While this statement meets the basic acceptability criteria, it may suggest areas for potential improvement or refinement in the presentation aspect evaluated.

Considering the collective evaluations across all statements, the Project GRP Reading Material achieved an average weighted mean score of 3.690 in terms of presentation. The cumulative weighted mean of 3.690 positions the reading material within the "highly acceptable" category. This indicates a favorable perception among pupil-respondents regarding the overall quality, effectiveness, and appeal of the reading material's presentation.

In summary, the findings from Table 4.2.2 highlight a predominantly positive perception among pupil-respondents concerning the presentation of the Project GRP Reading Material. While most statements received ratings of "highly acceptable," the material demonstrates strong alignment with respondents' expectations and needs. However, targeted attention to areas with "acceptable" ratings could further enhance the presentation's effectiveness and overall acceptability among users.

Table 4.2.3 shows the weighted mean distribution of the perceived level of acceptability of the Project GRP Reading Material in terms of appropriateness to the target users. The pupil-respondents evaluated the presentation with five statements with the following weighted mean – statement 1 and 3 got 3.714, statement 2 and 5 got 3.857, while statement 4 received 4.000.

The majority of the statements, specifically statements 1, 3, 4, and 5, received weighted mean scores indicating a "highly acceptable" level of perceived appropriateness for the target users. These ratings suggest that the respondents find these aspects of the reading material well-suited, relevant, and aligned with the needs and preferences of the intended audience.

Statement 4 stands out with a weighted mean score of 4.000, indicating an exceptionally high level of appropriateness as perceived by the pupil-respondents. This suggests that this particular aspect or criterion of the reading material resonates strongly with the target users, meeting or exceeding their expectations and requirements.

Aggregating the evaluations across all statements, the Project GRP Reading Material achieved an average weighted mean score of 3.829 concerning its appropriateness to the target users. With an average weighted mean of 3.829, the reading material falls within the "highly acceptable" category regarding its appropriateness for the intended users. This indicates a strong alignment between the material's design, content, and presentation and the preferences, needs, and expectations of the target audience, as perceived by the pupil-respondents.

In summary, Table 4.2.3's findings underscore a predominantly positive perception among pupil-respondents regarding the Project GRP Reading Material's appropriateness for its target users. The consistently high weighted mean scores across most statements reflect a consensus of "high acceptability," highlighting the material's relevance, effectiveness, and suitability for its intended audience.

Conclusions

In light of this research, which aimed to develop the reading level of Grade Three Faith non-readers through Project GRP (Guided Reading Procedure), the following conclusions were made after the study.

1. The researcher used a suited reading material for the grade three non-readers addressing the learner’s problem in reading skills. Though the result showed that majority of the learners tested were on the frustration level before and after using the Project GRP, it was evident that there was a progress in their reading skills. The lessen numbers of miscues before and after using the reading material were also marked as their progress.
2. There is a significant difference between the pre-test and post-test results of grade three non-readers in reading level.
3. The validated reading material made by the researcher were coherently addressed the gap in reading among the grade three non-readers. The continuation of the reading content from sounds to stories valued the reading habit among the respondents (both the teacher-validators and learner-validators) which showed the Tables 4.1.1 to 4.2.3 with a remark of highly acceptable.

Recommendations

To make the study more effective and authentic, the following recommendations are proposed:

1. To enhance the generalizability of the findings, increase the number of participants involved in the study. Include a control group that does not receive the Project GRP intervention. This will help the comparing the effectiveness of the information more accurately and ruling out the factors that might influence the learners' reading level.
2. Provide professional development for teachers on the implementation of the Project GRP to ensure consistency and effectiveness in its delivery. The collection and analyzation feedback from teachers can strengthen the usability and impact of the reading materials and intervention. Also, the involve of the parents in the reading intervention process by providing them with strategies and resources to support their children's reading development at home. can influence reading practices on students' progress to understand the holistic impact of the intervention.
3. Gather feedback from students about their experiences and perceptions of the reading intervention to identify areas for improvement and use these feedbacks to make iterative improvements to the Project GRP, ensuring that it remains responsive to the needs of the learners.

Compliance with Ethical Standards

DECLARATION OF ANTI-PLAGIARISM AND ABSENCE OF CONFLICT OF INTEREST

[Declaration of Anti-Plagiarism]

1. I/We, **DARWIN F. TABERNILLA**, understand that plagiarism is the act of taking and using another's ideas and works and passing them off as one's own. This includes explicitly copying the whole work of another person or that of the undersigned proponents and/or using some parts of their work without proper acknowledgment and referencing.
2. I/We hereby attest to the originality of this research proposal and have cited properly all the references used. I/We further commit that all deliverables and the completed research emanating from this proposal shall be of original content. I/We shall use appropriate citations in referencing other works from various sources. I/We also hereby attest that this research has not yet been finished and is not part of the researcher/s' thesis or dissertation.
3. I/We understand that violation of this declaration and commitment shall be subject to consequences and shall be dealt with accordingly by the Department of Education.

(Sgd.) DARWIN F. TABERNILLA
Signature Over Printed Name of Lead Researcher
02/12/2023
Date Signed

[Declaration of Absence of Conflict of Interest]

1. I/We, **DARWIN F. TABERNILLA**, understand that conflict of interest refers to situations in which financial or other personal considerations may compromise my/our judgment in evaluating, conducting, or reporting research.
2. I/We hereby declare that I/we do not have any personal conflict of interest that may arise from my/our submission of my/our research proposal. I/We understand that my/our research proposal may be returned to me/us if found out that there is a conflict of interest during the initial screening or review as per DO 16, s. 2017.
3. Further, in case of any form of conflict of interest (possible or actual) which may inadvertently emerge during the conduct of my/our research, I/we will duly report it to the research committee for immediate action.
4. I/we understand that I/we may be held accountable by the Department of Education for any conflict of interest which I/we have intentionally concealed.

(Sgd.) DARWIN F. TABERNILLA
Signature Over Printed Name of Lead Researcher
02/12/2023
Date Signed

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DEVELOPMENT AND EVALUATION OF A MODULAR INTEGRATED AMPLIFIER SIMULATOR

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ABSTRACT

This study aimed to design, develop, test, and evaluate a Modular Integrated Amplifier Simulator for use in electronics education. The simulator was developed using a developmental and descriptive research approach, following a systematic process of planning, design, assembly, testing, and validation. It consisted of various modules, including a power supply, pre-amplifier, tone control, 5-band graphic equalizer, and channel 1 and 2 power amplifiers. The construction and wiring procedures were detailed, and a comprehensive user's manual was created. The performance of the simulator was evaluated in terms of its ability to simulate various troubles, as well as the activities and features it offered. Additionally, the acceptability of the simulator and user's manual was assessed by students, faculty, and experts using a 5-point Likert scale. Results showed that the simulator was rated very highly in terms of design, construction, functionality, durability, safety, and instructional applicability. The user's manual was also well-received for its comprehensibility, suitability, and ease of use. No significant differences were found in the acceptability ratings across the different respondent groups. The study concludes that the Modular Integrated Amplifier Simulator is an effective and reliable educational tool that enhances the learning experience for electronics students. Recommendations include pursuing intellectual property protection and further enhancing the simulator based on user feedback.

Keywords: *Electronics education, developmental research, simulator performance evaluation, user's manual evaluation, learning enhancement*

INTRODUCTION

In the field of teacher education, particularly within electronics courses, the use of instructional materials such as laboratory equipment and activity manuals is essential. Practical tasks are crucial for achieving effective and meaningful teaching and learning experiences, as laboratory facilities enhance and simplify these processes. Instructional materials, whether created or purchased, facilitate the transmission of organized knowledge, skills, and attitudes to students. By visually representing the material covered in class, these teaching aids make learning more tangible and effective. The sequence in which students interact with these resources significantly impacts their ability to complete activities successfully. Therefore, instructional materials are vital for improving the understanding and retention of factual knowledge by providing a realistic experience.

State universities and colleges (SUCs) in the Philippines face several challenges, with the lack of instructional resources being a primary concern. Many SUCs have expressed a need to upgrade their infrastructure and equipment. According to a survey by the Japan International Cooperation Agency (2015), 41 out of 52 SUC respondents (79%) indicated a desire to build and upgrade their facilities and equipment. This issue is also prevalent in the Department of Education, where secondary school teachers often lack available instructional materials, hindering the quality of education. Addressing this issue is crucial for enhancing the overall learning experience and outcomes for students in the Philippines.

In a study by Cayabas and Sumeg-ang (2023), teachers reported challenges in designing educational materials. Despite these challenges, they recognized the invaluable role of these materials in facilitating successful teaching and encouraging meaningful learning experiences. Teachers in the Philippines rely on instructional materials to aid in transferring knowledge, skills, and attitudes to their students. The effectiveness of the teaching and learning process heavily depends on how well these materials are utilized in the classroom. Therefore, these teaching materials must be well-developed and aligned with class objectives to maximize their impact and improve student performance. The use of instructional materials also encourages students to study independently. However, due to a lack of resources, some teachers may forgo using instructional materials. The Department of Education has implemented policies mandating that teachers adapt their lesson plans to the needs of the teaching and learning process.

Vocational secondary schools require instructional materials such as mock-ups and simulators to help students understand and visualize the concepts being taught. Teaching would be more productive with instructional materials that students can see and experience through hands-on training. Integrating trainer mock-ups into the educational system would likely involve collaboration between academic institutions and industry stakeholders. The government, through the Department of Education (DepEd) or the Commission on Higher Education (CHED), may provide guidelines on curriculum development that encourage practical, hands-on learning experiences.

The K–12 Basic Education Program (RA No. 10533, 2013) introduces curriculum modifications to better meet the needs of the contemporary world. This program upholds the constitutional mandate to establish, maintain, and support a complete, adequate, and integrated system of education relevant to the needs of the people and society. Technology and Livelihood Education (TLE) is one of the disciplines that must be taught in grades 7 through 10 under the K–12 BEP framework. TLE focuses on providing students with practical skills and knowledge in various fields, preparing them for both further education and the workforce. TLE encompasses different learning areas, including Home Economics, Industrial Arts, Information and Communication Technology (ICT), and Agri-Fishery Arts. The primary goal of TLE is to develop practical skills applicable to real-world situations through hands-on activities, experiments, and projects.

Several vocational secondary schools in the City of Ilagan, such as the Isabela School of Arts and Trades – Main, San Antonio National-Agro-Industrial and Vocational High School, and San Rafael National and Vocational High School, offer technical-vocational courses with various specializations, including electronics technology.

The researcher, having completed a Bachelor of Technical Teacher Education (BTTE) with a major in Electronics Technology and currently a teacher at Isabela School of Arts and Trades Main Campus, identified a lack of instructional materials for electronics subjects. This initiative aims to enhance the quality of learning experiences, preparing students effectively for their future vocations. By developing these training tools, the researcher hopes to bridge the gap between theoretical knowledge and practical application in electronics. Providing students with hands-on learning opportunities will better equip them for success in their chosen careers.

In schools focusing on Industrial Education, teachers encounter critical challenges such as the need for appropriate and relevant laboratory equipment, apparatus, and trainers for laboratory classes. Teachers of various specializations must be resourceful and strategically committed to solving these problems to meet learners' training needs. Through the teacher's initiative and resourcefulness, a mock-up of training equipment will be crafted using local materials, making it cost-effective.

Developing a mock-up or simulator is believed to improve the teaching-learning process. This mock-up or trainer can provide laboratory activities for learners, enhancing their understanding of different principles in the electronics industry.

According to Mei et al. (2022), an integrated amplifier circuit is a vital component of any sound system, intended to be used as the final block in an integrated amplifier chain to increase the input signal to a level sufficient to drive loads. Amplifiers are widely used in electronic circuits to make an electronic signal larger without affecting the signal. Commonly, amplifiers are associated with audio devices like radios, CD players, or home stereos. An amplifier or electronic amplifier increases the power of a signal by modifying the output of the power supply to produce a stronger output signal compared to the input signal (Omar, Daud, & Rahman, 2020).

In the 21st century, digital signal processing and multimedia applications have further shaped the landscape of integrated amplifier simulators. Research by Wang and Liu (2015) explored the integration of digital amplifiers in training modules, showcasing the adaptability of these tools to contemporary technological trends. Despite advancements, challenges such as affordability, accessibility, and the need for continuous updates to keep pace with technological innovations remain pertinent in the ongoing development of integrated amplifiers for educational purposes (Brown & Clark, 2022).

Instructional materials play a crucial role in education by enhancing learning experiences. They provide visual aids, examples, and practical applications, promoting better understanding and retention of information. Well-designed materials cater to various learning styles, making lessons more accessible and engaging for students.

Sadiq and Zamir (2014) state that the expanding teacher planning program necessitates creating instructional materials, practical manuals, and designs that meet national market needs. According to Siudad and Aliazas (2022), individual differences in learning styles stem from strengths and preferences, with individuals responding differently to environmental, social, physical, psychological, and emotional stimuli (Carada et al., 2022).

The Philippines' constantly evolving educational environment has given rise to exciting new developments in teaching and learning. Teaching has become one of the most challenging professions in the modern era due to the need to adapt to these changes and stay relevant in the fifth industrial revolution. Teachers must lead 21st-century learners who are critical thinkers, creative, communicative, and collaborative (Gepilla, 2020).

Instructional resources are part of the curriculum enactment process, bridging the gap between the official and operational curriculum (Remillard & Heck, 2014). They refer to materials that help teachers with lesson instruction and play a crucial role in national education systems. To use instructional materials effectively, teachers must invest significant time and effort in developing a thorough understanding of the involved concepts. They must also ensure explicitness in teaching materials to communicate concepts effectively to students (Leong et al., 2019).

Dhakal (2020) emphasizes that instructional materials are necessary for incorporating into the teaching-learning process to help students benefit maximally from learning experiences. These materials include printed, graphic, objects, audiovisuals, boards, and local materials, among others. For instructional materials to be meaningful and effective, they must meet characteristics such as variety, economy, adaptability, and accuracy. They must be well-designed, instructionally recognized, address learners' needs, and be portable, durable, relevant, and economical. The language used should be simple, unambiguous, and communicative to all types of learners.

Olayinka (2016) highlights the importance of instructional materials in developing learners' intellectual abilities and achieving teaching and learning objectives. Students taught with instructional materials outperform those who are not. Furthermore, instructional materials can enhance student engagement and motivation, catering to different learning styles and preferences.

Ezeliora et al. (2021) found that incorporating instructional materials supports teaching and learning, contributing to improved academic performance and retention. Their study showed that students with access to well-designed instructional materials exhibited higher engagement and understanding of course material. This underscores the importance of utilizing various resources to enhance the overall learning experience for students.

John Dewey, an influential American philosopher, psychologist, and educational reformer, is closely associated with the concept of "learning by doing." His theories on education and social reform, known as the "John Dewey Theory," advocate for experiential learning, which emphasizes active engagement with the material over passive listening or memorization. Dewey also promoted progressive questioning and dialogue methods to enable more meaningful classroom exchanges. Aligned with Dewey's educational theory, this study aimed to develop a mock-up or trainer to allow learners to broaden their knowledge and experience.

Research Questions

This research aimed to design, develop, test, and evaluate the Integrated Amplifier Simulator. Specifically, the study sought answers to the following questions:

1. What is the process of designing and developing the proposed integrated amplifier simulator in terms of:
    a. physical, structure, and components;
    b. circuit and wiring installation; and
    c. user’s manual.
2. What is the performance of the integrated amplifier simulator in terms of:
    a. troubles;
    b. activities; and
    c. features.
3. What is the level of acceptability of the proposed integrated amplifier simulator in terms of:
    a. design and construction,
    b. functionality,
    c. durability,
    d. safety, and
    e. instructional applicability.
4. What is the level of acceptability of the developed user’s manual in terms of:
    a. comprehensibility;
    b. suitability; and

c. ease of use.

5. Is there a significant difference in the general level of acceptability of the developed integrated amplifier simulator as perceived by the:
   a. students;
   b. faculty members; and
   c. experts?
6. Is there a significant difference in the general level of acceptability of the developed user's manual as perceived by the;
   a. faculty members; and
   b. experts?
7. What are the comments and suggestions offered by the respondents for the improvement of the developed integrated amplifier simulator?

METHODOLOGY

Research Design

The Integrated Amplifier Simulator at Isabela School of Arts and Trades - Main was developed using a developmental and descriptive research approach. This study methodically adhered to steps such as planning, design, assembly/processing, testing, and validation in the development of the trainer. The technical enhancement was implemented through revisions based on experimental results observed and documented before, during, and following the construction phase of the trainer.

Materials and Methods

A. Development of the Trainer

Following a certain construction procedure based on the project design led to the development of instructional materials/simulators. Thus, listed below is the procedure to be done as follows:

1. Project Design

With the use of block diagrams, the technical design of the project is illustrated below.

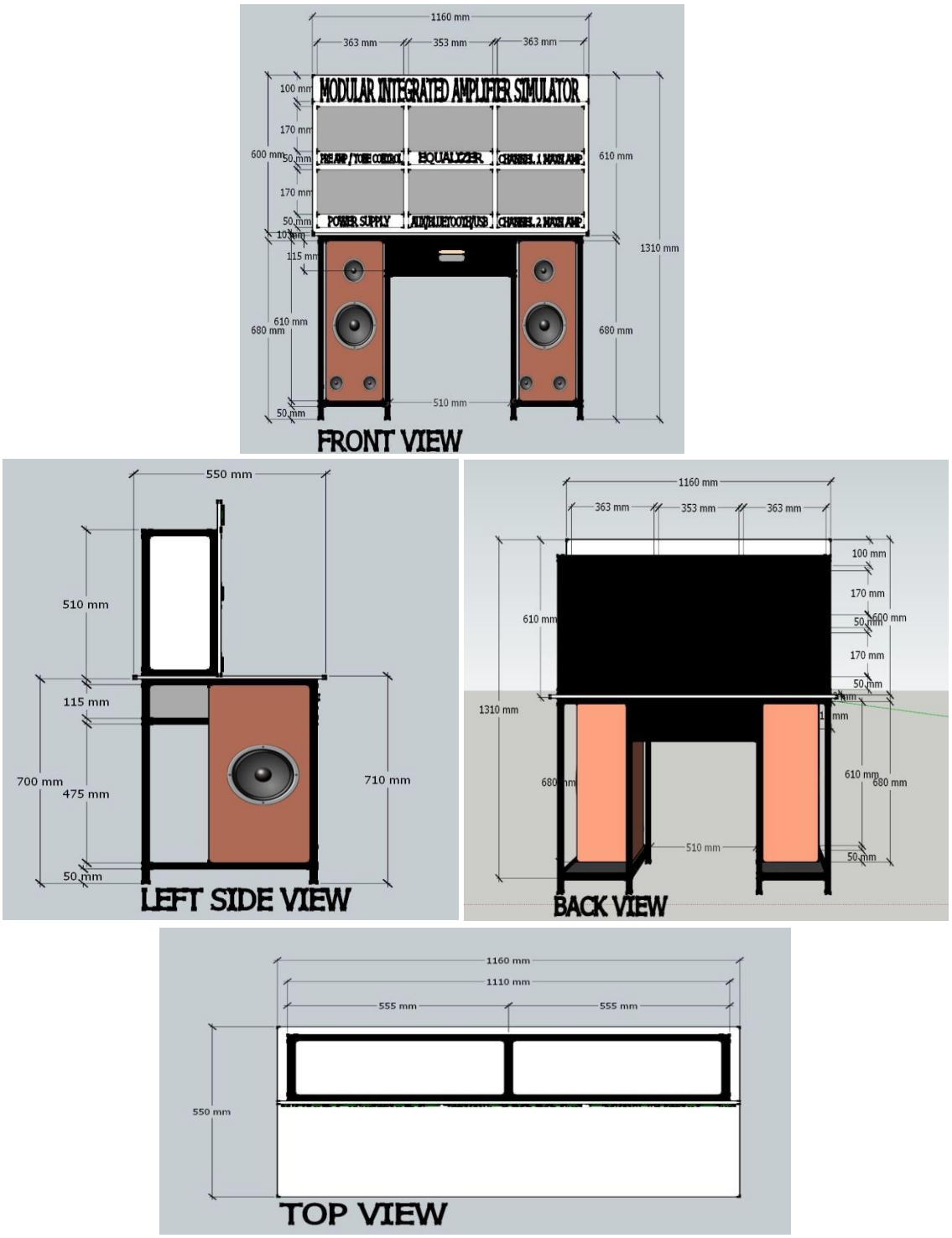


Figure 1. Design of the Proposed Projec

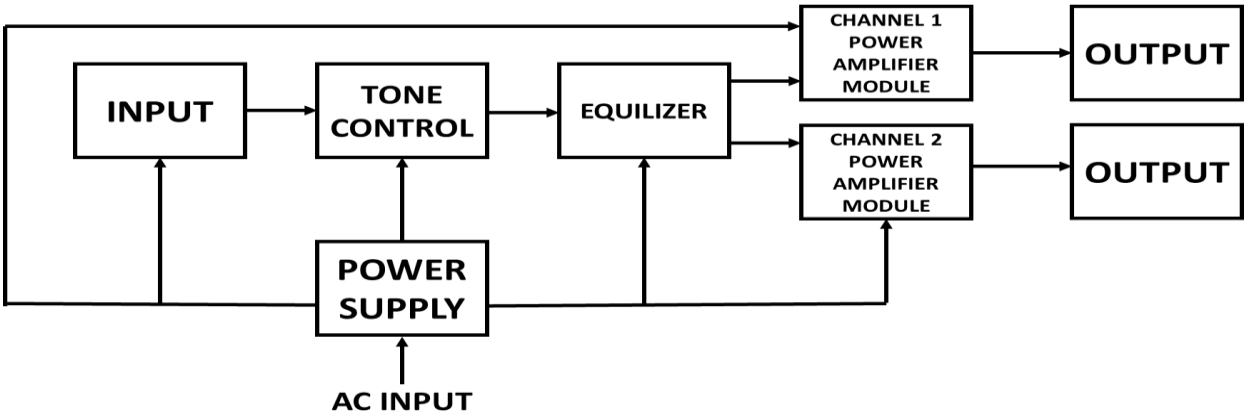


Figure 2. Block Diagram of the trainer which shows the project's composition, main sections, and connections.

2. Construction Procedure

The following are the proposed step-by-step procedures for the fabrication of the Modular Integrated Amplifier Simulator:

a. Prepare the materials needed in constructing the trainer.
b. Identify the voltage test points.
c. Assemble the casing of the simulator.
d. Mount the components to the casing.
e. Bore holes for the terminal connections of component and device components for the activity board.
f. Mount and solder terminals of the different stages/sections.
g. Label different sections/stages of the trainer with stickers on the board based on the layout design of the simulator panel
h. Test and record technical results subject to modifications and revisions if needed.

a. Constructing the tour case

The researcher will be in charge of assembling the project's Tour case based on the specified design, provided that the necessary tools and equipment are available.

b. Testing Procedures

The trainer underwent several tests and modifications before, during, and after the construction period. The results and observed technical faults were improved to ensure the system's performance and usefulness.

A. Bills of Supplies and Materials

Quality	Unit	Description	Unit Cost	Total Cost
1	Pc	Plywood ¾	250.00	250.00
3	Pcs	Epoxy Primer	200.00	600.00
3	Pcs	Cutting Disc	25.00	75.00
4	Pcs	Tubular 1X1X1.5	375.00	1,500.00
1	Pc	Plain Sheet Metal 1.2mm	1,600.00	1,600.00
1	Pc	Plain Sheet Metal 0.5mm	330.00	330.00
1	Box	Rivet	200.00	200.00
2	Pcs	7372 Blank Amplifier Module	210.00	420.00
2	Pcs	Equalizer	320.00	640.00
1	Pc	Toroidal Transformer 733	1,500.00	1,500.00
10	Pcs	Transistor/A1941-C5198	140.00	1.400.00
2	Pcs	Electrolytic Capacitor 10,000uf/63v	200.00	400.00
1	Pc	Pre-Amplifier Tone Control Module	300.00	300.00
50	Pcs	Banana Jack Male	20.00	1,000.00
50	Pcs	Banana Jack Female	18.00	900.00
1	Pc	Bluetooth Speaker	300.00	300.00
2	Pcs	Speaker D8 400watts	1,250.00	2,500.00
2	Pcs	Mid-Range Speaker	300.00	600.00
2	Pcs	Tweeter	100.00	200.00
1	Pc	Speaker Protector	400.00	400.00
1	Pcs	Mylar Capacitor 104/250v	130.00	130.00
1	Pc	Transistor 1 Ampere	200.00	200.00
16	Pcs	Speaker Box Corner	25.00	400.00
6	Meters	Speaker wire	35.00	210.00

4	Pcs	Spray Paint Gray	125.00	500.00
3	Pcs	Spray Paint Black	125.00	375.00
4	Pcs	Spray Pain White	125.00	500.00
1	Liter	Boysen Quick Dry Enamel White	215.00	215.00
1	Pc	Formika Brown	700.00	700.00
1	Bottle	Rugby	110.00	110.00
Total Cost				**18,455.00**

Selection and Description of Respondents

Sixty (60) respondents were randomly selected from Technical Vocational Schools, Isabela State University – Ilagan Campus, TESDA-ISAT, and Electronic Shops.

RESPONDENTS	Number of Respondents
Faculty Members	
Technical Vocational School Electronics Teachers	**13**
Isabela State University – Ilagan Campus	**2**
Experts	
Technical Education and Skills Development Authority-ISAT	**1**
Electronic Shop/Technician	**9**
Electronic Students	
Junior High School Students	**35**
Total	**60**

Research Instrument

The employed instruments in the evaluations of the developed trainer and the user's manual. The instrument used for the developed trainer was an adaptation to the instruments used in the study of Dioso (2024) titled "Development and Evaluation of Hybrid Photovoltaic (Pv) Electrical System Modular Trainer", Angangan (2021) titled "Manually- Operated and PLC Ready Motor Control Trainer" and Bartolome (2019) titled "Development and Acceptability of Industrial Motor Control Trainer". The collected data

for the acceptability of the simulator were tallied and analyzed using the 5-point Likert Scale below:

A. Design and Construction

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Very Good
4	3.40 – 4.19	Good
3	2.60 – 3.39	Moderately Good
2	1.80 – 2.59	Sometimes Good
1	1.00 – 1.79	Not at all Good

B. Functionality

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Very Functional
4	3.40 – 4.19	Functional
3	2.60 – 3.39	Moderately Functional
2	1.80 – 2.59	Sometimes Functional
1	1.00 – 1.79	Not at all Functional

C. Durability

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Very Durable
4	3.40 – 4.19	Durable
3	2.60 – 3.39	Fairly Durable
2	1.80 – 2.59	Least Durable
1	1.00 – 1.79	Not Durable

D. Safety

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Very Safe
4	3.40 – 4.19	Safe
3	2.60 – 3.39	Fairly Safe
2	1.80 – 2.59	Least Safe
1	1.00 – 1.79	Not Safe

E. Instructional Applicability

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Very Applicable
4	3.40 – 4.19	Applicable
3	2.60 – 3.39	Fairly Applicable
2	1.80 – 2.59	Least Applicable
1	1.00 – 1.79	Not Applicable

As for the evaluation of the developed user's manual, this instrument was adapted to instruments used in the study of Makabenta G G. (2019) Learning Module for improved performance in Physics of Senior High School students. The collected data for the acceptability of the user's manual will be tallied and analyzed using the 5-point Likert Scale below:

A. Comprehensibility

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Strongly Agree
4	3.40 – 4.19	Agree
3	2.60 – 3.39	Moderately Agree
2	1.80 – 2.59	Disagree
1	1.00 – 1.79	Strongly Disagree

B. Suitability

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Strong Agree
4	3.40 – 4.19	Agree
3	2.60 – 3.39	Moderate Agree
2	1.80 – 2.59	Disagree
1	1.00 – 1.79	Strongly Disagree

C. Ease of Use

Weight	Mean Range	Qualitative Description
5	4.20 – 5.00	Strong Agree
4	3.40 – 4.19	Agree
3	2.60 – 3.39	Moderate Agree
2	1.80 – 2.59	Disagree
1	1.00 – 1.79	Strongly Disagree

Data Gathering Procedure

A. Technical Performance

The data on technical performance were gathered through physical structure and components, circuit and wiring installation, troubles, and features with time duration during the operation of the trainer. Further data on simulated faults were recorded through actual simulation of troubles and simultaneous observation.

B. Acceptability

The permission to conduct the study via technical performance evaluation was obtained from the respondents. After permission was granted, the questionnaire was administered. The researcher personally discussed with the evaluators how to answer the questionnaires. Then, the researcher retrieved the completed questionnaires. The Likert scale was employed to describe the evaluation. The acceptability of the developed user's manual was evaluated in terms of comprehensibility, suitability, and ease of use.

Research Locale

The research was conducted at selected Technical Vocational Schools, Isabela State University – Ilagan Campus, TESDA-ISAT, and Electronic Shop/Technicians in the City of Ilagan.

RESULTS AND DISCUSSION

1. Project Design and Development

a. *Description of the Physical Structure and Components of the Integrated Amplifier Simulator*

Panel board of the simulator. This is where the module of the integrated amplifier is located. The panel board includes a Pre-amplifier, Tone Control, Power Supply, 5-band Graphic Equalizer, Channel 1 and 2 Power Amplifier Module, and Bluetooth.

Pre-amplifier and tone control module. A pre-amplifier is a virtual representation of the circuit that processes low-level audio signals before they are amplified to a higher power level by the power amplifier section. The pre-amplifier includes components such as a resistor, capacitor, and transistor. The tone control allows users to adjust the balance of different frequency ranges (typically bass, midrange, and low) to shape the sound according to their preferences.

Power supply module. The power supply is a critical component that provides the necessary electrical power for the amplifier to function. It is composed of the following components namely: Transformer, Rectifier diode, Filter capacitor, Voltage regulator, and

Fuse. These components work together to convert the incoming AC power into a stable DC voltage that can be used by the amplifier. The power supply module ensures that the amplifier receives consistent and clean power for optimal performance.

A **5-band graphic equalizer** is a tool that allows users to adjust the amplitude of specific frequency bands, providing fine-tuned control over the audio signal's frequency response. The equalizer splits the audio spectrum into five distinct bands, each centered around a specific frequency. Typical frequencies for a 5-band graphic equalizer are 100 Hz(Bass), 350 Hz (Low Midrange), 1 kHz (Midrange), 3.5 kHz (Upper Midrange), and 10 kHz (Treble). This can be useful for correcting any imbalances in the sound output or enhancing certain frequencies to achieve a desired audio effect. Users can customize the equalizer settings to suit their preferences and optimize the listening experience.

The channel 1 and 2 power amplifiers are the final amplification stage that boosts the audio signal to a level capable of driving speakers. It includes comprehensive simulations of the input stage, voltage amplification stage, driver stage, and output stage, with real-time feedback on performance metrics such as distortion, frequency response, and efficiency. The channel 1 and 2 power amplifier also allow for adjustments to be made to optimize the audio output for different speaker configurations or room acoustics. This ensures that the amplified signal is delivered accurately and efficiently to provide high-quality sound reproduction.

A Bluetooth is a device that combines the functions of an audio amplifier with Bluetooth wireless connectivity. This integration allows for seamless streaming of audio content from Bluetooth-enabled devices, such as smartphones, tablets, and computers, directly to the amplifier without the need for physical cables.

A speaker is used to simulate and analyze audio performance within an audio system. It allows for the testing of various components such as microphones, amplifiers, and speakers to ensure they are functioning properly. It also has working table for checking of components of simulator and it includes drawer where they can store the tools and materials.

B. Circuit and wiring installation

Procedures on how to connect the circuit to the different modules of the simulator

1. Connect Bluetooth output to pre-amplifier input using an RCA male plug.
2. From output of pre-amplifier, connect the pre-amplifier to 5 band graphic equalizer to input.
3. From the output of the 5-band graphic equalizer, connect the RCA plug to the input of channel 1 and channel 2 of the power amplifier.
4. From the power supply, connect Vcc+ output to Vcc+ input of channel 1 power amplifier and connect Vcc+ input channe1 to Vcc+ input of channel 2 power amplifier.

5. Connect the ground output of the power supply to the ground input of the channel 1 power amplifier and connect the ground input of channel 1 to the ground input of the channel 2 power amplifier.
6. Connect Vcc- output of power supply to Vcc- input of channel 1 power amplifier and connect Vcc- input channel 1 to Vcc- input of channel 2 power amplifier.
7. From the power supply, connect AC output 12v to AC input 12v of 5 band graphic equalizer.
8. From channel 1 of the power amplifier, connect the speaker output to speaker 1 input.
9. From channel 2 of the power amplifier, connect the speaker output to the speaker 2 input.
10. Turn on the simulator.

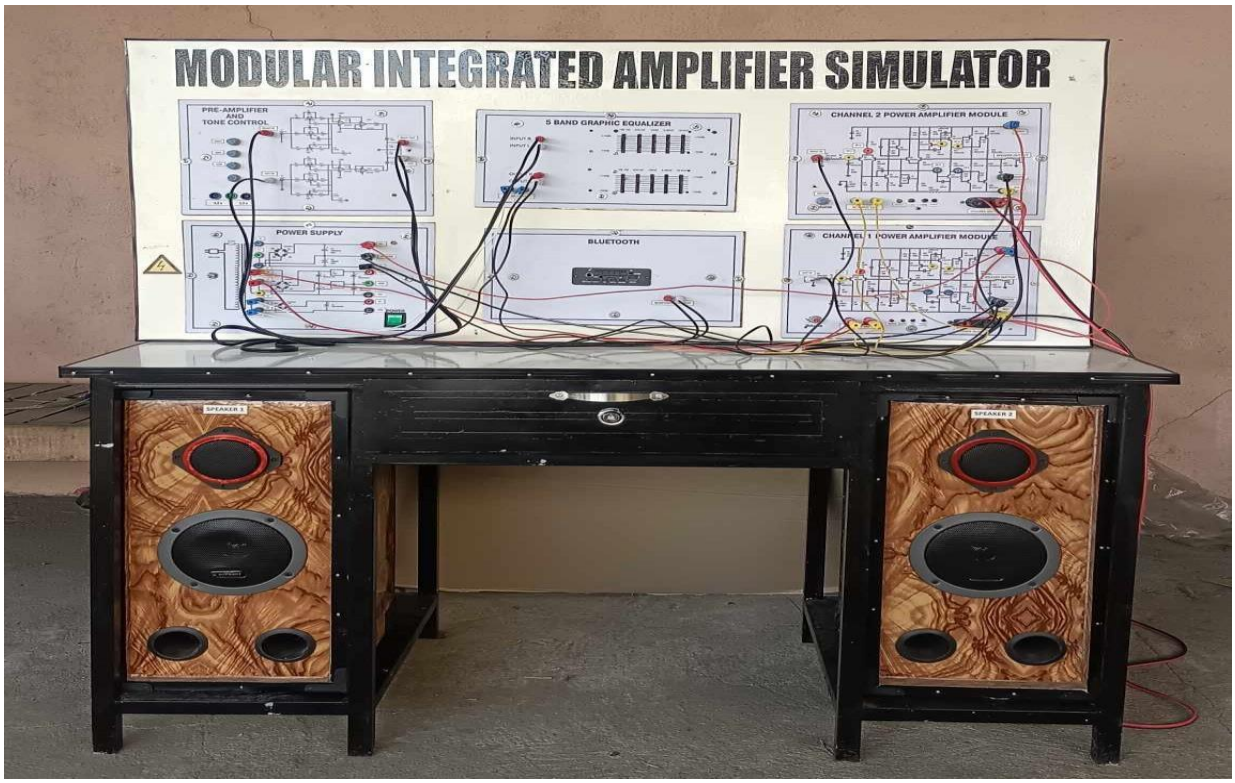


Figure 3. The Modular Integrated Amplifier Simulator

C. The User's Manual

The User's Manual of Modular Integrated Amplifier Simulator contains instructions on how to use the simulator. It also includes information and activities of the simulator for electronics students such as power supply module, Pre-Amplifier, tone control, channel 1 and channel 2 power amplifier.

Table 1. Performance of the Integrated Amplifier Simulator in Terms of Trouble Simulation

MODULES	TROUBLES
POWER SUPPLY	No power Noise and Hum Voltage Fluctuations Overheating
Pre-Amplifier and Tone Control	Noise and hiss Distortion Imbalance Loss of signal
Channel 1 and 2 Power Amplifier	Distortion Overheating Clipping Hum and Noise

Table 2. Performance of the Integrated Amplifier Simulator in Terms of Activities

LESSON	NUMBER CLASS HOURS		ACTIVITY
	Lectures Hours	Activity time allotted for student	
1. Wiring connection of module/section of the simulator	35 minutes	15 minutes	Wiring the complete module/section of the panel board
POWER SUPPLY MODULE			
2. Identify and describe the components of power supply	20 minutes	10 minutes	Identifying and describing the components of power supply
3. Interpret Schematics diagram	20 minutes	10 minutes	Interpreting the schematic diagram of power supply
4. Voltage measurement	20 minutes	10 minutes	Checking the voltage of power supply
5. Diagramming (Schematic)	30 minutes	20 minutes	Sketching the schematic diagram of power supply
PRE-AMPLIFIER AND TONE CONTROL			
6. Identify the parts and components of pre-amplifier and tone control	20 minutes	10 minutes	Identifying the parts and components of pre-amplifier and tone control
7. Interpret the schematic diagram	20 minutes	10 minutes	Interpreting the schematic diagram of pre-amplifier
8. Signal tracing	20 minutes	10 minutes	Tracing the signal of pre-amplifier
9. Diagramming (Schematic)	30 minutes	20 minutes	Sketching the schematic diagram of pre-amplifier and tone control

CHANNEL 1 AND 2 POWER AMPLIFIER MODULE			
10. Identify the parts and components of channels 1 and 2 of the power amplifier	40 minutes	20 Minutes	Identifying the parts and components of channels 1 and 2 of the power amplifier
11. Interpret the schematic diagram	40 minutes	20 minutes	Interpreting the schematic diagram of channels 1 and 2 of the power amplifier
12. Signal tracing	20 minutes	10 minutes	Tracing the signal of channels 1 and 2 of the power amplifier
13. Diagramming (Schematic)	40 minutes	20 minutes	Sketching the whole twin tub simulator

The table above shows the lessons and number of class hours of every module and activities of the Modular Integrated Amplifier Simulator.

2. Project Evaluation

Table 3. Level of Acceptability of Developed Integrated Amplifier Stimulator in Terms of Design and Construction, Functionality, Durability, Safety, and Instructional Applicability

A. Design and Construction	**Mean**	**Standard Deviation**	**Description**
1. The simulator has a unique design and construction.	5.00	0.00	Very Good
2. The simulator can be easily reproduced for student use.	4.92	0.28	Very Good
3. The simulator has components that are well assembled and visible for easy understanding	4.95	0.22	Very Good
4. The simulator has component that are tough and tension resistant.	4.80	0.40	Very Good
5. The simulator is stable and in good condition.	4.92	0.28	Very Good
Average	**4.92**	**0.13**	**Very Good**
B. Functionality	**Mean**	**Standard Deviation**	**Description**
1. The simulator shows the actual operation of an integrated amplifier	4.88	0.32	Very Functional
2. The simulator can serve its purpose efficiently.	4.97	0.18	Very Functional
3. The simulator is easy to operate and maintain.	4.85	0.36	Very Functional
4. The simulator is made up of real electronics components used in the operation, testing, and troubleshooting procedures.	4.83	0.38	Very Functional

5. The simulator can be manipulated by students for easy understanding of concepts.	4.97	0.18	Very Functional
Average	***4.90***	***0.30***	***Very Functional***
C. Durability	**Mean**	**Standard Deviation**	**Description**
1. The materials used in the simulator can be used for longer period.	4.92	0.28	Very Durable
2. The simulator components and different modules are fixed and sturdy.	4.88	0.32	Very Durable
3. The simulator has a long-lasting condition	4.92	0.28	Very Durable
4. The simulator wire and conductor used are in good condition	4.92	0.28	Very Durable
5. All components of the simulator are durable and can work well for laboratory activities.	4.91	0.18	Very Durable
Average	***4.92***	***0.279***	***Very Durable***
D. Safety	**Mean**	**Standard Deviation**	**Description**
1. The simulator is equipped with safety and protective devices.	4.95	0.22	Very Safe
2. Connectors are insulated to prevent short circuits and electrocution.	4.90	0.30	Very Safe
3. The simulator is easy to maintain	4.83	0.38	Very Safe
4. The simulator has movable parts which are properly mounted for safety	4.90	0.30	Very Safe
5. The simulator is safe to use and user-friendly.	4.93	0.25	Very Safe
Average	***4.87***	***0.34***	***Very Safe***
E. Instructional Applicability	**Mean**	**Standard Deviation**	**Description**
1. The simulator is effective for instructional and shop work use.	4.93	0.25	Very Applicable
2. The simulator is suited to student's specialization in electronics subjects for the laboratory.	4.88	0.32	Very Applicable
3. The operation and manipulation of the simulator are according to the needed performance for each activity.	4.93	0.25	Very Applicable

4. The simulator can be used to improve the teaching-learning process.	4.85	0.36	Very Applicable
5. The simulator is suited for Electronics Junior High School learners.	4.97	0.18	Very Applicable
Average	***4.91***	***0.14***	***Very Applicable***

The table exhibits the level of acceptability of the developed integrated amplifier simulator.

As shown in the table, the design and construction was evaluated as very good by the respondents. All the characteristics under this criterion were rated with very high mean scores. With a mean of 4.95, being the highest rating, the evaluators agree that the simulator's components are well-assembled and visible, which aids in understanding its operation. This indicates that the simulator is well-received by users.

Similarly, in terms of its functionality, the developed integrated amplifier simulator is highly functional, as evidenced by the high ratings across various functionality criteria. It effectively demonstrates the actual operation of an integrated amplifier, serves its purpose efficiently, is easy to operate and maintain, uses real electronic components, and is manipulable for easy understanding by students. The high average mean score of 4.90 and described as very functional and the relatively low standard deviation confirm that the simulator is well-regarded for its functionality.

With regard to its durability, the developed integrated amplifier simulator is highly durable, as evidenced by the high ratings across various durability criteria. The materials used, the sturdiness of components, the long-lasting condition, and the quality of wires and conductors all contribute to the overall perception of the simulator's durability. The evaluators agreed that the product is very durable as evidenced by its overall mean score of 4.92. This implies that the simulator is well-regarded for its durability.

Additionally, the developed integrated amplifier simulator is highly regarded for its safety. With high ratings across various safety criteria described as very safe, the simulator is equipped with necessary safety and protective devices, has insulated connectors, is easy to maintain, has properly mounted movable parts, and is user-friendly. The overall mean of 4.87 for safety indicates that the integrated amplifier simulator is highly regarded for its safety features. This high rating demonstrates strong confidence among respondents in the simulator's safety, making it a reliable and secure tool for educational purposes.

Moreover, the developed integrated amplifier simulator is highly regarded for its instructional applicability. The high ratings across various criteria, including effectiveness for instructional and shop work use, suitability for students specializing in electronics, performance in operation and manipulation, potential to improve the teaching-learning process, and suitability for Electronics Junior High School learners, confirm its value as

an educational tool. The mean score of 4.91 for the instructional applicability of the integrated amplifier simulator implies that it is highly valued as an educational tool.

Table 4. Level of Acceptability of the User's Manual in Terms of Comprehensibility, Suitability, and Ease of Use

A. Comprehensibility	Mean	Standard Deviation	Description
1. The procedures/steps in the activity manual are presented in a manner that could be easily grasped by the students.	4.80	0.41	Strongly Agree
2. The evaluation in the activity manual could easily be understood by the students.	4.84	0.37	Strongly Agree
Average	***4.82***	***0.28***	***Strongly Agree***
B. Suitability			
1. The objectives in the activity manual are suitable to the content and activities.	4.80	0.41	Strongly Agree
2. The symbols and diagrams in the user's manual are suitable to the activities.	4.96	0.20	Strongly Agree
Average	***4.88***	***0.22***	***Strongly Agree***
C. Ease of Use			
1. All activities in the laboratory manual can be performed in the simulator.	5.00	0.00	Strongly Agree
2. The learning content in the user's manual provides useful information to the student in performing various integrated amplifier tasks.	4.88	0.33	Strongly Agree
Average	***4.94***	***0.16***	***Strongly Agree***

The table presents the level of acceptability of the developed user's manual in terms of its comprehensibility, suitability, and ease of use.

As evident in the table, in terms of Comprehensibility, the mean ratings for statements 1 and 2 indicate strong agreement, 4.80 and 4.84, respectively, suggesting that students find the procedures, steps, and evaluations presented in the manual easy to grasp. The average for this criterion is 4.82, still within the "Strongly Agree" range, further confirming the high level of comprehensibility.

Regarding its Suitability, both statements in this section also receive high mean ratings of 4.80 and 4.96, indicating strong agreement regarding the suitability of objectives, symbols, and diagrams to the content and activities. The mean score of 4.85 suggests that the high level of suitability for the user's manual is strongly agreed by the evaluators.

In terms of Ease of Use, both statements in this category receive exceptionally high mean ratings of 05.00 and 4.88, showing strong agreement that all activities can be performed in the simulator and that the learning content provides useful information for performing various tasks. The average for this section is 4.94 out of 5, reinforcing the perception that the manual is highly user-friendly and provides valuable information for performing tasks.

The data suggests that the developed user's manual is highly regarded by students in terms of comprehensibility, suitability of content, symbols, and diagrams, as well as ease of use. The consistently high mean ratings and low standard deviations across all sections indicate a strong consensus among students regarding the quality of the manual.

Table 5. Comparison in the General Acceptability of the Developed Integrated Amplifier Stimulator as perceived by the Faculty Members, Experts, and Students

Criteria	F value	p-value	Comparison	Decision	Remark
Design and Construction	1.82	0.71	p-value > 0.05	Accept Ho	the difference is not significant
Functionality	0.53	0.59	p-value > 0.05	Accept Ho	the difference is not significant
Durability	3.24	0.05	p-value = 0.05	Accept Ho	the difference is not significant
Safety	3.12	0.05	p-value = 0.05	Accept Ho	the difference is not significant
Instructional Applicability	0.06	0.94	p-value > 0.05	Accept Ho	the difference is not significant

This table displays the comparison of the general acceptability of the Developed Integrated Amplifier Stimulator as perceived by evaluators across different criteria. The criteria include Design and Construction, Functionality, Durability, Safety, and Instructional Applicability.

For Design and Construction, the F value is 1.82, and the p-value is 0.71, which is greater than 0.05. With a ρ-value greater than the significance level (0.05), the decision is to accept the null hypothesis (H_0), indicating that the difference in perceptions of design and construction among evaluators is not statistically significant.

With regard to its Functionality, the F value is 0.53, and the ρ-value is 0.59, both of which are greater than 0.05. Similar to Design and Construction, the decision here is to accept the null hypothesis, suggesting that there is no significant difference in evaluators' perceptions regarding the functionality of the Integrated Amplifier Stimulator.

In terms of Durability and Safety, for both Durability and Safety, the F values are 3.24 and 3.12, respectively, with ρ-values of 0.05. The p-values are exactly at the significance level of 0.05. However, the decision is still to accept the null hypothesis, indicating that the perceived differences in durability and safety are not statistically significant.

Regarding its Instructional Applicability, the F value is 0.06, and theρ-value is 0.94, both well above 0.05. As with the other criteria, the decision is to accept the null hypothesis, suggesting that there is no significant difference in evaluators' perceptions regarding the instructional applicability of the Integrated Amplifier Stimulator.

Data reveal that across all criteria, the ρ-values are greater than 0.05, except for Durability and Safety, where they are exactly 0.05. However, in all cases, the decision is to accept the null hypothesis, indicating that the differences in evaluators' perceptions are not statistically significant. This suggests that the Integrated Amplifier Stimulator is generally perceived similarly across different criteria by the evaluators.

Table 6. Comparison in the General Level of Acceptability of the Developed User's Manual as Perceived Faculty Members and Experts

Criteria	F value	p-value	Comparison	Decision	Remark
Comprehensibility	3.25	0.08	p-value > 0.05	Accept H_0	the difference is not significant
Suitability	0.31	0.58	p-value > 0.05	Accept H_0	the difference is not significant
Ease of Use	2.30	0.0.14	p-value > 0.05	Accept H_0	the difference is not significant

The table presents the comparison of the general level of acceptability of the developed User's Manual as perceived by faculty members and experts across different criteria, including Comprehensibility, Suitability, and Ease of Use.

With regard to its Comprehensibility, The F value is 3.25, and the ρ-value is 0.08, slightly above 0.05. With a ρ-value greater than the significance level (0.05), the decision is to accept the null hypothesis (H_0), indicating that the difference in perceptions of comprehensibility between faculty members and experts is not statistically significant. However, it's worth noting that the p-value is relatively close to 0.05, suggesting a potential trend toward significance.

Regarding Suitability, the F value is 0.31, and the p-value is 0.58, both well above 0.05. Similar to Comprehensibility, the decision here is to accept the null hypothesis, indicating that there is no significant difference in perceptions of suitability between faculty members and experts.

With Ease of Use, the F value is 2.30, and the p-value is 0.14, above 0.05. Once again, the decision is to accept the null hypothesis, suggesting that the difference in perceptions of ease of use between faculty members and experts is not statistically significant. Similar to Comprehensibility, the ρ-value is relatively close to 0.05, indicating a potential trend.

It is therefore conclude that since the ρ-values are greater than 0.05 across all criteria, results suggest that there is no statistically significant difference in perceptions between faculty members and experts regarding the Developed User's Manual. However, for Comprehensibility and Ease of Use, the p-values are close to 0.05, indicating a potential trend or a need for further investigation with a larger sample size.

Comments and Suggestions Offered by the Respondents for the Improvement of the Developed Integrated Amplifier Simulator

Based on the evaluation of the respondents, the following comments and suggestions were offered:

1. Instead of using a banana connector, other heavy-duty connector should be used for longer usage.
2. Testing instruments can be installed for actual measuring purposes.
3. Incorporate fault or trouble switches with indicators for the simulation of troubles.
4. Install heavy-duty ball casters for easier mobility.
5. Safety features such as circuit breaker for AC and fuse for DC

Conclusions

The results of this study affirm that the *Modular Integrated Amplifier Simulator* is a highly effective and reliable educational tool for electronics students. The simulator excels in design, functionality, durability, safety, and instructional applicability, as reflected in the consistently high ratings from faculty, experts, and students. The user manual complements the simulator by being clear, suitable, and user-friendly. Overall, the simulator significantly enhances the learning experience by providing a practical and comprehensive understanding of integrated amplifier operation. Recommendations for enhancements, such as more robust connectors and fault simulation features, promise to further improve its effectiveness and longevity.

Recommendations

Based on the findings and conclusions, the following recommendations are offered:

1. The developed *Modular Integrated Amplifier Simulator* should be applied for Utility Model and Industrial Design registration at the Intellectual Property Office of the Philippines (IPOPHIL) for the intellectual property protection of the prototype.
2. Similar studies may be conducted to increase the number of instructional devices in the technology areas.
3. The potential use of the simulator should be further enhanced by increasing the number of troubles and test points. Actual defective spare parts may be incorporated into the design.
4. A copyright registration of the user's manual should be applied for.

Compliance with Ethical Standards

As the author of this study, I declare that all ethical standards were strictly adhered to throughout the research process. Informed consent was obtained from all participants, who were fully informed of the study's objectives and procedures, and they were assured of their freedom to withdraw from the study at any time without any repercussions. The anonymity and confidentiality of the respondents were rigorously maintained to protect their privacy and well-being. There was no conflict of interest in the conduct of this study, and all efforts were made to ensure that the research was conducted impartially and objectively. Plagiarism was strictly avoided, and the originality of the work was upheld. The interpretation of the findings was conducted without any bias, and the results were utilized solely for research purposes. This adherence to ethical standards underscores the integrity and credibility of the study.

Acknowledgments

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DEVELOPMENT AND EVALUATION OF BASIC ELECTRONICS TRAINER

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ABSTRACT

Design and construction of various trainers, prototypes and/ or simulators in most schools in teaching the fundamental concepts of electronics and electricity has been long proven to be effective in schools as it provides real- life situations and conditions to imitate circuits and other related technical conditions. This study was aimed to design and evaluate a Basic Electronics Trainer, to help improve teaching the basics of the course Electronics to would-be technicians. The use of this apparatus will be maximized since the apparatus can provide students with series of laboratory activities that would enhance their understanding of the work, functions, circuit connections, and applications of basic electronic devices which are all essential in understanding the building blocks of electronic products. This study presents the basic concept of designing and constructing the trainer. Simulations and experiments are based on the fundamental operations of power supply circuits and other experiments and activities focused on the theory of operation of semiconductor devices such as diodes, transistors, thyristors and integrated circuit regulators. Using locally-available components, devices and instruments, the trainer presented herein proved to be feasible as an alternative resource against costly commercially-made trainers in the market that offer similar training/ learning outputs. Based on the evaluation conducted by select-experts and field technicians in the locality as to the workability, effectiveness, durability, aesthetics and safety, the trainer was found out to be highly acceptable. Furthermore, this study comes with an Activity Manual to provide at least a substantial number of experiments on basic theoretical concept of operation in Electronics technology, thus proving the usability of the trainer.

Keywords: *electronics and electrical technology, trainers design, prototype*

INTRODUCTION

Today, our society has come to a point where almost every person in all walks of life is greatly influenced by technological breakthroughs brought about by electronics. Every day, thousands of people around the world buy their needed appliances such as television and radio receivers, home theatre systems, video players and recorders, microwave ovens, air conditioning units, telephones, personal computer units, and many others. In our country alone, our government has spent billions of pesos in purchasing electronic goods used in transportation, communication, medical diagnosis and treatment, agriculture, crime detection, traffic control and many more for the last five years. With the growing demand for electronic products used for household and industry, the increase in the need for skilled manpower which would serve as assemblers, installers, repair and maintenance workers, and electronic products specialists have also grown inevitably.

Because of the clear demand by the electronics industry for skilled electronic technicians and product specialists, the Philippine school system, specifically those offering technology courses are challenged to train and produce the needed manpower by the industry. In line with this challenge, the schools in the country are expected to produce quality technical and vocational training that will conform to the standards set by the electronics industry. Knowing the promising career that awaits every electronics technology student, in the electronics industry, basic and advanced courses in Electronics have become one of the main program offerings in many technical and vocational schools all over the country. Recent enrolment records in the country now show the dramatic increase in the number of students in the course.

For the schools to be able to produce competent graduates equipped with standard skills needed for employment, these technical and vocational schools must at least provide the students with relevant laboratory facilities, rich learning activities and technical training. In order to attain a more effective and meaningful teaching and learning activities in electronics course, shop teachers and students must be exposed to relevant learning materials, resources, demonstration and practical laboratory activities. Shop fundamentals and laboratory principles that are properly taught by technology instructors are more effectively learned by students and become more permanent in their hearts and minds when they are given the opportunity to experience actual “hands-on” activities on various laboratory experiments. In addition, basic theories and principles of electronic devices and apparatuses are best understood when actual activities on their practical uses and applications are given emphasis.

But the problem lies mostly with most technical schools having little or no appropriate tools, equipment, laboratory apparatuses, experiment manuals and trainers in electronics laboratory classes. As a result of this, the quality of education that their graduates possess, in terms of knowledge and skills, do not match the standard competencies needed by the industry because of inadequate training facilities. In Isabela State University-Ilagan Campus alone, one of the perennial problems confronted by the school is the inadequacy, or worse,

the absence of appropriate and relevant laboratory equipment in most shop classes due to cost-cutting of budget intended for laboratory equipment, gadgets and apparatuses. The situation becomes more difficult when students continue to flock to technology courses despite the lack of these training facilities in the class.

In the course Electronics Technology for instance, the enrolment this school year has peaked to its maximum and to the instructors' and students' dismay, still not even a single training gadget or apparatus was procured to at least partially ease the need for a training apparatus. The quality of technical training, sought by students, through relevant and appropriate training activities in Electronics Technology has been greatly affected and compromised. As a consequence of this, instructors of Electronics Technology were deprived of their privilege to teach their respective fields of specialization competently and on the other hand, students enrolled in the course were also denied of their right to a better and more relevant technical training through adequate laboratory facility.

With this reality, the electronics instructor is therefore challenged to find ways and means to partially solve the existing problem. Amidst this situation, the initiative and resourcefulness of the instructor is sought to design and improvise training equipment made from supplies and materials found in the local market as a cheaper alternative for commercially-available equipment. With the present problem on the inadequacy of laboratory learning equipment in Electronics Technology course, the researcher, came up with this idea of conducting this study to introduce new learning experiences in the course and to eventually sustain the student's interest to pursue his chosen career.

The researcher strongly believes that with the construction of this proposed Basic Electronics Trainer, teaching the basics of the course to would-be technicians will be greatly improved and the use of this apparatus will be maximized since the apparatus can provide students with series of laboratory activities that would enhance their understanding of the work, functions, circuit connections, and applications of basic electronic devices which are all essential in understanding the building blocks of electronic products.

Research Objectives

This study aimed to develop and evaluate a Basic Electronics Trainer for Electronics Technology students of Isabela State University-Ilagan Campus.

More specifically, it sought to achieve the following objectives:

1. design and construct a Basic Electronics Trainer;
2. test the functionality of the apparatus by conducting various experiments concerning practical electronic circuits through the use and application of active and passive electronic devices;
3. revise the gadget based on the results of the tests on the apparatus to further improve its existing features and capabilities; and
4. determine the level of acceptability of the developed Basic Electronics Trainer in terms of:
   a. design
   b. construction
   c. functionality, and

d. safety

METHODOLOGY

The study employed a mixed-method research design namely, the Project Development Method (PDM) because the researcher conceptualized the design and specifications of the Basic Electronics Trainer, and use the descriptive method of research in his study to obtain reliable, consistent, and actual results. Various authorities define descriptive research as a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. This type of research is used to describe the data and characteristics about what is being studied. Although the data description is factual, accurate and systematic, the research cannot describe what caused a situation. In other words, descriptive research can be said to have a low requirement for internal validity.

The respondents of the study were selected technology instructors from the College of Industrial Technology and Education and from the College of Electrical and Electronics Engineering of the Isabela State University-Ilagan Campus, Ilagan, Isabela. Technology teachers from the nearby technical / vocational school offering Radio Mechanics were also tapped to evaluate the project. A number of technicians from different electronics shops and centers in the locality were also invited by the researcher to evaluate his work.

Table 1. Distribution of the Teacher/Technician Respondents of the Study

Teacher / Technican Respondents by Name of Schools and Shops	Population	Actual Sample Size	Percentage
Isabela State University-Ilagan Campus	8	**8**	100
Isabela School of Arts and Trades-Ilagan	2	**1**	50
San Jose Reyes Robotics Center - Ilagan	2	**2**	50
BOY Electronics Shop-Calamagui	2	**1**	50
FRANCIS Electronics Service Center-Baligatan	2	**1**	50
SANTOS Audio/Video Center- Baligatan	1	**1**	100
OBENA'S Electronics Shop – Cauayan City	1	**1**	100
Total	**18**	**15**	**83**

Knowing the capability and competence of these instructors, teachers and technicians in the field, the researcher has chosen them to evaluate the Trainer. These respondents were asked to accomplish an evaluation form that determines the acceptability and functionality of the trainer

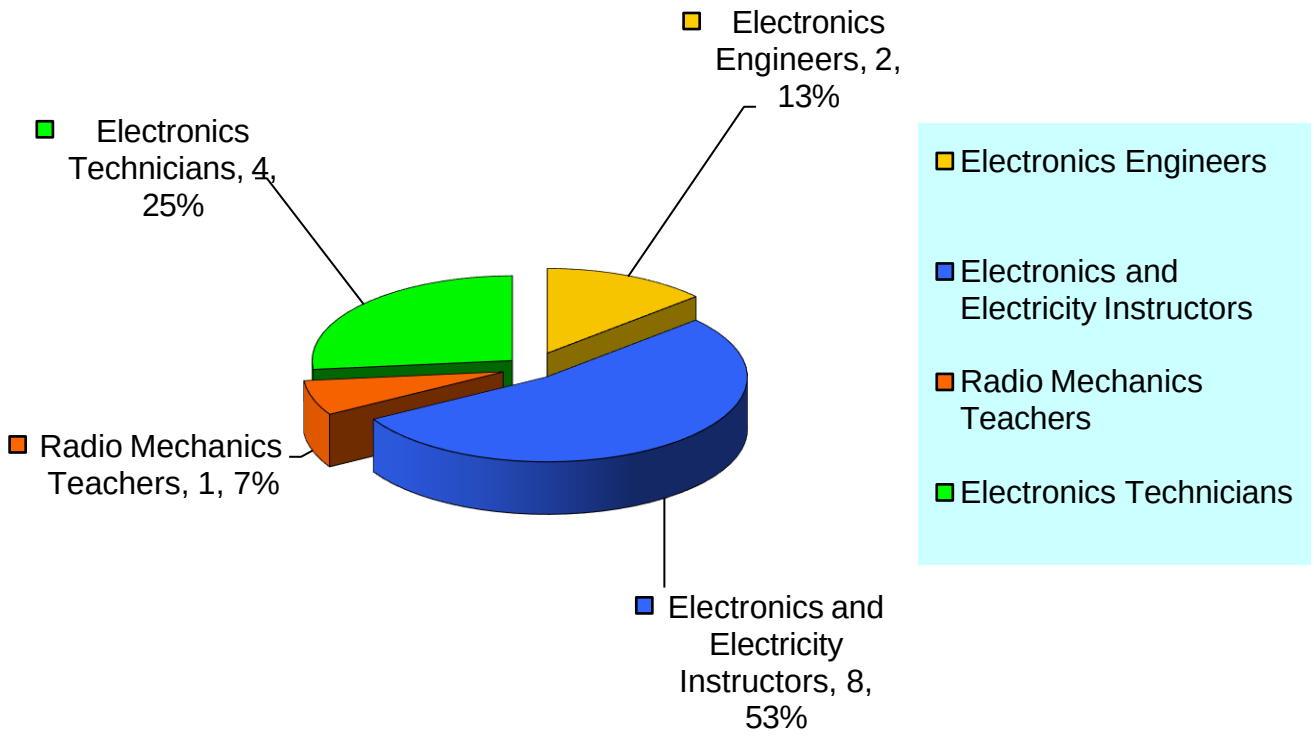


Figure 1. Composition of Respondents of the Study by Profession

The pie chart shown in **Figure 1** shows the composition of respondents who conducted evaluation of the project. The total respondents were composed of two (2) Electronics Engineers, eight (8) Instructors teaching Electronics and Electricity, one (1) Radio Mechanics Teacher from the secondary school and four (4) shop technicians from different electronics service centers and shops in the locality.

Various ways on how to gather and collect the appropriate data needed in the development of the basic electronics trainer were considered by the researcher. These data, which is in a form of figures obtained from surveys, was used by the researcher to draw conclusions on his project. Data is an essential part in conducting the study and in developing the project.

Before the researcher could conduct the evaluation of his project, formal invitations to target respondents, through their school administrators and superiors were made by the researcher and countersigned by his adviser. Letters were sent to Isabela State University-

Ilagan, Isabela School of Arts and Trades, San Jose Reyes Robotics Center, and to different electronics repair shops and centers in the locality.

The evaluation of the project was conducted at the Industrial Technology Building of ISU-Ilagan. Respondents from nearby technical schools and electronics service centers/shops were invited to personally inspect the gadget, perform activities on the trainer and accomplish evaluation forms or questionnaires. The evaluation questionnaire used in the study was based and adopted some instruments used by Canceran (2019), Corbillon (2019) and Makabenta (2019) in their studies, however, to make them more effective and appropriate, some improvements and modifications were made by the researchers on these instruments. The modified instrument let the respondents evaluate the developed trainer as to its design, construction, functionality, and, safety.

In order to analyze the collected data, the statistical tool used in this study is the weighted mean. This was computed to find out the acceptability of the project as perceived by the respondents. The scale shown in the following pages was used to interpret the computed weighted mean for each indicator.

SCALE	VERBAL DESCRIPTION
4.21—5.0	Highly Acceptable
3.41—4.20	Acceptable
2.61—3.40	Unacceptable
1.81—2.60	Moderately Unacceptable
1.0—1.80	Highly Unacceptable

RESULTS AND DISCUSSION

To further enrich his understanding of the study, the researchers used library materials such as books, journals, newsletters and other related studies about educational technology projects and the development of trainers used in electrical and electronics instruction. Websites were used extensively to carefully examine of internet articles about construction of trainers that bear direct significance to the study were also conducted to give the researcher additional information and facts needed in developing the project.

1. Design and Construction of the Proposed Project

The programs of works for the construction of the Basic Electronics Trainer are as follows:

A. Planning. This involves the drawing of schematic diagrams to provide useful illustrations of circuits of the project.

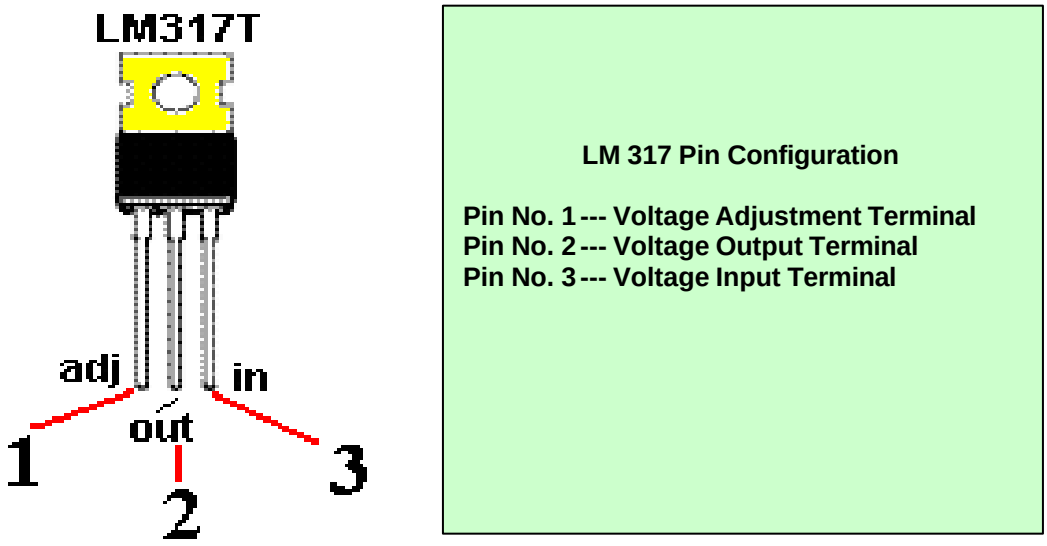


Figure 2. Standard Pin Assignment of an LM317 Voltage Regulator IC

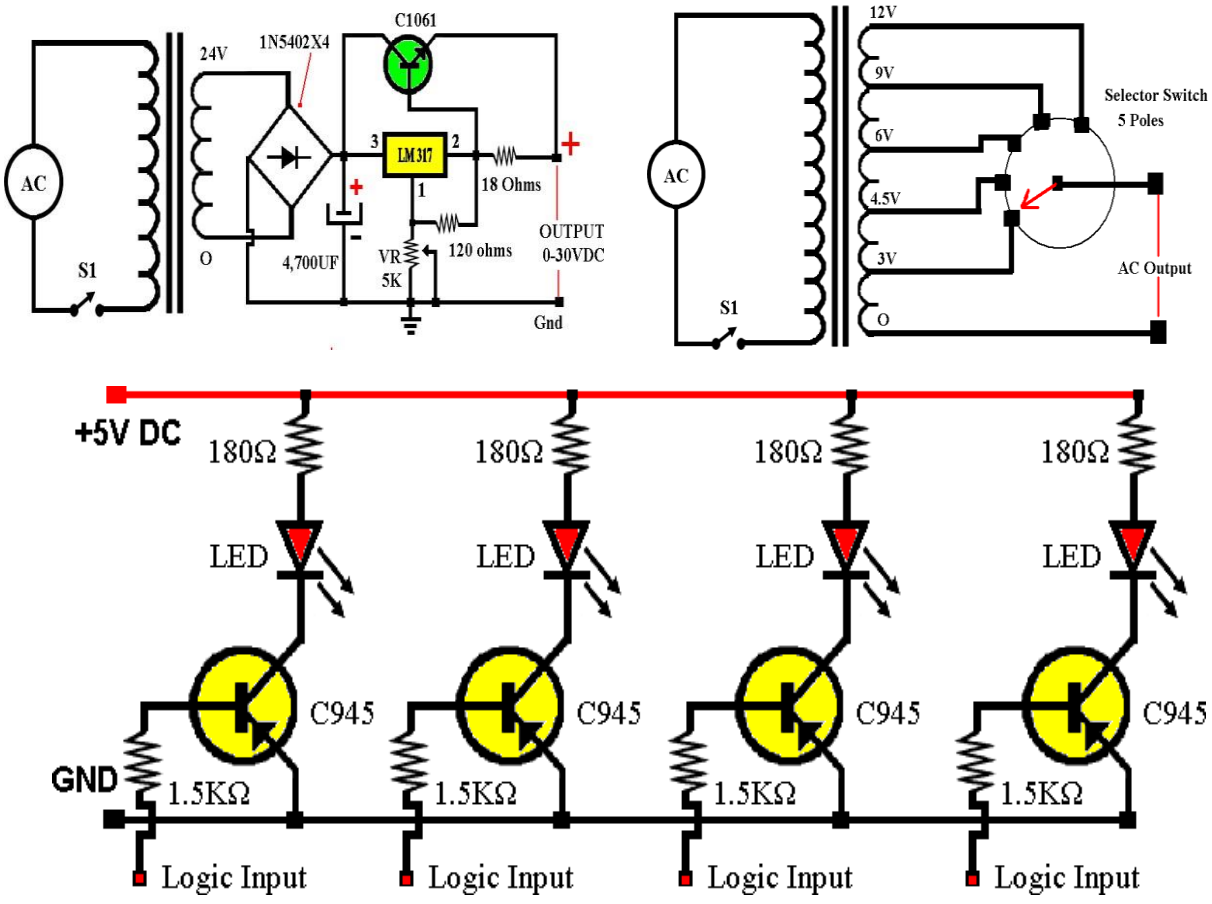


Figure 3. Schematic Diagram of the Variable DC Power Supply, Multiple Output AC Power Supply, and Digital Logic LED Display.

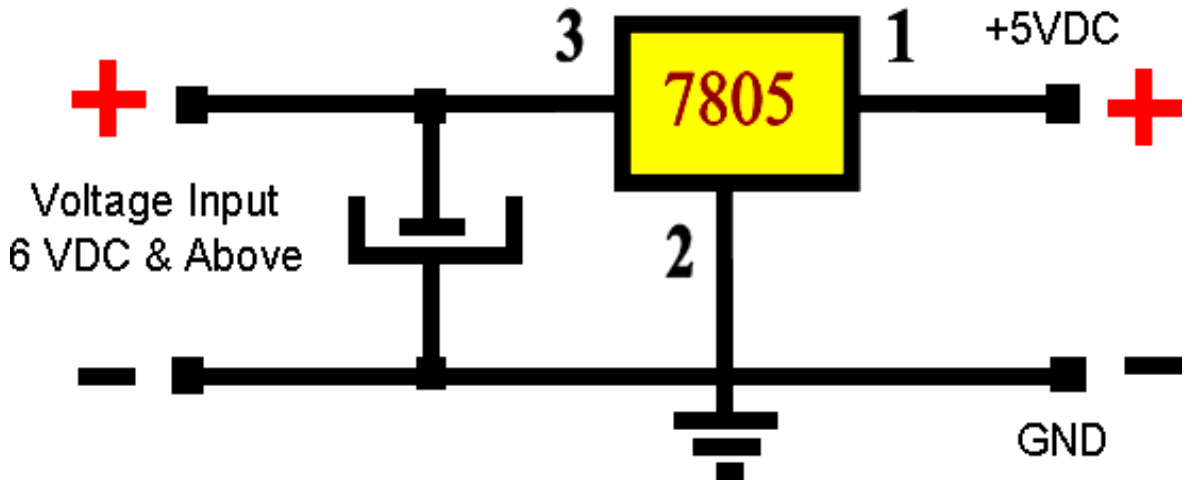


Figure 4. Schematic Diagram of the +5 Volts DC Regulator Using 7805 IC

B. **Designing and Lay-outing**. This refers the making of circuit designs and drawing plans for the project.

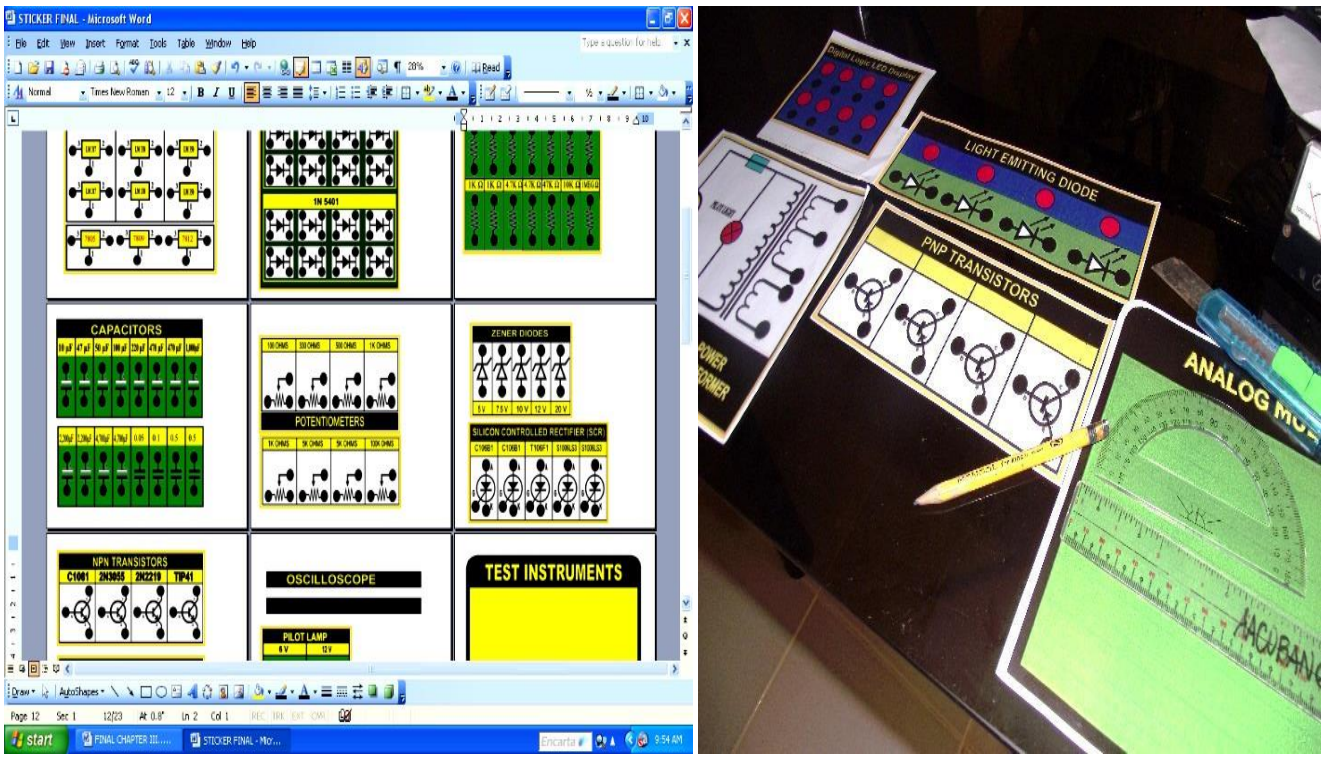


Figure 5. Snapshot of the Stickers Designed on the Computer and Lay-outing the Stickers on the Acrylic Board

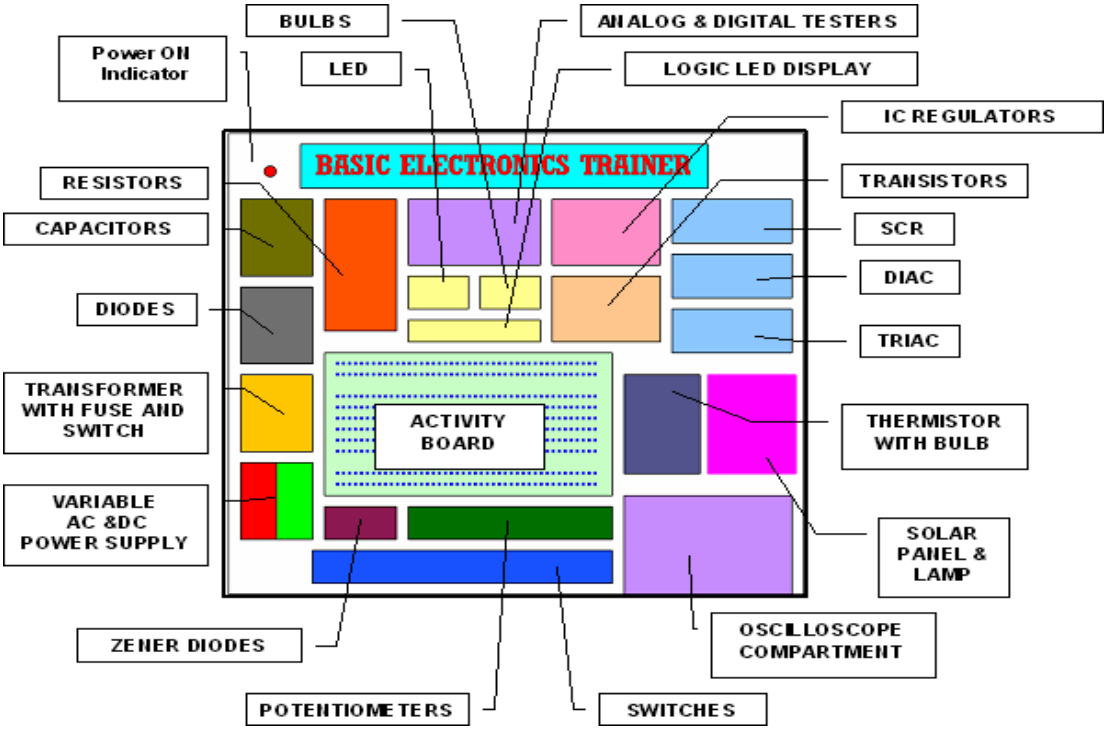


Figure 6. Layout Design of the Trainer Panel Indicating the Actual Locations of Devices and Instruments

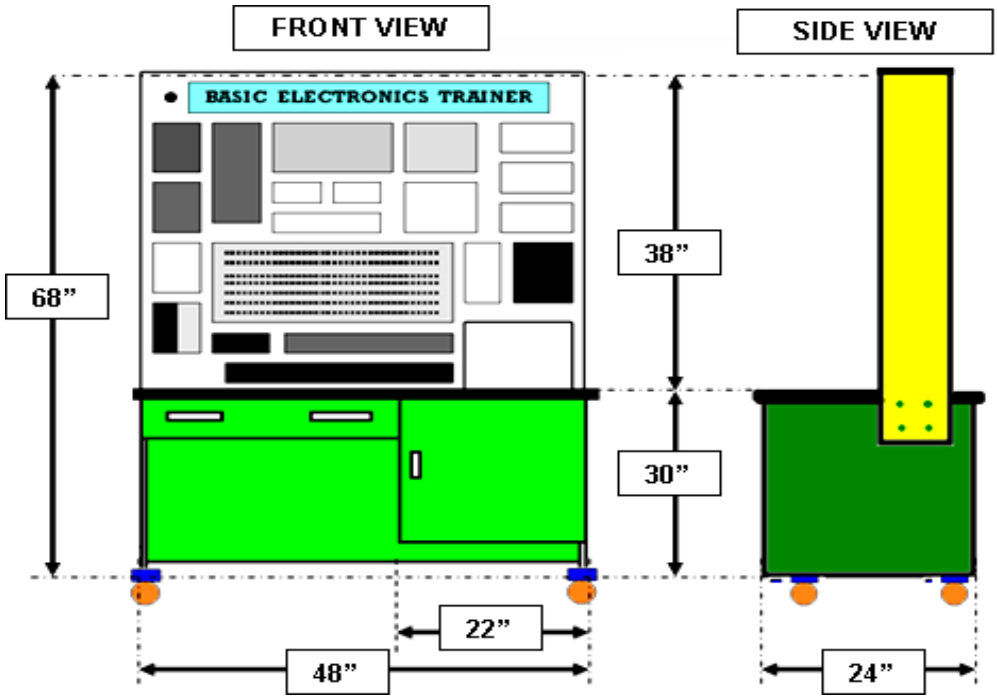


Figure 7. Front and Side View of the Basic Electronics Trainer

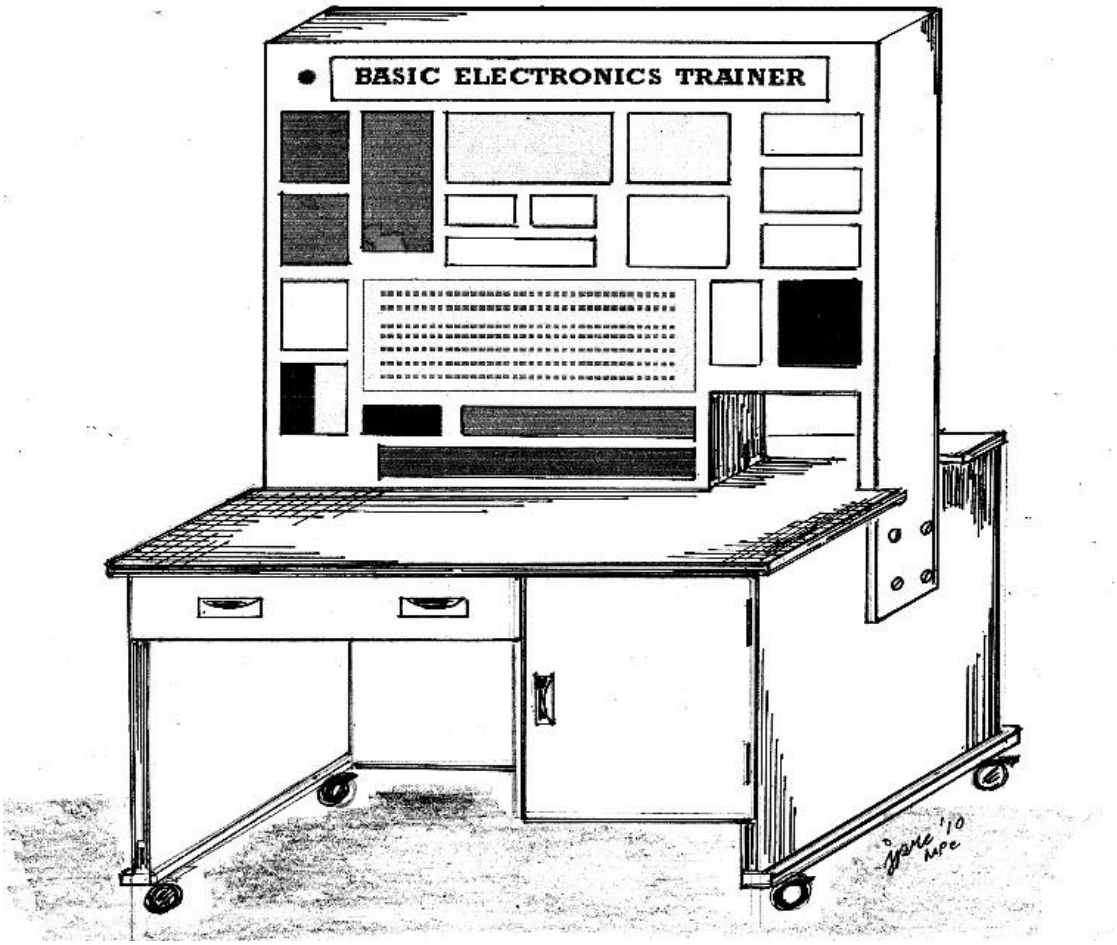


Figure 8. Perspective Drawing of the Basic Electronics Trainer

C. Constructing the Basic Electronics Trainer.

For the construction of the project, the following were taken into consideration:

The constructed Basic Electronics Trainer was suited to the curriculum/subjects of BS Industrial Technology major in Electronics and Electrical Technology and industry experts' level of understanding. The trainer was constructed utilizing used electrical devices from different firms locally and commercially available materials and supplies.

The first step in constructing the project is to prepare the necessary supplies, materials, tools and equipment. cut the acrylic sheet to the specified dimensions (38"x48") with an acrylic cutter tool, followed by removing the acrylic protective cover. The fourth step is to apply the stickers to the acrylic board according to the layout design of the trainer panel. The fifth step is to drill holes for the banana jacks that will connect components, devices, and the activity board. The sixth step is to cut compartment holes for additional devices like panel meters and test instruments. Finally, install banana jacks in all of the terminal holes.

2. Testing of the developed Project



Figure 9. Photo of the Researcher Conducting the Actual Testing of the Trainer

This is the stage wherein the project is put on its operation where power is applied to the transformers and power supplies. The actual testing of all the experiments on the Activity Manual is performed by the researcher. All observations, corrections and modifications during this process were recorded and filed.

3. Revision of the developed Project

In order to improve the operations of the trainer, a series of try-outs and testing were conducted right after the project has been completed. A number of defects were diagnosed during the testing period. To be able to correct the faults, corrections were made to resolve the defects on the trainer.

Table 2. Defects found and Revisions Made

Defects	Changes Made
1. Erratic voltage readings on the AC panel meter.	Connected a diode to the panel meter convert AC to DC.
2. Waveform displayed is erroneous.	Repaired ground connection of the oscilloscope test probe.
3. + 5 volts DC reading too high.	Improper pin connection of the 7805 IC.
4. Thermistor is not exhibiting normal resistance reading when exposed to heat	Thermistor is positioned as close as possible to the heater resistor.
5. Thermistor 12v-lamp shuts down during operation.	Replaced a smaller 12-v bulb with a much higher filament resistance



Figure 10. Photos of the Completed Basic Electronics Trainer

Description of the Completed Project

The following paragraphs discuss the parts and function, interrelationship of the parts, limitations and capabilities of the project.

1. **Parts and Functions.** The parts and functions of the Basic Electronics Trainer and its function are listed and discussed below:

2. Panel Board. This is the main activity board made of acrylic plastic material mounted a wooden frame. All components and devices needed in performing various laboratory activities and interconnecting them are mounted at the back. Terminals for these components and devices are accessed only through its corresponding banana jacks. The back panel is covered by a much thinner clear acrylic plastic to let students take a view on how the trainer was constructed. The project is specifically designed as a demonstration gadget to clearly show and prove the basic principles behind electronic components and devices.

3. **AC and DC Power Supply Modules.** These circuits provide the needed varying amount of AC and DC voltages for the various laboratory activities in the project. The AC power supply has a selector switch to instantly shift voltage output of 3v, 4.5v, 6v, 9v and 12 vAC. Similarly, the DC power supply produces a varying amount of 1.3v to 30 vDC.

4. **Connect-All Activity Board.** This part of the project provides the interconnection of components and devices. Similar to a breadboard activity board principle, an array of vertical and horizontal banana jacks are interconnected to form the activity board. Assembling of the different circuits is done through banana plugs or connectors. All banana plugs and jacks were of heavy-duty material and the wire used for the connectors is automotive wire No. 16 to ensure durability.

5. Table, Drawer and Cabinet. The table is made up of a ¾-inch thick plywood that functions as the base for the project. A drawer and a cabinet are provided for storing connectors, tools, materials and test equipment.

6. **Component Modules and Assembly**. The components used in the project are all found on the panel board and individually labeled. Schematic symbols and diagrams are also shown to help the user of the project identify the correct polarity and pin configurations of components and devices.

7. **Test Equipment**. Digital and analog multitesters are mounted on the trainer to be used in voltage and resistance reading, component testing and comparing voltage readings. A compartment for an oscilloscope is also provided on the lower right portion of the panel. The oscilloscope will be used in demonstrating the voltage waveform of various signals.

8. **Main AC Panel Control**. This is located at the back portion of the trainer wherein instruments for controlling and monitoring the 220-VAC line are performed. As a safety feature, the project is equipped with a circuit breaker and a main switch to switch on and shut down the main AC power line.

Features of the Project

The completed project can be used for visual instruction and as activity and experiment board for individual or group use. The project is also found to be convenient and safe to use. As a visual instruction device, the project can be used to demonstrate operating principles of basic components such as resistors, capacitors, diodes, transistors,

transformers, and integrated circuit. Various circuit can be assembled to prove the capabilities of active and passive components to make significant changes to the characteristics and amount of voltage. Since test instruments such as multi-meters and oscilloscope are provided, the trainer can be used for demonstrating various experiments that needed monitoring of the amount and waveforms of voltages.

As an activity board, the project can be used by individual or group of students in performing the different laboratory activities prescribed in the Activity manual. Since the project uses banana connectors to interconnect the different components and devices, soldering and de-soldering of parts in assembling the circuits are eliminated, thus making the project convenient and efficient to use. Fuses and circuit breakers are also installed on the primary and secondary circuits of the power supply system, ensuring that the power is cut off during short circuits. Users of the trainer are ensured that they are insulated from the 220-vAC line because the trainer back panel is covered with a clear acrylic plastic sheet. The user of the trainer will only be working on low DC voltages ranging from 1.3vDC to 30vDC, rated at 1.5 amperes, thus making the user safe from electrical shocks. A cooling fan is also installed to make sure that power transformers and other heat-generating devices are cooled during operation.

The main panel board and table of project are designed to be detached from each other to facilitate the transportation of the device from one place to another. At least ten (10) metal screws hold the main trainer panel to the base/table. Ball casters are also installed to easily move the project around a certain place. Ball casters can be locked to put the apparatus intact during actual use.

4. Evaluation of the Project

One of the important elements of the study is the evaluation of the completed Basic Electronics Trainer and its Activity Manual.

The table on the following page shows the summary of the evaluation and the mean rating for each criterion on the acceptability of the trainer along with the corresponding verbal interpretation.

Table 3. Summary of the Ratings Given by Respondents on the Acceptability of the Completed Project

CRITERIA AND INDICATORS	RATING	
	Mean	Verbal Interpretation
A. Design		
1. The frame and base of the trainer is stable.	5.0	Highly Acceptable
2. The dimensions of the parts are proportion.	5.0	Highly Acceptable
3. The devices and components are in order and		Highly Acceptable

accessible.	4.86	
4. Labels and symbols on the panel are visible.	4.66	Highly Acceptable
5. Storage for tools, materials and equipment are provided in the trainer.	5.0	Highly Acceptable
AVERAGE	**4.90**	**Highly Acceptable**
B. Construction		
1. The setup of the internal parts is organized.	4.86	Highly Acceptable
2. The materials used in the construction of the trainer are durable.	4.86	Highly Acceptable
3. The connections of devices, parts and components are neatly done.	4.6	Highly Acceptable
4. All the devices and components are purposeful/ useful.	4.73	Highly Acceptable
5. The general construction of the trainer is well done.	4.86	Highly Acceptable
6. The cost of the trainer is reasonable.	4.93	Highly Acceptable
7. The parts of the trainer are locally available.	4.93	Highly Acceptable
AVERAGE	**4.82**	**Highly Acceptable**
C. Functionality		
1. The trainer panel is easy to use and operate.	4.66	Highly Acceptable
2. The trainer has a low maintenance needs.	4.93	Highly Acceptable
3. The trainer serves the purpose of a basic electronics trainer.	4.8	Highly Acceptable
4. Activities and experiments can be performed on the activity board.	5.0	Highly Acceptable
5. The trainer can be used by students individually or by group.	5.0	Highly Acceptable
AVERAGE	**4.87**	**Highly Acceptable**
D. Safety		
1. The design of the trainer enables the user to work safely.	5.0	Highly Acceptable
2. The 220-volt line is insulated making the trainer safe to use.	4.93	Highly Acceptable
3. The trainer provides activities and experiments that use low voltage.	5.0	Highly Acceptable
4. Safety devices such as fuse and breakers are installed		Highly Acceptable

on the trainer.	4.8	
AVERAGE	**4.93**	**Highly Acceptable**
Overall Mean	**4.88**	**Highly Acceptable**

Based from the results obtained, the completed Basic Electronics Trainer received mean ratings of 4.90, 4.82, 4.87 and 4.93 for the design, construction, functionality and safety, respectively. The instructional gadget was perceived to be highly acceptable by the respondents in all the criteria presented. The computed overall mean is 4.88 which suggest that the trainer is highly acceptable. It can also be said that the constructed trainer is well designed and durable, functional, safe to use, easy to maintain and of lower cost.

The results agreed by the findings of Milkić et al. (2018) found that using a trainer in a laboratory setting can help students learn new skills and knowledge. Furthermore, it was demonstrated that the developed trainer can serve as a solid foundation for the creation of new teaching methods for academic studies in renewable energy

In the same vein, Santos (2019) study found that his constructed trainer was suitable for addressing the inadequacy of training equipment used both in electrical and electronics technology.

Conclusions

The basic electronics trainer can be constructed using locally available materials and resources. The trainer is feasible and highly acceptable for instructional purposes. The trainer has been meticulously designed and built to meet the needs of educational curricula as well as industry standards. Electronics Engineers, Instructors teaching Electronics and Electricity, Radio Mechanics Teachers from secondary schools, and shop technicians from various electronics service centers and shops. All of them gave the trainer high ratings for design, construction, functionality, and safety. This emphasizes the significance of considering diverse perspectives when designing educational tools.

Recommendations

Based on the above-mentioned findings and conclusions, the following recommendations were cited:

1. school administrators should encourage other technology instructors to develop other related instructional apparatus to further improve teaching-learning in electronics;
2. technology instructors in other technology areas should be encouraged to conduct similar study to improve instruction in their respective fields;
3. budget and financial assistance should be extended to researchers who are conducting similar studies;
4. other trainers should be developed to provide a wider coverage in the teaching of basic electronics; and

5. similar and much improved trainers should be fabricated to be used by other departments in the campus.

Compliance with Ethical Standards

Following ethical standards, this research adheres to principles of integrity, respect, and responsibility towards all the participants involved. Before the conduct of the basic electronics trainer, the researcher obtained informed consent from the participants, ensuring their understanding of the study's purpose, procedures, and potential risks. Confidentiality and anonymity were preserved throughout data collection, analysis, and dissemination, safeguarding participants' privacy. Moreover, the researcher made sure that there was no conflict of interest in conducting the study, avoided plagiarism issues, and no bias was made in the interpretation of the results of the study. Finally, he ensured that the findings were used only for the research.

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DEVELOPMENT AND VALIDATION OF MODULE IN COMBINATORICS AND PROBABILITY FOR GRADE 10 LEARNERS

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ABSTRACT

This study aimed to develop and validate a module in Combinatorics and Probability for Grade 10 learners. Existing problems from the Department of Education's current curriculum, such as the lack of teaching resources and learning materials for Combinatorics and Probability and the recorded low mean percentage score in the subject, made the researcher conceptualize the development of a module in Combinatorics and Probability. The development and validation of the module in Combinatorics and Probability for grade 10 learners adapted and utilized the ADDIE model, which consists of five steps, namely: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. The module was developed in terms of the objectives of each lesson, essential content, language used, and assessment and evaluation activities. The developed module was distributed to the mathematics teachers and master teachers, who assess and evaluate the validity of the module using four criteria: development of the objectives of each lesson, selection of essential content, selection of the language used, and development of the assessment and evaluation activities. The validation result revealed that the developed module is very much valid. The validated module was pilot-tested among 30 students whose academic performance was determined in terms of knowledge acquisition using pretest-posttest result analysis. Positive learning was determined based on the mean percentage score of the students' pretest and posttest with the net gain of 46.40 which shows that the learners' performance in the subject significantly improved obtaining outstanding (87%) and very satisfactory (13%) rating in the posttest. The mean score of the pilot-tested is 44.87. In general, the developed module is a potential learning material that will provide teachers and learners with what is needed for the teaching and learning process and will enhance the mathematical skills of grade 10 learners in Combinatorics and Probability.

Keywords: *Combinatorics, Content, Design, Development, Modular Instruction, Module, Probability, Validation, Validators*

INTRODUCTION

Mathematics subject is a fundamental part of the school curriculum. This subject is an instrument for the development of all other sciences. Mathematics is all around us. Knowingly and unknowingly, we use Mathematics in our everyday lives (Gafoor et al, 2015). Mathematics provides us with an effective way of building mental discipline and encourages logical reasoning and mental rigor. In addition, mathematical concepts and knowledge play a significant role in better understanding other subjects such as Science, Social studies, and even Music and Arts (International Mathematical Union, 2020). Students' performance in Mathematics is consistently given attention in different countries because it is regarded as a main subject, which is significant for the growth and development of the nation. Capuno et al (2019) noted that Mathematics is challenging for Filipino students.

Even before the pandemic in 2020, the Philippines faced challenges in mathematics education. The Philippines has consistently performed poorly in international mathematics large-scale assessments. One of the tools used to gauge the quality of education worldwide is the Programme for International Student Assessment (PISA). The Organisation for Economic Co-operation and Development (OECD) conducts PISA every three years to assess the Mathematics, Science, and Reading knowledge and skills of 15-year-old students worldwide. Results of 2018 showed that the Philippines ranked the second lowest in Science and Mathematics among 79 countries. PISA results revealed that the Philippines obtained an average score of 353 in mathematics. The survey suggested interventions should be made with students from countries like the Philippines (CNN Philippines, 2019). The Department of Education states that with the PISA results reflecting learners' performance in the National Achievement Test, there is urgency in addressing issues and gaps in attaining the quality of education in the Philippines (DepEd, 2019).

The COVID-19 pandemic over the last two years has exacerbated the current education crisis and widened the learning gap in Mathematics among young students (Sooknanan and Seemungal, 2023). The situation led to a decline in math learning, as students may need more remediation to progress to new lessons, leading to learning gaps (Torres, 2021).

The Department of Education (DepEd) said that the Philippines' poor showing in the 2022 PISA indicates a five-to-six-year lag in learning competencies in the country. The Philippines ranked 77th out of 81 countries globally in the student assessment conducted by the OECD for 15-year-old learners. In the 2022 student assessment, the country scored approximately 120 points lower than the average scores, with 355 in Math, 347 in Reading, and 356 in Science.

Combinatorics is a field of Mathematics concerned with the problems of selection, arrangement, and operation within a finite or discrete system (Grunbaum et al, 2024). Combinatorics is an initial material about probability consisting of basic rules of counting, permutation, and combination. Probability is a beneficial concept in everyday life as it is essential in decision-making (Meika et al, 2018). At a higher level, permutation and combination materials are essential in learning discrete Mathematics (National Council of Teachers of Mathematics, 2020). Moreover, NCTM states that combinatorics is essential as it is an integral part of the Mathematics curriculum from elementary to high school (National Council of Teachers of Mathematics, 2020). Using the basic rules of calculation, permutations, and the right combinations of problem-solving skills is challenging. This is in line with Wraughton and Nolan (2012), who state that understanding the rules of counting is challenging for students, especially when they struggle to determine when and how to apply rules of multiplication, permutation, and combinations in calculation.

According to Mashiach et al (2004), combinatorics is a mathematical topic considered challenging to teach and learn. Also, according to Spiegelhalter (2011), probability is unintuitive and difficult. There are mathematical problems that introduce the idea that uncertainty is something that can be discussed and analyzed. One way to overcome such challenges in learning combinatorics and probability is to present the combinatorics problem from daily life. In studying permutations and combinations, students need a relevant real-world context to stimulate learning and knowledge (Busadeea et al, 2013). Along with this, Sukoriyanto et al (2016) stated that permutation and combination materials require problems in the form of real-world issues to retain their knowledge.

The lack of teaching resources and learning materials for Combinatorics and Probability and the low mean percentage score of the third quarterly assessment in the subject mentioned above were the reasons which made the researcher conceptualize the development of a module in Combinatorics and Probability. The consolidated result of the third quarterly examination's Mean Percentage Score (MPS) of students in Gasan District for the last five years was recorded, which became one of the bases for the researcher to develop a module in Combinatorics and Probability. The third quarter MPS of Gasan District in Mathematics 10 for the last five years are as follows: 52.5 in 2019, 64.2 in 2020, 55.2 in 2021, 58.2 in 2022, and 56.89 in 2023. With these results, grade 10 learners are on the average level of mastery in Mathematics 10 in the third quarter.

Integrating Self-Learning Modules (SLMs) with alternative learning delivery modalities (LDMs) will help DepEd ensure that all learners have access to quality basic education, even those learners who cannot come to school every day because of financial issues. The development of instructional design and materials ensures that learners achieve specific learning goals or educational outcomes reflected in the education curriculum and provide relevant instructions suitable for a wide range of learning environments. According to the DepEd Secretary Leonor M. Briones, as stated by Malipot (2020), the SLMs and other LDMs are in place to address the needs of every learner. They cover all the bases to ensure that basic education is accessible.

Aside from the scarcity or lack of learning materials, there is a need to design and develop the material to help grade 10 learners understand the concept of Combinatorics and Probability. Thus, the researcher was encouraged and determined to develop a module.

The main purpose of this study is to develop and validate a module in Combinatorics and Probability for Grade 10 learners. It focused on proving that Combinatorics and Probability in the third quarter for grade 10 can be taught significantly using instructional modules. Specifically, the topics included in the module are based on the Most Essential Competencies (MELCs), which include the following: Permutations of objects, Combinations of objects, Solving Problems on Permutations and Combinations, Probability of Compound Events, Union and Intersections of Events, and Solving Problems on Probability.

The researcher utilized the ADDIE model to design and develop the learning module. The ADDIE model is a structured and systematic approach that helps solve learning problems by tailoring the learning resources to meet students' needs and characteristics. This model comprises five stages: analysis, design, development, implementation, and evaluation.

The module covered Combinatorics and Probability, which deals with selection, arrangement, and operation within a finite system (Torio et al, 2018) and was explicitly designed for Grade 10 students. On the other hand, the probability is the likelihood of something happening. When unsure about an event's outcome, we can discuss the probabilities of specific results and how probable they are. The probability of an event can only be from 0 to 1, and it can also be expressed as a percentage (Khan et al, 2020).

Significant research has been conducted on the development and validation of educational modules. However, further studies are needed to assess the effectiveness and benefits of module development on the curriculum. Thus, there is a need to adequately explore the development and validation of Mathematics lessons such as Combinatorics and Probability.

Research Questions

The main purpose of this study is to develop a module in Combinatorics and Probability as an alternative delivery mode of instruction to reach Grade 10 learners.

Specifically, it sought to answer the following questions:

1. How does the module in Combinatorics and Probability for grade 10 learners was developed in terms of:
   1.1 development of the intended learning outcomes,
   1.2 selection of the essential content,
   1.3 selection of the language used,
   1.4 development of the assessment and evaluation activities,

1.5 selection of references from available teaching and learning sources,
1.6 time frame of development, and
1.7 development of cover page and packaging?

2. What is the level of validity of the developed module as assessed by the Mathematics teachers and master teachers in terms of:
   2.1 lesson's objectives,
   2.2 content,
   2.3 language used
   2.4 assessment and evaluation activities?

3. What are the comments/feedback and suggestions of the experts/validators to help enhance the developed module in Combinatorics and Probability

4. What enhanced module could be developed by the researcher based on the validation made by the respondents?

5. What impact does the enhance module have on Grade 10 learners' knowledge acquisition performance, as assessed through pretest and posttest result analysis?

METHODOLOGY

Research Design

This study employed a descriptive-evaluative research design, which focused on the know-how of developing and validating the module in Combinatorics and Probability for Grade 10 learners.

The ADDIE model was utilized to develop and validate the Combinatorics and Probability module for Grade 10 students. ADDIE means Analysis, Design, Development, Implementation, and Evaluation. The module's goals, target audience, and resources were analyzed in the analysis phase. In the design phase, essential content, objectives, and strategies aligned with the instructional goals were selected and designed. The development phase includes developing objectives, selecting essential content, determining the language used, and developing assessment and evaluation activities. In the implementation phase, the pre-crafted module was distributed to Mathematics teachers and master teachers for validation. In the evaluation phase, the module was assessed for developing lesson objectives, selecting essential content and language used, and developing assessment and evaluation activities. Each criterion has quantifying statements on which the evaluators based their assessment of the module.

This study utilized a survey questionnaire that included a 5-point Likert scale and checklist format. Content experts reviewed the collected data, and their suggestions were obtained through document analysis for further refinement of the module.

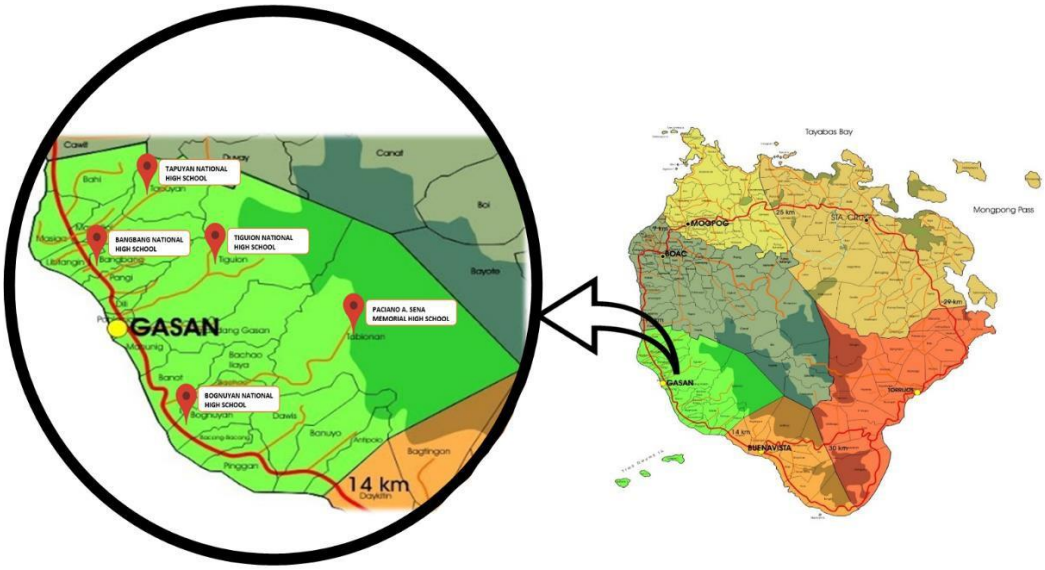
In the end, this study appraised the impact of the developed module in students' performance in Combinatorics and Probability topics in Grade 10 Quarter 3. The data was analyzed and interpreted using suitable statistical measures.

Research Locale

This study was conducted in the province of Marinduque. This province belongs to the 81 provinces in the Philippine archipelago. Marinduque is considered the geographical center of the Philippines by the Luzon Datum of 1911, the mother of all Philippine geodetic surveys. The province is a "heart-shaped" island situated between Tayabas Bay and the Sibuyan Sea. Hence, the moniker "The Heart of the Philippines" was adopted. The province is located in the South Western Tagalog Region, also known as MIMAROPA, which was formerly designated as Region IV-B. The most widely accepted theory regarding the etymology of the province's name is that it is a hispanized corruption of either "malindig" or "malindug," which means "stand tall" or "elegant." This refers to the possibly active volcano in the island's southern section, Mount Malindig. The province of Marinduque comprises six (6) towns: Boac (the province's capital), Mogpog, Santa Cruz, Torrijos, Buenavista, and Gasan.

Specifically, this study was conducted among mathematics teachers and master teachers teaching mathematics 10 in the third quarter, combined with combinatorics and probability in the five (5) high schools in Gasan District. These include the following public high schools, as shown in Figure 3: Bangbang National High School, Bognuyan National High School, Paciano A. Sena Memorial High School, Tapuyan National High School, and Tiguion National High School.

Figure 3:
Map of Marinduque and Gasan Town



Research Population and Sample

The study's respondents were the Mathematics teachers and master teachers teaching grade 10 Mathematics. There are five (5) teacher-experts teaching Mathematics 10 in Gasan District, one teacher for each school. Participants are chosen on purpose because they are experts in the subject. Thus, the researcher employed purposive sampling to appraise the responses and data needed in the study holistically. Since the developed module caters to students studying Combinatorics and Probability, Grade 10 learners also constituted the population of the study which lasted for 9 weeks. The module was used by the 30 students of Bangbang National High School for further validation as well as to determine its effect on learners' performance.

Research Instrument

To interpret the level of validity of the developed module in Combinatorics and Probability, the researcher used the standardized Module Evaluation Checklist adapted from the study of scholars to develop and evaluate materials. The researcher utilized the questionnaire in checklist form used by Salazar (2018) to assess the content validity of the developed module in terms of objectives, essential content, language used, and assessment and evaluation activities.

The questionnaire consists of two (2) parts: (1) the participant's present status and qualifications and (2) the Evaluation Checklist for the Validity of the Developed Module. Part I of the questionnaire includes a demographic profile and workload profile, which gathered personal information about the teacher respondents, such as age, sex, civil status, length of service, area of specialization, civil service eligibility, current teaching position, subject taught, educational attainment, and professional training/seminar attended. Part II is the Evaluation Checklist for the validity of the developed module, which is divided into four (4) parts: (1) specific objectives of each lesson with five (5) listed characteristics of the objectives, (2) content of the module with ten (10) listed characteristics of the content, (3) language used with five (5) listed characteristics of the language used, and (4) assessment and evaluation activities with ten (10) listed characteristics of the assessment and evaluation activities. The evaluation checklist has five (5) degrees of intensity, with weights of five (5) being the highest rating and one (1) being the lowest rating. The scales of the statistical values adapted to assess the aspects are as follows:

Table 1.
Likert Scale for Evaluating Content Validity

Arbitrary Value	Weighted Mean	Description	Verbal Interpretation
5	4.20 – 5.00	Excellent	Very Much Valid
4	3.40 – 4.19	Very Satisfactory	Much Valid
3	2.60 – 3.39	Satisfactory	Moderately Valid
2	1.80 – 2.59	Fair	Less Valid
1	1.00 – 1.79	Poor	Not Valid

The researcher devised pretest and posttest which were also validated by the mathematics teachers and master teachers. These tests are almost parallel and with the same difficulty level based on the contents of the module. Each item has four choices with which one is correct. Each test was administered in paper-pencil-test mode within a 60-minute period. The contents are also in consonance with the competencies specified in the Most Essential Learning Competencies (MELCs). The results of these tests were used to evaluate the effect of using the module to the learners' performance on the lessons of Combinatorics and Probability.

Data Gathering Procedure

Seeking Approval to Conduct the Study. First, the researcher sent a request letter to Dr. Lynn G. Mendoza, the Schools Division Superintendent of the Division of Marinduque, through the HR Office, asking permission to conduct the study in the five (5) public high schools in Gasan District through the distribution of survey questionnaires. The researcher also asked permission through a letter from Mr. Gueller Dee V. Salazar to adapt the instrument he used in his 2018 study to validate a developed module.

Administration and Retrieval of Questionnaires. Upon granting the researcher's request to adopt the research instrument used by Salazar (2018) and the approval of the Division Superintendent of Marinduque, the researcher printed a copy of the survey form and submitted it to the school district Supervisor of Gasan, Dr. Elvin C Perlas. The printed copy of the survey and consent forms were then personally distributed to the respondents. The researcher went to five (5) public high schools in Gasan District. These include the following public high schools: Bangbang National High School, Bognuyan National High School, Paciano A. Sena Memorial High School, Tapuyan National High School, and Tiguion National High School. The researcher gave the respondents one to two weeks to complete the questionnaire. Afterward, the researcher collected the completed survey questionnaires at the principal's respective office, and then the researcher consolidated the data. The researcher also did in-person interviews to validate the data gathered through the survey.

Collation, Organization, and Analysis of Data. After retrieving and collecting all the data needed, it was encoded, collated, organized, and statistically treated using the

appropriate statistical tools. Results were considered by the researcher in module revision and development.

Revision of the Developed Module in Combinatorics and Probability. After analyzing the respondents' results, comments, and suggestions, the study concluded that the developed module is very much valid. Based on the feedback received, the researcher revised certain parts of the module to transform it into a valuable learning resource for grade 10 students.

The final copy was implemented in the teaching-learning process using 30 students in Bangbang National High School. The researcher utilized the results of pretest and posttest administered to appraise the effect of the developed module to the learners' performance for the whole third quarter.

Statistical Treatment

The researcher statistically examined the collected data to provide answers to the study questions. The researcher recorded and tabulated the frequency of responses on the level of validity of the developed module in terms of the objectives of each lesson, essential content, the language used, and assessment and evaluation activities with which each category has quantifying statements.

The mean scores were computed to measure the respondent's evaluation of the developed module regarding the objectives of each lesson, essential content, language used, and assessment and evaluation activities.

The results of the evaluation of teachers and content experts to the instrument were coded on the 5-point Likert Scale determination per criterion, wherein the higher scores embody more positive responses. Scores were analyzed using a descriptive data analysis procedure. The scales of the statistical values adapted to assess the aspects are as follows:

Likert Scale for Evaluating Content Validity

Arbitrary Value	Weighted Mean	Description	Verbal Interpretation
5	4.20 – 5.00	Excellent	Very Much Valid
4	3.40 – 4.19	Very Satisfactory	Much Valid
3	2.60 – 3.39	Satisfactory	Moderately Valid
2	1.80 – 2.59	Fair	Less Valid
1	1.00 – 1.79	Poor	Not Valid

RESULTS

Stages / Phases of Module Development

1. Development of the Intended Learning Outcomes (ILOs)

Intended Learning Outcomes (ILOs) specify what learners are expected to know, understand, and be able to do as a result of an educational activity. These outcomes serve as a guide for the researcher in designing and developing the module in Combinatorics and Probability for Grade 10 learners. Developing ILOs is a crucial step in crafting the module. They should be specific, measurable, achievable, relevant, and time-bound (SMART).

First, the researcher defined the learning goals. The researcher began by clearly defining what the grade 10 learners of Gasan District should achieve by the end of the third quarter. The researcher considered the Most Essential Learning Competencies (MELCs) prescribed by the Department of Education (DepEd). These competencies were provided by DepEd for schools and teachers to use as the primary resource in choosing and implementing varied learning techniques and strategies appropriately.

The Department of Education (DepEd) has instructed schools to consult the Most Essential Learning Competencies (MELCs) when creating learning activity sheets, self-learning modules, and other instructional materials. Furthermore, schools are encouraged to adhere to the MELCs' content and to avoid creating new lists of learning competencies for different subject areas (Llego, 2023).

Table 2.
Most Essential Learning Competencies of Mathematics 10 Third Quarter

Quarter	Content Standards The learner...	Performance Standards The learner...	Most Essential Learning Competencies The learner...	Duration	K to 12 CG Code
Q3	demonstrates understanding of key concepts of combinatorics and probability	is able to use precise counting technique and probability in formulating conclusions and making decisions.	illustrates the permutation of objects.	Week 1 to 2	M10SP-IIIa-1
			solves problems involving permutations.		M10SP-IIIb-1
			illustrates the combination of objects.	Week 3 to 4	M10SP-IIIc-1
			differentiates permutation from combination of n objects taken r at a time.		M10SP-IIIc-2
			solves problems involving permutations and combinations.	Week 5	M10SP-IIId-e-1
			illustrates events, and union and intersection of events.	Week 6	M10SP-IIIf-1

illustrates the probability of a union of two events.	Week 7	M10SP-IIIg-1
finds the probability of (A∪B).	Week 8	M10SP-IIIg-h-1
illustrates mutually exclusive events.	Week 9	M10SP-IIIi-1
solves problems nvolving probability.		M10SP-IIIi-j-1

Table 2 above shows the Most Essential Learning Competencies of Mathematics 10 in the third quarter. These competencies are the intended learning outcomes which the researcher considered as a guide in designing and developing the module.

After identifying the learning goals/learning competencies, the researcher broke down the overarching goals into smaller, more manageable learning objectives, skills, or attitudes that learners should gain. The researcher ensures that each aim is aligned with the curriculum standards and overall goals and is achievable within the module's scope to be developed.

The study of Zalun (2023) revealed that the Most Essential Learning Competencies (MELCs) is highly utilized in terms of learning resources content validity, appropriateness of learners' activities, congruency of the lesson plan, alignment of the assessment, and time budget. It also revealed that the MELCs have a strong relationship with the level of learning development.

Next, the researcher applied Bloom's taxonomy to guide her in developing learning objectives. Bloom's taxonomy categorized learning objectives into six levels, ranging from simple recall of information to higher-order thinking skills such as evaluation and creation. The researcher ensured that learning objectives covered a range of cognitive levels to promote deep learning.

Each learning objective was expressed using precise, actionable verbs that describe observable behaviors. Action verbs such as analyze, evaluate, synthesize, and apply indicate the level of cognitive engagement required of learners. The vague and ambiguous language that can lead to confusion was avoided. The researcher reviewed the learning objectives to ensure that these are specific, clear, and unambiguous. Unnecessary jargon or complex language that may hinder understanding was removed. Each objective communicates precisely what learners are expected to accomplish. Also, learning objectives are sequenced logically, allowing for progression and coherence, starting from foundational concepts and skills to more advanced topics.

The researcher also considered the diverse needs and backgrounds of the learners when crafting learning objectives. The objectives are inclusive and accessible to all learners, regardless of their experience and prior knowledge.

Finally, the researcher reviewed the identified learning objectives multiple times to ensure they meet the learners' needs and align with the overall instructional goals. Based

on feedback from the teacher-respondents, the researcher revised parts of the objectives as needed.

2. Selection of the essential content

The researcher followed several steps in selecting the essential content of the module to be developed. The first step was to identify learning objectives. The researcher then clearly defined what the learners should achieve by the end of the third quarter.

The most important topics are determined for achieving the learning objectives. The researcher identified the core concepts and information essential for understanding the subject matter, which will be the module's focus. The topics/lessons under Mathematics 10 Combinatorics and Probability for Quarter 3 are listed per module every week, Module 1 to Module 10, with K to 12 curriculum guide codes. These are as follows:

- Module 1 – Week 1: Illustrating Permutations of Objects (M10SP-IIIa-1)
  - Lesson 1: Illustrating Permutation of Distinct Objects
  - Lesson 2: Illustrating Permutation of Non-Distinct Objects
  - Lesson 3: Illustrating Circular Permutation of Objects
- Module 2 – Week 2: Solving Problems involving Permutations of Objects (M10SP-IIIb-1)
  - Lesson 1: Solving Problems involving Permutations of Objects
- Module 3 – Week 3: Illustrating Combinations of Objects (M10SP-IIIc-1)
  - Lesson 1: Illustrating Combinations of Objects
  - Lesson 2: Differentiating Permutation and Combination
- Module 4 – Week 4: Combination of *n* Objects Taken *r* at a Time (M10SP-IIIc-2)
  - Lesson 1: Combination of *n* objects taken *r* at a time
- Module 5 – Week 5: Solving Problems involving Permutations and Combinations (M10SP-IIId-e-1)
  - Lesson 1: Solving Problems involving Permutations and Combinations
- Module 6 – Week 6: Events, and Union and Intersection of Events (M10SP-IIIf-1)
  - Lesson 1: Illustrating Different Types of Events
  - Lesson 2: Illustrating Union, and Intersection of Events
- Module 7 – Week 7: Probability of The Union of Two Events (M10SP-IIIg-1)
  - Lesson 1: Probability of The Union of Two Events
- Module 8 – Week 8: Solving the Probability of $A \cup B$ (M10SP-IIIg-h-1)
  - Lesson 1: Solving the Probability of $A \cup B$
- Module 9 – Week 9: Illustrating Mutually Exclusive Events (M10SP-IIIi-1)
  - Lesson 1: Illustrating Mutually Exclusive Events
- Module 10 – Week 10: Solving Problems involving Probabilities (M10SP-IIIj-1)
  - Lesson 1: Solving the Probability of Independent Events and Dependent Events
  - Lesson 2: Solving Conditional Probability

Another important aspect considered by the researcher is the learners' needs. Understanding the background, prior knowledge, and learning preferences of the grade 10 learners of Gasan District is considered. It is recorded that for the last five years, the Mean Percentage Score (MPS) of the third quarterly assessment of the grade 10 learners

of Gasan District has been low. The least mastered competencies were also noted. The researcher tailored the content to meet the learners' needs and level of understanding.

The researcher also ensured that the content was aligned with the relevant curriculum standards or learning outcomes to develop a module covering what is required for the grade 10 learners in the third quarter. All available content was reviewed, and unnecessary or tangential information was filtered out, keeping the focus on key concepts and principles that are directly relevant to the learning objectives. Each lesson in the module reflects the most important aspects of what is being taught.

The researcher also utilized frameworks such as Bloom's taxonomy to ensure that the selected content covers various levels of cognitive complexity, from basic understanding to higher-order thinking skills such as analysis and evaluation. Complex topics were broken down into smaller, more manageable, and easier-to-understand topics. Information was presented in a structured manner that facilitates understanding and retention. Different topics are presented accurately and precisely with a variety of supplementary activities. Ideas, concepts, and points presented are well-expressed.

The study of Omer et al (2001) stated that a module can be organized if it is constructed in logical ways by the nature of the lesson and the characteristics of the students it is intended for, such as from simple to complex, from known to unknown, from facts and fragmented knowledge to laws and comprehensive relationships, from the whole to the part, and from the ancient to the contemporary, which are arranged logically and sequentially.

Learning experiences with the developed module are enhanced by including visual aids such as diagrams, charts, and illustrations. Visual presentations presented in the module will help clarify complex concepts and improve comprehension among learners. The researcher also includes real-life examples and applications to demonstrate how the content is relevant and applicable in practical contexts. This helps learners connect theoretical knowledge to practical situations. The researcher reviewed and refined the module based on feedback from the teacher-respondent. The contents are adjusted to improve relevance, clarity, and effectiveness in achieving the learning objectives.

3. Selection of the language used

Several factors were considered by the researcher when selecting the appropriate language for crafting the module. These include the target audience, subject matter, and context.

The researcher researched the demographics, language proficiency, and cultural background of grade 10 learners to determine the language they were most comfortable with.

The language used in the module is designed to be accessible to the learners. The researcher avoided overly technical or academic language, ensuring the vocabulary and

instructions suited the learners' age and educational background. The instructions are presented in a clear, unambiguous, and easy-to-follow manner, enhancing the learners' comprehension of the module's content.

The language used supports the learning objectives. The researcher ensured that the language chosen communicates and engages learners effectively. The researcher sees to it that words are correctly used. The module is accompanied by clear and specific directions for their use. The lessons are presented in sentences and paragraphs that are grammatically correct.

The researcher also considered localization, which involves adapting the content linguistically and culturally to make it more relevant and understandable to the learners.

The researcher was able to gather and seek feedback from the teacher-respondents as evaluators of the developed module. This helped the researcher assess whether the language used resonates with learners and effectively communicates the content. The researcher made sure that consistency was maintained throughout the module in terms of terminology, style, and tone to avoid confusion and enhance learning continuity.

4. Development of assessment and evaluation activities

Developing assessment and evaluation activities for the module involved careful consideration of the learning objectives, content, and the learners' needs. The researcher clearly defined what the learners should achieve by the end of the lesson, and learning objectives or outcomes guided the researcher in the developing assessment and evaluation activities.

Knowing the learners' backgrounds, knowledge levels, and preferences helps the researcher tailor assessment activities to their needs and ensure they are engaging and relevant.

The researcher carefully considers appropriate assessment methods based on the learning objectives and the nature of the content. Assessment and evaluation activities are carefully designed to measure the intended learning outcomes. The researcher ensures that each assessment item is related to specific learning objectives. The module has a provision for self-assessment.

The researcher also provided clear instructions for assessment and evaluation activities. The purpose of each assessment activity and detailed instructions on how to do and complete it are stated clearly. These include information on the evaluation criteria and any relevant resources or materials.

The researcher ensured that assessment and evaluation items measure higher-order thinking skills, improving understanding and retention of the content.

Assessment activities are created with inclusive features that cater to diverse learning needs, including those who have learning difficulties. The test items are written carefully to ensure that learners can understand them. Moreover, the answer to one item provides a clue to the answer to another item.

With feedback from the teacher-respondent to the developed module, the researcher revised and refined assessment strategies as needed.

5. Selection of references from available teaching and learning sources

Though there are a limited number of available teaching and learning resources and materials for Grade 10, these resources are great sources and references used by the researcher in developing the module in Combinatorics and Probability.

In planning and crafting the module, thoughtful analysis of factors affecting the quality of teaching and learning was done. Such factors are problems and needs of the current curriculum and resources used in teaching. Content coverage of teaching materials and resources available are broad and general. Some are with abstract concepts. Some are experimental in nature and with research-based lessons. Some contents need prior knowledge to be understood. These identified gaps were taken into consideration in the process of structuring learning into the module to suit learning conditions.

The most important topics are determined for achieving the learning objectives. The researcher identified the core concepts and information essential for understanding the subject matter, which will be the module's focus. The developed module is more specific and comes with step-by-step procedure or solution to a given task or problem for learners to easily understand the topics discussed in the module.

Authors and their ideas from the resources used to develop the module in Combinatorics and Probability were properly cited and given credits to acknowledge the contribution of other writers and researchers in the developed module.

The researcher used the following resources, cited in APA format, as references in the developed module:

Callanta, Melvin, Canonigo, Allan, Chua, Arnaldo, Cruz, Jerry, Esparrago, Mirla, Garcia, Elino, Magnaye, Aries, Orines, Fernando, Perez, Rowena and Concepcion Ternida. *Mathematics Grade 10 Learner's*. Pasig: Department of Education, 2015

Oronce, Orlando, and Marilyn Mendoza. *E-Math 10*. Manila: Rex Bookstore, Inc., 2017.

Torio, Von, Ibanez, Jean, and Tiamzon, Ernan. *Smart in Math 10.* Quezon City. Isa-Jecho Publishing, Inc., 2018

6. Time frame of development

It took the researcher almost a year to complete the process of development and validation of the module in Combinatorics and Probability for Grade 10 learners. Table 3 below shows the time frame of the module development.

Table 3.
Time frame of Module Development

Time	Activity
July 2023 to September 2023	Development and crafting of the module
October 2023	Distribution of the pre-crafted module and survey checklist to the respondents for evaluation
November 2023	Retrieval of the survey checklist
December 2023 to January 2024	Revision and editing of the Developed Module based on feedback of the respondents
February 2024 to March 2024	Pilot testing of the Developed Module

In July 2023, the researcher started the development of the module. The lack of teaching resources and learning materials for Combinatorics and Probability and the low mean percentage score in the third quarter in Mathematics 10 were the reasons which made the researcher conceptualize the development of the module.

Even before the pandemic in 2020, the Philippines faced challenges in mathematics education. The Philippines has consistently performed poorly in international mathematics large-scale assessments.

Meanwhile, Combinatorics is a mathematical topic considered challenging to teach and learn according to the study of Mashiach et al (2004), and Probability is unintuitive and difficult according to Spiegelhalter (2011). These support the study of Capuno et al (2019) saying Mathematics is challenging for Filipino students. That is why there is a need to design and develop the material to help Grade 10 learners understand the concept of Combinatorics and Probability.

From July to September 2023, the researcher developed and crafted the module in Combinatorics and Probability for Grade 10 learners. ADDIE model was adapted and utilized in the development and validation of the module. The module's goals, target audience, and resources were analyzed in the analysis phase. In the design phase, essential content, objectives, and strategies aligned with the instructional goals were selected and designed. The development phase includes developing objectives, selecting essential content, determining the language used, and developing assessment and evaluation activities.

Before the distribution of the pre-crafted module to the respondents (teacher-validators) in October 2023, the researcher seek approval to conduct the study. First, the researcher sent a request letter to Dr. Lynn G. Mendoza, the Schools Division Superintendent of the Division of Marinduque, through the HR Office, asking permission to conduct the study in the five (5) public high schools in Gasan District through the distribution of survey questionnaires. The researcher also asked permission through a letter from Mr. Gueller Dee V. Salazar to adapt the instrument he used in his 2018 study to validate a developed module. Upon granting the researcher's request to adopt the research instrument used by Salazar (2018) and the approval of the Division Superintendent of Marinduque, the researcher printed a copy of the survey form and submitted it to the school district Supervisor of Gasan, Dr. Elvin C Perlas. The printed copy of the survey and consent forms were then personally distributed to the respondents. The researcher went to five (5) public high schools in Gasan District.

In November 2023, the researcher collected the completed survey questionnaires at the principal's respective office, and then the researcher consolidated the data. The researcher also did in-person interviews to validate the data gathered through the survey. After retrieving and collecting all the data needed, it was encoded, collated, organized, and statistically treated using the appropriate statistical tools. Results were considered by the researcher in module revision and development.

After analyzing the respondents' results, comments, and suggestions, the study concluded that the developed module is very much valid. Based on the feedback received, the researcher revised certain parts of the module to transform it into a valuable learning resource for grade 10 students from December 2023 to January 2024.

From February to March 2024, the final copy was implemented in the teaching-learning process using 30 students in Bangbang National High School. The researcher utilized the results of pretest and posttest administered to appraise the effect of the developed module on the learners' performance for the whole third quarter of the school year 2023-2024.

7. Development of cover page and packaging

According to evolutionary psychology, judging a book by its cover page is an inherent human trait based on survival, so first impressions matter immensely. Therefore, when designing a cover page for the development of a learning material, a captivating cover page is vital for making an expression. The cover page sets the tone of the content. It hints at what the content is about and is the first thing the reader is confronted with.

The researcher considered many elements to have a good and attractive design of the cover page of the developed module. The contrast, balance, emphasis, proportion, hierarchy, repetition, rhythm, pattern, white space, variety and unit.

The purpose of the content and the target audience of the module are considered by the researcher to create stand-out cover page and packaging. The questions "What am I creating and who is it for?", "What message do I want to convey?", and "Who am I

trying to reach?" are considered and answered by the researcher in creating the cover page of the developed module.

To create a compelling cover page and packaging, it's essential to include a vital visual element that aligns with the theme of the content. The researcher chose a visual element that grabs attention without overwhelming the viewers, a captivating image, or an eye-catching graphic about the module. The researcher wanted to capture the learners' attention but not overwhelm them. Using too many different types of visuals on the same page are avoided to maintain a clean or organized look. The researcher chose a harmonious color palette that aligns with the purpose of the module, and target audience – the Grade 10 learners

The researcher experimented with different lay-outs and arrangements of the visuals and illustrations in the cover page of the developed module to find the perfect balance which will captivate the learners' attention. A balanced composition ensures that the cover page looks visually appealing and professional.

Level of Validity of the Developed Module

The draft of the module was written and printed. The developed module was distributed to the evaluators/validators of the module, the secondary school mathematics teachers, and master teachers teaching Mathematics 10 Third quarter, Combinatorics and Probability topics in Gasan District. Using the survey checklist adapted from the validated evaluation instrument Salazar (2018) used, the module was assessed and evaluated according to the four criteria: the lesson's objectives, essential content, the language used, and assessment and evaluation activities. Each criterion had quantifying statements on which the evaluators based their assessment of the module.

Table 4.
Rating on the Characteristics of the Specific Objectives of the Developed Module

Indicators	Frequency					Average	D	DI
	5	4	3	2	1			
1. Each lesson in the module is accompanied by specific objectives.	5	0	0	0	0	5.00	Excellent	VMV
2. The words used in the objectives are clear and easily understood.	4	1	0	0	0	4.80	Excellent	VMV
3. The specific objectives are realistic.	4	1	0	0	0	4.80	Excellent	VMV
4. The objectives are measurable	5	0	0	0	0	5.00	Excellent	VMV
5. The specific objectives are attainable within specified time limit.	2	3	0	0	0	4.40	Excellent	VMV

Composite Mean	**4.80**	**Excellent**	**VMV**

Legend:

1.00 – 1.79	*poor*	*not valid (NV)*
1.80 – 2.59	*fair*	*less valid (LV)*
2.60 – 3.39	*satisfactory*	*moderately valid (ModV)*
3.40 – 4.19	*very satisfactory*	*much valid (MV)*
4.20 – 5.00	*excellent*	*very much valid (VMV)*
D	*Description*	
DI	*Descriptive Interpretation*	

Table 4 presents the ratings given by the mathematics teachers and master teachers on the specific objectives of the module.

The specific objectives of each lesson in the module were rated very much valid, with a composite mean of 4.80. Evaluators gave the highest average rating of 5.0, considering that the module is accompanied by specific objectives that are clear and easily understood, realistic, measurable, and attainable within a specific time limit.

Specific objectives accompany each lesson in the module. Defined learning goals are broken down into smaller, more manageable learning objectives describing the knowledge, skills, or attitudes the learners should gain.

The words used in the objectives are clear and easily understood. Each learning objective uses precise, actionable verbs describing observable behaviors. Action verbs such as analyze, evaluate, synthesize, and apply indicate the level of cognitive engagement required of learners. Vague or ambiguous language that can lead to confusion is avoided.

The learning objectives are sequenced in a logical order that allows for progression and coherence, starting with foundational concepts and skills and moving on to more advanced topics.

The objectives are realistic, measurable, and attainable within the specified time limit. Each objective communicates precisely what learners are expected to accomplish within the time.

As Donnelly and Fitzmaurice (2005) noted in their study, the module must be accompanied by distinct learning objectives so that learners are aware of what they must do after engaging in the learning process.

Table 5.
Rating on the Content of the Module

Indicators	Frequency 5	4	3	2	1	Average	D	DI
1. Each lesson reflects the most important aspects of what is being taught.	3	2	0	0	0	4.60	Excellent	VMV
2. The lessons are presented at a pace that allows for reflection and review.	5	0	0	0	0	5.00	Excellent	VMV
3. There is adequate provision for supplementary activities/exercises.	3	2	0	0	0	4.60	Excellent	VMV
4. The content leads to the attainment of the objectives.	4	1	0	0	0	4.80	Excellent	VMV
5. There is adequate presentation/discussion of content.	4	1	0	0	0	4.80	Excellent	VMV
6. The information about the different topics is accurate and precise.	4	1	0	0	0	4.80	Excellent	VMV
7. There is variety of supplementary activities	4	1	0	0	0	4.80	Excellent	VMV
8. The ideas, concepts, and points presented are well-expressed.	4	0	1	0	0	4.60	Excellent	VMV
9. The examples presented are current, accurate, and defensible.	2	3	0	0	0	4.40	Excellent	VMV
10. The lessons are aligned on the curriculum.	5	0	0	0	0	5.00	Excellent	VMV
Composite Mean						**4.74**	**Excellent**	**VMV**

Legend:

1.00 – 1.79	*poor*	*not valid (NV)*
1.80 – 2.59	*fair*	*less valid (LV)*
2.60 – 3.39	*satisfactory*	*moderately valid (ModV)*
3.40 – 4.19	*very satisfactory*	*much valid (MV)*
4.20 – 5.00	*excellent*	*very much valid (VMV)*
D	*Description*	
DI	*Descriptive Interpretation*	

Table 5 provides the evaluators' rating of the content of the module. The module's content was rated using the ten (10) specific criteria with a composite mean of 4.74, which is very much valid. Based on the rating, it can be noted that each lesson reflects the most important aspects of what is being taught. Also, the lessons in the module are presented at a pace that allows for reflection and review. That is why the evaluators' highest rating was five (5) on that specific criterion. The module's contents also lead to attaining the objectives, and there is an adequate presentation and discussion of content. The

module's content is aligned with the relevant curriculum standards or learning outcomes covering the topics required for Grade 10 learners in the third quarter.

The content leads to the attainment of the objectives. In the study conducted by Roman (2016), it was emphasized that the content contributes to the assessment of the module's validity.

The module enriches learning experiences by incorporating visual aids such as diagrams, charts, and illustrations. These visual presentations serve a practical purpose, clarifying complex concepts and enhancing comprehension among learners. Real-life examples and applications demonstrate the relevance and applicability of the content in practical contexts, ensuring that learners can apply their knowledge effectively.

Lai and Neuby (2012) found that the quality of the graphics presented in a module can affect how it is interpreted, and the benefits derived from using it. Pictures and other visual aids decrease the need for extended textual descriptions. Graphics can enhance understanding, inference, prospective discovery, and learner motivation.

Table 6.
Rating on the Language Used in the Module

Indicators	Frequency 5	4	3	2	1	Average	D	DI
1. The words used in the module are correctly used.	4	1	0	0	0	4.80	Excellent	VMV
2. The module is accompanied by clear and specific directions for their use.	5	0	0	0	0	5.00	Excellent	VMV
3. The vocabulary used is suitable to the reading and understanding level of students to whom the modules are intended.	4	1	0	0	0	4.80	Excellent	VMV
4. Instructions to the students are clear, unambiguous, and easy to follow.	4	1	0	0	0	4.80	Excellent	VMV
5. The lessons are presented in paragraph/sentences that are grammatically correct.	4	1	0	0	0	4.80	Excellent	VMV
Composite Mean						**4.84**	**Excellent**	**VMV**

Legend:

1.00 – 1.79	*poor*	*not valid (NV)*
1.80 – 2.59	*fair*	*less valid (LV)*
2.60 – 3.39	*satisfactory*	*moderately valid (ModV)*
3.40 – 4.19	*very satisfactory*	*much valid (MV)*
4.20 – 5.00	*excellent*	*very much valid (VMV)*
D	*Description*	
DI	*Descriptive Interpretation*	

Table 6 shows the rating of the mathematics teachers and mathematics teachers on the language used in the module.

The language usage of the module has a composite mean of 4.84. This means that the choice of words is very much valid and appropriate to the learners' reading ability and accompanied by clear and specific directions for their use.

The language used in the module is accessible to the learners, meaning they are familiar with the words used. Words used in the module can be easily understood by the learners. There are no technical or academic languages that are hard to understand.

Similarly, the level of readability of words is appropriate to the learners' age and educational background. The vocabulary used suits the reading and understanding level of learners to whom the module is intended. Instructions to the students are clear, unambiguous, and easy to follow. Clear instructions make learners do and finish the task accurately and precisely.

The language used supports the module's learning objectives. Chosen language effectively communicates concepts and engages learners. Words in the module are used correctly. The lessons are presented in paragraphs and sentences that are grammatically correct.

When creating a concise and clear concept, language, ideas, and structure for the module, consideration must be given to the learner's learning capacities, preferences, and degree of knowledge. According to Salazar (2018), in his study, the module's clarity must be given with clear information and language to facilitate learning.

Table 7.
Rating on the Assessment and Evaluation Activities in the Module

Indicators	Frequency					Average	D	DI
	5	4	3	2	1			
1. The module has provision for self-assessment.	5	0	0	0	0	5.00	Excellent	VMV
2. The items help increase understanding and retention of the content.	4	1	0	0	0	4.80	Excellent	VMV
3. The items focus on important objectives and content of the lessons.	5	0	0	0	0	5.00	Excellent	VMV
4. The items in the evaluation are congruent to the specific objectives.	5	0	0	0	0	5.00	Excellent	VMV
5. There are items which measure higher thinking skills.	5	0	0	0	0	5.00	Excellent	VMV

6. The items are grammatically correct.	5	0	0	0	0	5.00	Excellent	VMV
7. The items are arranged from easy to difficult.	3	2	0	0	0	4.60	Excellent	VMV
8. The test items are written at a level that students can understand.	3	2	0	0	0	4.60	Excellent	VMV
9. The answer to one item furnishes or gives clue to the answer in another item.	3	1	1	0	0	4.40	Excellent	VMV
10. The items cover the important competencies to be developed.	4	1	0	0	0	4.80	Excellent	VMV
Composite Mean						**4.82**	**Excellent**	**VMV**

Legend:

1.00 – 1.79	*poor*	*not valid (NV)*
1.80 – 2.59	*fair*	*less valid (LV)*
2.60 – 3.39	*satisfactory*	*moderately valid (ModV)*
3.40 – 4.19	*very satisfactory*	*much valid (MV)*
4.20 – 5.00	*excellent*	*very much valid (VMV)*
D	*Description*	
DI	*Descriptive Interpretation*	

Table 7 presents the rating given by the mathematics teachers and master teachers on the assessment and evaluation activities in the module.

The evaluation format gained a composite mean of 4.82, meaning the set of assessment tools was very much valid. The evaluation tools used in the developed module measure what is supposed to be measured.

Assessment methods are appropriate based on the learning objectives and the nature of the content. Assessment activities directly measure the intended learning outcomes. Each assessment item is related to specific learning objectives. Instructions for each assessment and evaluation activity are provided clearly. The purpose of each assessment activity and detailed instructions on how to do and complete the task are clearly stated.

Assessment and evaluation items help increase understanding and retention of the content. Some items measure higher-order thinking skills. The items are grammatically correct. The items are arranged from easy to complex. Considering accessibility and inclusivity in the assessment, assessment activities are made accessible to all learners, including those with learning disabilities or diverse learning needs. Answers to one item furnishes or gives clues to the answer in another item. The test items are written carefully at a level that learners can understand. Also, items in the assessment and evaluation activities of the developed module cover the essential competencies to be developed by learners. Items focus on important objectives of the lessons.

According to Heramil (2016), a self-learning module has been designed to aid learners who cannot attend individual or group education sessions. This module provides learning activities and assessment and evaluation of the students, enabling learners to work independently at their own pace rather than the group's pace, which can either be too fast or too slow for some learners.

Result of the Validation of the Developed Module

Table 8.
Summary Result of Rating on the Validation of the Developed Module

Indicators	Mean	D	DI
I. Characteristics of the specific objectives of the module	4.80	Excellent	VMV
II. Characteristics of the content of the module	4.74	Excellent	VMV
III. Characteristics of the language used	4.84	Excellent	VMV
IV. Characteristics of evaluation activities	4.82	Excellent	VMV
Average Weighted Mean	**4.80**	**Excellent**	**VMV**

Legend:

1.00 – 1.79	*poor*	*not valid (NV)*
1.80 – 2.59	*fair*	*less valid (LV)*
2.60 – 3.39	*satisfactory*	*moderately valid (ModV)*
3.40 – 4.19	*very satisfactory*	*much valid (MV)*
4.20 – 5.00	*excellent*	*very much valid (VMV)*
D	*Description*	
DI	*Descriptive Interpretation*	

Table 8 presents the rating summary result on the developed module's validation. The module developed by the researcher is very much valid, as reflected by the ratings of the evaluators—the mathematics teachers and the master teachers of Gasan District. After thorough analysis and computation of the survey checklist result used as the research instrument to evaluate the developed module, the average weighted mean of 4.80, which is very much valid, is the general experts' feedback on the developed module.

The evaluation result confirmed that the output module is very much valid. Though there are minor issues, comments, feedback, and suggestions by the validators which need to be considered. In general, the developed module is near to a perfect learning resource that will provide the teachers and learners with what is needed for the teaching and learning process, a module that will help create self-phase learning and that will significantly enhance the mathematical skills of students, potentially transforming their academic journey. The module may serve as a relevant learning resource that may increase the potential in mathematical skills through reasoning and analogy aligned with the DepEd curriculum and content standards.

Comments, Feedback, and Suggestions of the Validators to help Enhance the Developed Module

- There should be an introduction or preface about the topic or lesson for the week. This may include but is not limited to the importance of the lesson as to why it is essential to teach and learn. While the content itself is most important, a strong introduction can engage learners, provide context, and outline what learners are going to learn. Introductions, even brief ones, can make a huge difference for the learners' learning experience. A strong introduction can hook learners and pique their interests (Amanda, 2023).

- There should be a table of content so that lessons will be seen easily. A table of contents is a page or section of books, modules, and other learning materials that lists the chapters or sections of the material and their corresponding page number. The table of contents serves two purposes: 1). It gives users an overview of the document's contents and organization, and 2). It allows readers to go directly to a specific section of a document.

- In the discussion part of the lesson in the module, the writer / researcher may apply the 3E's (Engage, Elaborate, and Evaluate).

Engage. The part or section of the module which provides activity / activities to gain an understanding of the students' prior knowledge and identify knowledge gaps if there is. This part also fosters an interest in the upcoming concepts so that students will be ready to learn.

Elaborate. This phase focuses on giving students space to apply what they've learned. This helps them to develop a deeper understanding of the lesson.

Evaluate. It is in this phase of the module which provides activity / activities to see whether learners have a complete grasp of the core concepts discussed.

- Examples provided in each of the lessons in the developed module should be localized and contextualized especially in the problem-solving part of the lesson. Localization and contextualization are crucial in education because these ensure that learning materials are accessible and relevant to students across different linguistic and cultural backgrounds. Essential content should be aligned with local languages, customs, and cultural norms.

The Enhanced Module in Combinatorics and Probability

As a result of the validation and series of revision, the enhanced module in Combinatorics and Probability for Grade 10 learners can be a potential learning material that can help assist teachers in presenting lessons in Combinatorics and Probability.

The enhanced module is packed wholly and systematically with a set of planned learning experiences inside designed to help students to comprehend specific learning goals and competencies. This module is different from other existing modules in Mathematics because examples provided in the module are localized and contextualized making them to be easily understood by learners.

Earlier studies show how instructional materials can assist teachers in presenting their lesson logically and sequentially to the learners (Isola, 2010), as supported by Abdu-Raheem (2014), who showed in his study how instructional materials aid explanations and make the learning of subject matter understandable to learners during the teaching-learning process.

Pretest and Posttest Analysis Using the Developed Module

The validated copy of the module in Combinatorics and Probability was pilot tested among the 30 grade 10 learners. Learner's performance was determined by calculating the percentage of students who showed improvement in their scores after they underwent learning through the module using pretest and posttest assessments. The difference in mean percentage score (MPS) which is equal to 46.40 indicates that the learners significantly acquired knowledge in the lessons. This further implies that the utilization of the developed module led students to have a better performance.

Furthermore, the utilization of the material not only enhanced comprehension and knowledge but also piqued the student's interest in the subject as observed during the pilot testing. It was clear that students were actively engaged in the learning process with the teacher acting as a facilitator (Raman, 2006). The developed module likely supports independent learning. This aligns with Naval (2014), in his research, indicating that students tend to engage with modules at their preferred times, and this particular module made them to be interested in learning. Consequently, students exhibited high concentration due to the learner-centered exercises included in the module (Lea, 2003).

The increase in MPS from the pretest to posttest indicates that positive learning occurred. The posttest scores reflect that 45 out of 50 items were correctly answered by the learners with an MPS of 89.74. The analysis results displayed in Table 9 show that the majority of the students performed well in the subject. Posttest rating reveals that 87% of the learners had an outstanding rating and 13% had very satisfactory rating.

Table 9.
Performance of Learners Using the Result of Pretest and Posttest Analysis

Difference in MPS of Pretest and Posttest										
Type of Test	**No. of Cases**	**No. of Items**	**HPS**	**LPS**	**HSO**	**LSO**	**Mean**	**MPS**	**SD**	**Difference in MPS (Posttest – Pretest)**
Pretest	30	50	50	0	35	11	21.67	43.34	6.12	46.40
Posttest	30	50	50	0	50	38	44.87	89.74	2.97	

Learner Progress and Achievement in Pretest and Posttest						
Descriptors	**Grading Scale**	**Remarks**	**Pretest**		**Posttest**	
			No. of Learners	**%**	**No. of Learners**	**%**
Outstanding	90 – 100	Passed	0	0%	26	87%
Very Satisfactory	85 – 89	Passed	0	%	4	13%
Satisfactory	80 – 84	Passed	1	3%	0	0%
Fairly Satisfactory	75 – 79	Passed	1	3%	0	0%
Did not meet Expectations	Below 75	Failed	28	94%	0	0%
		Total	30	100%	30	100%

Note: Computation of Learners' Progress and Achievement in Pretest and Posttest was based on DepEd Order No. 8 s. 2015

DISCUSSION

Summary of Findings

This study aimed to develop and validate a module in Combinatorics and Probability for Grade 10 learners. The lack of teaching resources and learning materials for Combinatorics and Probability and the low mean percentage score in the third quarterly assessment of the subject mentioned above are the existing problems from the current curriculum of the Department of Education. These are the reasons that made the researcher conceptualize the development of the module in Combinatorics and Probability for Grade 10 learners. The researcher used the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model to develop the module.

The module in Combinatorics and Probability for Grade 10 learners was developed in terms of:

- Development of the intended learning outcomes

Learning goals are defined considering the Most Essential Learning Competencies (MELCs) prescribed by the Department of Education (DepEd). These learning goals were broken down into smaller, more manageable objectives aligned with the curriculum standards and overall goals. These learning outcomes/objectives were specific, measurable, achievable, relevant, and time-bound (SMART).

- Selection of the essential content

The core concepts and information essential for understanding the subject matter were identified and will be the module's focus. The topics/lessons under Mathematics 10 Combinatorics and Probability for Quarter 3 are listed per module every week, Module 1 to Module 10, with K to 12 curriculum guide codes. These are as follows:

Module 1 – Week 1: Illustrating Permutations of Objects (M10SP-IIIa-1)
- Lesson 1: Illustrating Permutation of Distinct Objects
- Lesson 2: Illustrating Permutation of Non-Distinct Objects
- Lesson 3: Illustrating Circular Permutation of Objects

Module 2 – Week 2: Solving Problems involving Permutations of Objects (M10SP-IIIb-1)
- Lesson 1: Solving Problems involving Permutations of Objects

Module 3 – Week 3: Illustrating Combinations of Objects (M10SP-IIIc-1)
- Lesson 1: Illustrating Combinations of Objects
- Lesson 2: Differentiating Permutation and Combination

Module 4 – Week 4: Combination of *n* Objects Taken *r* at a Time (M10SP-IIIc-2)
- Lesson 1: Combination of *n* objects taken *r* at a time

Module 5 – Week 5: Solving Problems involving Permutations and Combinations (M10SP-IIId-e-1)
- Lesson 1: Solving Problems involving Permutations and Combinations

Module 6 – Week 6: Events, and Union and Intersection of Events (M10SP-IIIf-1)
- Lesson 1: Illustrating Different Types of Events
- Lesson 2: Illustrating Union, and Intersection of Events

Module 7 – Week 7: Probability of The Union of Two Events (M10SP-IIIg-1)
- Lesson 1: Probability of The Union of Two Events

Module 8 – Week 8: Solving the Probability of $A \cup B$ (M10SP-IIIg-h-1)
- Lesson 1: Solving the Probability of $A \cup B$

Module 9 – Week 9: Illustrating Mutually Exclusive Events (M10SP-IIIi-1)
- Lesson 1: Illustrating Mutually Exclusive Events

Module 10 – Week 10: Solving Problems involving Probabilities (M10SP-IIIj-1)
- Lesson 1: Solving the Probability of Independent Events and Dependent Events
- Lesson 2: Solving Conditional Probability

Learners' backgrounds, prior knowledge, and learning preferences were considered. The content is aligned with the curriculum standards and learning outcomes. The content covers levels of cognitive complexity, from basic understanding to higher-order thinking skills. Different topics are presented accurately and precisely with a variety of supplementary materials. Ideas, concepts, and points presented are well-expressed.

The content and learning experiences were enhanced by visual aids such as illustrations, diagrams, and charts, which help clarify complex concepts and improve comprehension.

- Selection of the language used

The vocabulary used is suitable for the reading and understanding level of the learners to whom the modules are intended. The instructions are clear, unambiguous, and easy to follow. The language used supports the learning objectives. The language chosen communicates and engages learners effectively. The module uses correct words. It is accompanied by clear and specific directions for its use. The lessons are presented in sentences and paragraphs that are grammatically correct.

- Development of the assessment and evaluation activities

Assessment activities are accessible to all learners, including those with learning difficulties or diverse learning needs. Test items are carefully written at a level that learners can understand. The assessment and evaluation items help increase understanding and retention of the content. Items measure higher-order thinking skills. The answer to one item furnishes or gives a clue to the answer to another item.

- Selection of references from available teaching and learning sources

Though there are a limited number of available teaching and learning resources and materials for Grade 10, these resources are great sources and references used by the researcher in developing the module in Combinatorics and Probability. The most important topics are determined for achieving the learning objectives. The researcher identified the core concepts and information essential for understanding the subject matter, which will be the module's focus. Authors and their ideas from the resources used to develop the module in Combinatorics and Probability were properly cited and given credits to acknowledge the contribution of other writers and researchers in the developed module.

- Time frame of the development
  - ✓ July 2023 to September 2023 – Development and crafting of the module
  - ✓ October 2023 – Distribution of the pre-crafted module and survey checklist to the respondents for evaluation
  - ✓ November 2023 – Retrieval of the survey checklist
  - ✓ December 2023 to January 2024 – Revision and editing of the Developed Module based on feedback of the respondents
  - ✓ February 2024 to March 2024 – Pilot testing of the Developed Module

- Development of cover page and packaging

The researcher experimented with different lay-outs and arrangements of the visuals and illustrations in the cover page of the developed module to find the perfect balance which will captivate the learners' attention. A balanced composition ensures that the cover page looks visually appealing and professional.

The draft of the module was written, printed, and validated. The module was assessed and evaluated in four general categories with quantifying statements on which

the validators based their module assessment. The four categories with the result are as follows:

- specific objectives of each lesson in the module with a mean of 4.8,
- content of the module with a mean of 4.74,
- language used with a mean of 4.84, and
- assessment and evaluation activities with a mean of 4.82.

The result revealed that the developed module was considered very much valid, with an average weighted mean of 4.8. Comments, feedback, and suggestions from the validators are noted and taken into consideration to enhance the module.

Positive learning was determined by computing the percentage of students who showed improvement in their scores after they underwent learning through the module. The mean percentage score of students' pretest and posttest were compared and a difference of 46.40 shows that the students significantly improved their performance in the subject. There were 87% and 13% of learners who obtained outstanding rating and very satisfactory rating in posttest respectively. The mean score of the pilot students is 44.87.

The developed module in Combinatorics and Probability for Grade 10 learners is a potential learning resource that can be used to teach Grade 10 Combinatorics and Probability topics in Quarter 3.

Conclusions

Based on the data gathered using the standardized module evaluation checklist adapted from a validated scholarly work published as material for development and validation, it can be concluded that the developed module in Combinatorics and Probability for Grade 10 learners is very much valid. The developed module in Combinatorics and Probability for Grade 10 learners is a potential learning resource that can be used in teaching Grade 10 Mathematics Combinatorics and Probability topics in the third quarter.

Pilot-testing verified these conclusions through an obtained difference of 46.40 in the MPS using the pretest-posttest analysis. This is supported by the performance of 87% of students who obtained an outstanding rating and 13% of students who obtained a very satisfactory rating.

Indeed, the developed module can provide teachers and learners with what is needed to teach and learn Combinatorics and Probability. It can help learners create self-phase learning and enhance their mathematical skills. The module may serve as a relevant learning resource that can increase the learners' potential in mathematical skills through reasoning and analogy aligned with the DepEd curriculum and content standards.

Recommendations

Based on the results and conclusions of the study, the following recommendations are offered:

1. The respondents/validators of the developed module in Combinatorics and Probability for Grade 10 learners are the mathematics teachers and master teachers in Gasan District who are teaching Mathematics 10, specifically Combinatorics and Probability. To increase the developed module's validity, the researcher highly suggests testing the module into a series of evaluations and assessments by a more significant number of evaluators and widening the scope of the study. Subjecting the developed module to experts in module writing and publication will also increase its validity.

2. This study mainly focused on the development and validation of the module in Combinatorics and Probability for Grade 10 learners. The questionnaire, in checklist form adapted from the validated evaluation instrument used by other researchers, was distributed among the Mathematics teachers and master teachers in Gasan District who are teaching Mathematics 10, specifically Combinatorics and Probability. They are the validators of the developed module. For further refinement, the researcher recommends also considering students' evaluation if one will conduct development and validation of the module to identify learners' feedback after using the module.

3. For further study, the researcher also recommends testing the developed module's effectiveness by letting the grade 10 learners from other school use the module to learn the lesson on Combinatorics and Probability for the third quarter in Mathematics 10 to increase its validity.

4. The developed module in Combinatorics and Probability for Grade 10 learners is a potential learning resource that can be used in teaching Grade 10 Combinatorics and Probability topics in the third quarter. The developed module can provide the teachers and learners with what is needed in teaching and learning Combinatorics and Probability. This module can help learners create self-phase learning and enhance their mathematical skills. When given the opportunity to use the module as a reference, researchers may continue to elaborate and improve the existing content of Combinatorics and Probability. Contextualization and localization of examples are encouraged for the content of the module.

5. The need for teaching resources in Mathematics lessons, such as Combinatorics and Probability topics, is one of the reasons why the researcher conceptualizes developing and validating modules in Combinatorics and Probability for Grade 10 learners. The government may allocate funds for this kind of study about the development and validation of modules because such studies will produce potential learning modules and materials to help teachers in teaching.

6. Essentially, the success of the module may depend on the competence, enthusiasm, and confidence of the Mathematics teacher and the ability of the students in making use of the learning activities provided.

Compliance with Ethical Standards

It is true that developing and crafting a module is a process that requires time, commitment, and a thoughtful, systematic approach.

This study involved human participation for the evaluation of the developed module and its impact on the performance of the learners. Several considerations for this undertaking are truly necessary for the purpose of ensuring the privacy as well as the security of the participants. These concerns were identified in advance so as to prevent future problems that would arise during the research process. Among the significant issues which were considered include consent, confidentiality, and data protection.

During the conduct of the study, survey forms and interview methods were drafted in a very clear and concise manner to prevent confusion. Participants in this research were given ample time to respond to the survey checklist to avoid errors and inaccuracies in their answers. The respondents were also given a waiver and information that they do not wish to disclose. The respondents' cooperation was eagerly sought after. They were assured that the data gathered would be treated with strict confidence. These were done with the hope that this would promote trust between the researcher and the respondents.

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DEVELOPMENT AND VALIDATION OF SUPPLEMENTAL INSTRUCTIONAL MATERIALS IN LINEAR INEQUALITIES

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ABSTRACT

The study aimed to develop and validate the Supplemental Instructional Materials Module in Linear Inequalities in Mathematics 8 based on the Least Mastered Competencies for the Second Quarter of Grade 8 learners at Buenavista National High School and Cabong National High School. Two hundred sixty-five learners participated in this study. A survey questionnaire was distributed to the Grade 8 learners in the two public schools of Buenavista District I. The Supplemental Instructional Materials were developed and validated by the four (4) Masters Teachers. In terms of validity of contents, equity and accessibility, instructional design and support, assessment, presentations and organization, and replicability, having a composite mean of 4.25, all these ratings are considered outstanding. Based on the data it was concluded that the enhanced Supplemental Instructional Materials was developed, and all the parts met its validity. Based on the findings and conclusion, it is highly recommended that administrator's curriculum planners, educators, and teachers be allowed to use the developed learning materials. Learners may also use the learning materials as a guide in Quarter 2 in Mathematics 8. Moreover, future researchers may also use the study findings as a reference in crafting and developing learning materials.

Keywords: *Mathematics 8, Linear Inequalities, Supplemental Instructional Materials (SIM)*

INTRODUCTION

Mathematics is considered one of the most complicated academic disciplines in school settings. The diversified nature of problem-solving taught in secondary

education is difficult for many students worldwide, including those in the Philippines. Nowadays, mathematics education tries to build the capacity for investigation, hypothesis formation, logical thinking organization, non-routine problem solving, and the establishing of linkages between mathematical concepts, and other intellectual domains. Mathematics is an essential component of education and is necessary at all curriculum levels. As a result, this subject necessitates intense mental focus and logical thinking. People considered mathematics to be a challenging topic. Many students perform poorly in Mathematics and find the subject very challenging.

According to Antiporda (2014), learners' performance in Mathematics at the end of secondary education has not improved over the last decade. This assertion is corroborated by the National Achievement Test (NAT) performance of the country's high schools, which fell from 50.7% in the 2007-2008 school year to 46.3% in the 2011-2012 school year, as well as its low ranking of 115th out of 142 states in the Global Competitiveness Report. Furthermore, according to international test results such as the 2003 TIMSS (Trends in International Mathematics and Science Study), the Philippines placed 34th out of 38 nations in HS II Math. Similarly, 2008 data reveal that even with only the Science high schools competing in the Advanced Mathematics category, the Philippines ranked last (Department of Education 2010).

According to the PISA (2018) findings, the Philippines placed last out of 79 participating nations, with mathematics being second to bottom. Unfortunately, at least 78% of students in the Philippines did not meet the minimum competency standards in each of the three PISA courses. Only 19% met the minimal competency level for overall Mathematics outcomes. This emphasizes the critical need to reform the country's education system and create more possibilities for pupils to succeed.

During the Buenavista District I school-based Numeracy Test, the total test results declined by 5% compared to 2022. In the school year 2022-2023, the result declined depending on the percentage of the test, and it did not meet the objective passing percentage of at least 75%.

In response to the perceived needs of the education sector, the Department of Education (DepEd) has continued to advocate for changes to the primary education curriculum. The establishment of Republic Act No. 10533 prepared the ground introducing of K-12 education in the Philippines. However, implementing the curriculum is challenging, mainly when teaching Junior High School Mathematics, because the K-12 curriculum employs a spiral progression strategy across courses. Learners should be educated about topics ranging from elementary to complicated. The spiral progression technique is intended to build on the same principles at each grade level and advance in complexity from kindergarten to Grade 10 (DepEd Order 21 S. 2019; Enhanced Basic Education Act of 2013). Furthermore, skipping the core topics in mathematics will result in low academic performance. Many students had to deal with these challenges, contributing to poor performance across all areas.

Firestone (2016) stated that when learners are given the assistance they require while learning something new, they have a better probability of employing that knowledge independently, and mastery and retention of the concepts, and abilities are guaranteed.

Furthermore, the emphasis on instruction is on providing teachers with the resources they need to help students build cognitive learning skills. Estacio (2015) explains that the teaching-learning process "depends on how the goals are attained at the end of the process, and thus the realization of these goals relies on the teacher who chooses the right methodology, and strategy, which are relevant instructional materials and valid and reliable assessment tools." It promotes student learning, which leads to improved performance and achievement. Furthermore, instructional materials must reflect students' interests, knowledge, understanding, abilities, needs, and experiences. When offering quality education, one should not overstate the importance of instructional materials in effective instruction. Aside from the introductory textbook, using instructional materials is essential for meaningful and effective teaching".

As a result, the Department of Education (DepEd) released a statement advising that schools strengthen the competencies required to improve the performance of all students across the country. One of the recommendations is to provide materials to improve school competencies (DepEd Order No. 39, 2012). SIM is a remedial tool that assists students at their current knowledge level, enhancing their academic performance. Similarly, DepEd Order No. 08, Series of urges teachers to implement remediation when students are already struggling in a subject, as evidenced by low ratings in any learning area. Studies from Asian countries that applied Supplemental Instructional Materials to know how effective implementing these interventions are, but these are limited only in context, number of participants, respondents, the variables included in the study, and the methodology in teaching in which this study was made. Arpilleda (2021) emphasizes that SIM, a well-structured and thoroughly organized piece of content, will help students who do not have a firm grasp of the idea overcome such issues.

According to Bandang and Parangat (2022), most of the teachers developed a variety of intervention items for pupils who struggled with math. In remedial sessions, Supplemental Instructional Materials (SIM focuses on the learners' least-mastered mathematics skills. It is a learning tool that assists students in mastering competency-based abilities not often taught in the classroom.

To increase students' mathematical skills, math teachers must be original, imaginative, and creative while producing strategic intervention materials.

It is a resource available to students to help them learn and master competency-based skills that they could not gain through traditional classroom instruction. SIM is a comprehensive technique that assists students, particularly those underperforming in becoming self-directed and productive learners. SIM evaluations will most likely use a variety of approaches to allow students to demonstrate their learning through task performance and application to real-world circumstances. (SIMs) are intended to help professors provide students with the motivation to excel in their courses (Sinco et al.,2020).

Furthermore, extra instructional materials required pupils to satisfy defined competency standards while developing lifelong learning skills. The purpose of this study is to determine the extent to which activities contribute to the development of mathematical competence.

The biggest challenge for teachers is to improve their students' performance in mathematics. The mathematics department at Buenavista National High School is now hosting the researcher, whose goal is to reduce the proportion of students who perform poorly in mathematics. To make it possible, Mathematics teachers conducted a numeracy test last school year, and yielded poor results. Strategic intervention material was currently used by the Mathematics Department to improve the poor performance of learners in mathematics. The outcomes of these projects did not meet the targeted percentage, so the researcher ought to develop supplemental instructional materials. She came up with this study to improve the academic performance of the grade 8 learners in mathematics, specifically in the Second Quarter of the school year, so the researcher comes up with identified the least mastered competencies for the last three consecutive years to develop new supplemental instructional materials and validated by the experts.

Research Questions

This research aimed to determine the Development and Validation of the Supplemental Instructional Materials Module on Linear Inequality. Specifically, this study sought to answer the following questions:

1. What are the least mastered competencies identified based on the Trends Analysis for the last five years?

2. What are the difficulties encountered by the Grade 8 learners in mastering the learning competencies in Mathematics 8 in Linear Inequalities?

3. What Supplemental Instructional Materials can be developed based on the Identified Least Mastered Competencies specifically in Linear Inequalities?

4. What is the level of validity of Supplemental Instructional Materials as assessed by the validators in terms of:

    4.1 Content

    4.2 Equity and Accessibility

    4.3 Assessment

    4.4 Presentation and Organization

    4.5 Instructional Design and Support

    4.6 Replicability?

5. What are the recommendations given by the validators to improve the Supplemental Instructional Materials?

METHODOLOGY

This chapter elucidated the methodologies and protocols that enable the researcher to carry out the study effectively. This chapter focused on various aspects of the research study, including the research design, research locale, research population and sampling, research instrument, data gathering procedure, and statistical treatment.

Research Design

This study used descriptive research methodologies, both quantitative and qualitative. Identifying patterns based on the least learned competencies from prior years. We made a SIM based on the patterns in Numeracy Test Results. The SIM was validated to see whether learners improved their performance regarding the least learned competencies in Mathematics 8, specifically the Linear Inequalities in Two Variables lesson.

The researcher developed and validated Supplemental Instructional Materials (SIM) since the previous SIM did not successfully meet the target percentage.
The researcher used the least mastered competencies based on trends encompassing the second quarter of Grade 8 learners' Most Essential Learning Competencies (MELCs) as defined by the Department of Education. The produced extra instructional materials will be reviewed and validated by the mathematics department's master teachers and a school principal.
This study gathered data from prior years' least mastered competencies results. Respondents identified the obstacles experienced in the learning skills and validated the development of extra instructional materials.

Research Locale Population and Sampling

The study focuses on two types of respondents. The first group includes professionals who will validate the materials. The second group of respondents are the public schools in Buenavista Quezon's District 1 for the 2023-2024 school year. The researcher focused solely on all grade 8 students in all public schools in Buenavista District 1 who participated in this study.

The study includes all 265 grade 8 students, or 100% of the population, currently enrolled in Buenavista National High School and Cabong National High School.

This purposive sampling method enabled the researcher to gather valuable insights and data relevant to the research objectives while facilitating the development of Supplemental Instructional Materials (SIM) anchored to the specific needs of Grade 8 learners in the public schools of Buenavista, District 1.

The Population of the Study

Name of Schools	The population of Grade 8 Learners	Percentage
Buenavista National High School	237	89.43%
Cabong National Hugh School	28	10.57%
Total Number	265	100%

Research Instrument

The researcher developed and validated Supplemental Instructional Materials (SIM) in response to the critical challenges of secondary schools in District 1, namely the least taught abilities in Mathematics 8. The primary research tool used in this study is a Teacher-Constructed for Trend Analysis Data Retrieval and Secondary Data Analysis of 5 years of Item Analysis Results to comprehensively evaluate the least mastered competencies of Grade 8 learners in Mathematics 8, specifically in the Second Quarter. To assure the validity and reliability of the Item Analysis, a comprehensive validation method was used.

It is critical to note that Trend Analysis Data Retrieval is an accurate method for identifying the least mastered competencies. Each standard in the curriculum guide determines the distribution of topics on the exam, ensuring a thorough and competency-based evaluation.

Five-point Likert Rating Scale Interpretation

Scale	**Range Interval**	**Verbal Interpretation**	**Qualitative Description**
5	4.20 - 5.00	Always Encountered (AE)	Learners are consistently encountered in their learning competencies in Mathematics 8. They always encountered difficulties that lead to least mastered competencies of Grade 8 learners.
4	3.40 – 4.19	Often Encountered (OE)	Learners are regularly encountered in their learning competencies in Mathematics 8

3	2.60 – 3.39	Sometimes Encountered (SE)	Learners are frequently encountered in their learning competencies in Mathematics 8. They sometimes encountered difficulties that lead to least mastered competencies of Grade 8 learners.
2	1.80 – 2.59	Rarely Encountered (RE)	Learners are seldom encountered in their learning competencies in Mathematics 8. They rarely encountered difficulties that lead to least mastered competencies of Grade 8 learners.
1	1.00 – 1.79	Never Encountered (NE)	Learners are least encountered in their learning competencies in Mathematics 8. They never encountered difficulties that lead to least mastered competencies of Grade 8 learners.

Data Gathering Procedures

The researcher's primary tool for gathering the necessary data and information for problem-solving is the least mastered competencies based on the previous year's patterns.

In this study, the researcher used a Teacher-Constructed Trend Analysis Data Retrieval explicitly intended to examine the least learned competencies in Mathematics 8 during the second quarter of the school year.

Following completion, the responses were encoded. These results were combined and analyzed using the item analysis algorithm to provide a complete picture of the student's performance in Mathematics 8. This analysis not only evaluates their overall performance but also identifies learning gaps and areas of Grade 8 students.

Supplemental Instructional Materials (SIM) were created based on a trend analysis of the least mastered competencies. After producing (SIM) the materials are validated by the master’s teachers. To ensure its reliability and validity, it is related to how consistent and trustworthy the study is, ensuring that these materials will undoubtedly be validated by school principals and master teachers. The goal is to ensure that the study does not produce inconsistent outcomes.

For ethical considerations, a letter was noted by the Dean and adviser requesting the endorsement of the undertaking. Upon approval, the researcher will seek permission from the principal and discuss the process of the conduct of the study.

Statistical Treatment of Data

Supplemental Instructional Materials (SIM) were generated using a trend analysis of the least mastered competencies. After completing (SIM), the researcher validated by professionals, to ensure its reliability and validity, considering how consistent and trustworthy the study is, as these materials will almost certainly be validated by school principals and master instructors. The goal is to ensure that the study yields consistent results. The study's validity was determined by how well it measured what it was intended to measure. Trends Analysis Data Retrieval results are conveyed to data users using Mean Percentage Scores (MPS) and descriptive equivalent for data utilization to create Supplemental Instructional Materials (SIM). Specified below is the mastery level:

Legend	Descriptive Equivalent
96%-100%	Mastered
86%-95%	Closely Approx. Mastery
66%-85%	Moving toward Mastery
35%-65%	Average
16%-34%	Low
5%-15%	Very Low
0%-4%	No Mastery

The data on challenges or issues were evaluated using a survey questionnaire to identify the kind of difficulties that the learners encountered.

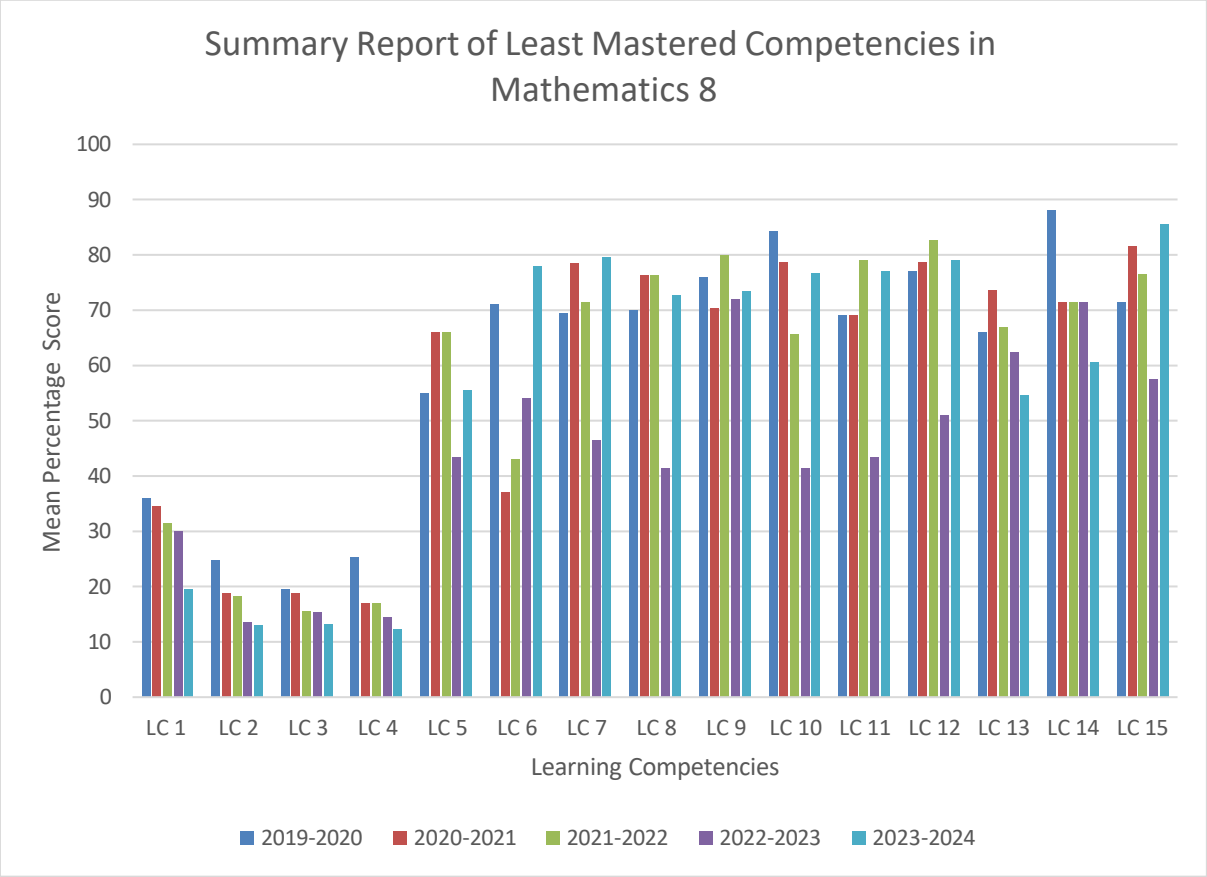
The table below is used to evaluate the data collected from the Validity survey, which was validated by an expert.

Scale for the Evaluation Criterion for SIM Validation

Mean Interval	Verbal Interpretation
4.20 – 5.00	Outstanding
3.40 – 4.19	Very Satisfactory
2.60 – 3.39	Satisfactory
1.80 – 2.59	Less Satisfactory
1.00 – 1.79	Unsatisfactory

RESULTS

Part I. The Least Mastered Competencies



Additionally, solving problems involving linear inequalities in two variables (LC3) also presents the decreasing of mean percentage score 20,19,16,15 and 13 from low mastery to a very low mastery that leads the topic to least mastered competency. Solving problems involving linear inequalities requires strong algebraic skills, such as manipulating equations, simplifying expressions, and solving equations. Learners with weak algebraic skills may struggle to apply these skills effectively in solving problems involving linear inequalities.

Likewise, solves problems involving systems of linear inequalities in two variables (LC4) gained the decreasing of mean percentage score of (25,17,1715 and 12) that leads the topic to a very low mastery. Understanding how to graph and interpret systems of linear inequalities on a coordinate plane can be challenging. Learners may struggle with accurately plotting the lines and shading the correct regions to represent the solution set. By addressing these difficulties and employing effective learning strategies, learners can improve their performance and achieve a higher mean percentage score in solving problems involving systems of linear inequalities in two variables.

In addition, the rest learning competencies of the second quarter gained from average to closely approaching mastery leads to the learners fully understanding the

topics. Mastery involves building upon prior knowledge and making connections between different mathematical topics. Understanding the interconnectedness of mathematical concepts promotes a holistic understanding and facilitates the acquisition of new knowledge. Mastery in mathematics requires a deep understanding of fundamental concepts and principles. It involves going beyond superficial knowledge and developing a thorough comprehension of mathematical ideas and their interconnections.

This study has highlighted the least learned competencies from the last five years, indicating where learners struggle and need additional support. This decline may also be influenced by the quality of academic performances impacted by these challenges.

Table 1

Identified Most Trends of Least Mastered Competencies in Mathematics 8 during the Second Quarter of the School Year: 2019-2024.

Second Quarter	Content Standards	Performance Standards	Identified Most Trends of Least Mastered Competencies in Grade 8 Mathematics in Second Quarter (SY. 2019-2024)
2	Demonstrates key concepts of linear inequalities in two variables, systems of linear inequalities in two variables, and linear functions.	Formulate and solve accurately real-life problems involving linear inequalities in two variables, systems of linear inequalities in two variables, and linear functions.	Illustrates and graphs linear inequalities in two variables.
			solves problems involving linear inequalities in two variables.
			solves problems involving systems of linear inequalities in two variables.
			determines dependent and independent variables.
			graphs and illustrates a linear function and its (a) domain; (b) range; (c) table of values; (d) intercepts; and (e) slope.
			determines the relationship between the hypothesis and the conclusion of an if-then statement.
	Demonstrates understanding of key concepts of logic and reasoning.	Communicate mathematical thinking with coherence and clarity in formulating and analyzing arguments	determines the inverse, converse, and contrapositive of an if-then statement.
			illustrates the equivalences of (a) the statement and its contrapositive; and (b) the converse and inverse of a statement.
			uses inductive or deductive reasoning in an argument.
			writes a proof (both direct and indirect).

Table 1 depicts the identified least mastered competencies in Mathematics 8 during the second quarter of the 2019-2024 school year, as supported by Gosselin (2014), the lowest level of applied skills and knowledge that should enable learners to successfully function in educational and other life situations. According to the statistics provided, the majority of the least mastered competencies in the second quarter are linear inequalities between two variables. Identifying the reasons for the least mastered competencies is critical. It enables focused interventions, differentiated instruction, and the development of methods to address the individual issues that students experience. Addressing these factors will provide learners with the support and opportunities to deepen their mastery of their abilities. According to Toquero (2020), SIMs have evolved into teacher assistance materials that assist students in mastering least-learned competencies.

Through this, the study developed and validated supplemental materials to give learners extra practice opportunities to reinforce their understanding of mathematical concepts. Through repeated practice, learners can strengthen their skills and improve their proficiency in the least mastered competencies.

According to Suarez and Casinillo (2020), materials are intended to support teachers and educators in effectively teaching and supporting students in learning various subjects or skills. It is important to note that while supplemental instructional materials can be beneficial, they should be used in conjunction with regular classroom instruction and teacher guidance. Teachers should provide guidance, monitor progress, and ensure that the materials align with the curriculum and learning objectives. By combining the use of supplemental materials with effective teaching strategies, teachers can address the least mastered competencies of students more comprehensively and effectively.

Part II. Difficulties Encountered by the Grade 8 Learners in Learning Competencies in Mathematics 8.

Table 2

Difficulties Encountered by the Grade 8 Learners in Learning Competencies in Mathematics 8 in the Second Quarter

I. Formulate and solve accurately real-life problems involving linear inequalities in two variables, Systems of linear inequalities in two variables, and linear functions."	**5**	**4**	**3**	**2**	**1**	**Mean**	**Adjectival Rating**	**Rank**
1. Confused in identifying linear inequality symbols.	132	97	20	7	9	4.27	AE	2
2. Lack of ability to visualize graphs in linear inequalities in two variables.	115	85	32	12	21	3.98	OE	4

3. Difficulties in solving problems involving linear inequalities in two variables.	125	79	40	9	12	4.12	AE	3
4. Weakness in understanding the concept of solving problems involving systems of linear inequalities in two variables.	154	82	20	5	4	4.42	AE	1
5. Struggling on how to construct graphs and illustrate a linear function and its (a) domain; (b) range; (c) table of values; (d) intercepts; and (e) slope.	128	55	32	14	36	3.85	OE	5
6. Misconception of identifying the relationship between the hypothesis and the conclusion of an if-then statement.	155	23	21	26	30	3.82	0E	6
II. Communicate mathematical thinking with coherence and clarity in formulating and analyzing arguments.								
7. Struggles in understanding the concept of the inverse, converse, and contrapositive of an if-then statement.	34	76	65	44	46	3.03	SE	8
8. Difficulty in analyzing the equivalences of (a) the statement and its contrapositive; and (b) the converse and inverse of a statement.	45	34	58	79	49	2.80	SE	9
9. Lack of understanding of the concept of inductive and deductive reasoning.	57	48	20	21	119	2.63	SE	10
10. Weak conceptual understanding in writing a proof (both direct and indirect).	41	66	82	25	51	3.08	SE	7
Composite Mean						**3.61**	**OE**	

Legend:

4.20 -5.00	*Always Encountered (AE)*
3.40 - 4.19	*Often Encountered (OE)*
2.60 - 3.39	*Sometimes Encountered (SE)*
1.80 - 2.59	*Rarely Encountered (RE)*
1.00 - 1.79	*Never Encountered (NE)*

Table 2 displays the outcomes of the issues the students encountered. As a result, the most common difficulty they experienced, with a mean percentage score of 4.42, was understanding the notion of solving problems involving systems of linear

inequalities in two variables. The concept of systems of linear inequalities in two variables might be esoteric and difficult to grasp. Students may fail to comprehend how the inequalities are depicted. Students may struggle if they have not yet mastered these.

This confusion can cause students who have not mastered these core math abilities to suffer. Additionally, learners failed to recognize linear inequality symbols, with a mean score of 4.27. This suggests that students frequently become confused among the numerous inequality symbols, especially the 'greater than or equal to' (≥) and 'less than or equal to' (≤) symbols. This confusion can lead to mistakes in interpreting and solving inequalities.

Furthermore, difficulties in solving problems involving linear inequalities in two variables exceed the learners' "Always Encountered" mean score of 4.12. The learners frequently had difficulty visualizing graphs with linear inequalities in two variables, with a mean score of 3.98. Struggling with how to construct graphs and illustrate a linear function and its (a) domain; (b) range; (c) table of values; (d) intercepts; and (e) slope? With a mean score percentage of 3.85, this means that understanding and applying these concepts necessitates a solid understanding of the underlying mathematics. Learners may struggle to comprehend these abstract concepts, particularly if they lack a strong foundation in mathematics or have not yet established good spatial reasoning skills.

Finally, the misconception of identifying the relationship between the hypothesis and the conclusion of an if-then statement exceeds a mean score of 3.82, understanding the concept of the inverse, converse, and contrapositive of an if-then statement mean score of 3.03, analyzing the equivalences of (a) the statement and its contrapositive; and (b) the converse and inverse of a statement (2.80), understanding of the concept of inductive and deductive reasoning (2.63).

Part III. Supplemental Instructional Materials Developed

The materials were created to help students grasp the Second Quarter's least learned competencies, which are linear inequalities in two variables. Supplemental instructional materials can provide additional support, enrichment, and differentiation to help students learn more effectively. Students' learning is greatly aided when the teacher teaches at the appropriately pace. A teacher who has advanced in their chosen field of specialization is characterized by his ability to organize and design curriculum materials appropriate for the student's level of preparation and understanding. These materials are great resources for promoting deeper comprehension, engagement, and motivation, which leads to better educational outcomes.

Part IV. Validity of the Developed Supplemental Instructional Materials

Table 3 *Validity of Supplemental Instructional Materials*

Criteria	Mean	Verbal Interpretation
Content	4.08	VS
Equity and Accessibility	4.08	VS
Assessment	4.25	O
Organization and Presentation	4.42	O
Instructional Design and Support	4.08	VS
Replicability	4.60	O
Composite Mean	4.25	O

Legend:

4.20-5.00	*Outstanding (O)*
3.40-4.19	*Very Satisfactory (VS)*
2.60-3.39	*Satisfactory (S)*
1.80-2.59	*Less Satisfactory (LS)*
1.00-1.79	*Unsatisfactory (U)*
12-20 as the total score	*Passed*

The supplemental Instructional Materials in Grade 8 Mathematics were evaluated and validated by four (4) Junior Schools Master Teachers in content, equity, and accessibility, assessment, organization and presentation, instructional design and support, and replicability.

Based on Table 3, among the six criteria, Replicability got the highest mean score of 4.60. It revealed that the SIM obtained consistent results. Regarding of organization and presentation, the developed materials are valid and supported by a mean score of 4.42. It means that the lessons are clear, understandable, and interactive so that the learners can acquire new skills.

Moreover, the assessment of the developed Supplemental Instructional Materials got a mean score of 4.25 and was described as very satisfactory, which explained that the assessment of the materials is suited and appropriate to the learners and meets the targeted learning objectives.

In terms of content, equality and accessibility, and instructional design and support, all these categories received the same mean score of 4.08, indicating that the lessons' material is linked with the curriculum and that learners are engaged in higher-ordered thinking abilities. Similarly, the equality and accessibility of the lessons make

it easy for learners to adapt the lessons to the school's learning resources. Finally, instructional design and support are super, indicating that the resources are well-organized and appropriate for the learners.

Part V. Recommendation of the Validators

Based on the validators' comments and ideas, make a recommendation to enhance and improve the materials. Validator 1 suggested adding visuals to draw the learner's attention to the information. However, the images should be relevant, acceptable, and serve the learning objectives. Images should complement the text rather than distract or overwhelm learners. Accessibility should be carefully considered, to ensure that resources are inclusive and accessible to students with visual impairments and other disabilities.

Validator 2 recommended correct formatting and consistency with font style, size, and spacing. Consistent formatting makes the text clear and easy to read. Appropriate font size and spacing between letters, words, and lines improve readability, allowing learners to understand the text better and creating a visual hierarchy within the contents. Headings, subheadings, and sections can be distinguished by font size, style, or space, allowing students to quickly identify and navigate the information easily. This organizing structure enhances general knowledge and ease of usage. Validator 3 recommended revising the directions/procedures to offer clear and concise instructions that are simple to follow. This clarity helps learners better understand the task requirements, eliminating confusion and doubt. Finally, Validator 4 recommended including some engaging activities. Engaging activities draw students' attention and pique their interest, making the learning process more pleasurable and inspiring. When students are interested and motivated, they are more likely to interact with the materials and invest in their education.

These recommendations are relevant to improve the materials and to help learners struggling in mathematics 8.

DISCUSSION

The following are the findings of the study:

This research aimed to determine the Development and Validation of the Supplemental Instructional Materials Module on Linear Inequality Least mastered competencies are identified based on the Trends Analysis for the last 5 years.

1. According to the trends in performance for the last five years of Grade 8 learners, there are specific competencies in Mathematics 8 that the learners struggled with, particularly linear inequalities in two variables, which require effort to master.
2. Difficulties encountered by the Grade 8 learners in mastering the learning competencies in Mathematics 8.

The Grade 8 students struggled with linear inequalities in two variables, explicitly addressing the inequalities. One of the difficulties encountered by the

students is understanding the notion of solving problems involving systems of linear inequalities in two variables, with the highest mean score of 4.42. Identifying linear inequalities symbol with a mean score of 4.27. Difficulties handling problems with linear inequalities in two variables, with a mean score of 4.12. Visualizing graphs with linear inequalities in two variables, with a mean score of 3.98. The learners are struggling to create graphs that depict a linear function and its (a) domain, (b) range, (c) table of values, (d) intercepts, and (e) slope with a mean score percentage of 3.85. Lastly, the misconception of identifying the relationship between the hypothesis and the conclusion of an if-then statement exceeds a mean score of 3.82, understanding the concept of the inverse, converse, and contrapositive of an if-then statement mean score of 3.03, analyzing the equivalences of (a) the statement and its contrapositive; and (b) the converse and inverse of a statement (2.80), understanding of the concept of inductive and deductive reasoning (2.63).

3. Supplemental Instructional Materials are developed based on the least mastered competencies.

To address the least mastered competencies and difficulties encountered by the Grade 8 learners, supplemental instructional material was developed. First, the most identified least mastered competencies were identified, educators can tailor their instruction and support to meet the unique needs of learners, promote greater learning outcomes, and foster more inclusive and effective learning strategies. Likewise, allows educators to address the specific needs of each student, regardless of their starting point, and provide opportunities for academic success and to provide an appropriate activity that can help the learners easily understand the topic. Specifically, the difficulties in solving linear inequalities in two variables, and additionally, solving word problems that involve real-life situations allows learners to apply their knowledge in their everyday lives.

Second, understanding the difficulties learner
s encounter in math informs curriculum development and revision. It helps identify areas that require more attention, adjustments, or alternative approaches to ensure that the curriculum meets the needs of all learners.

3. The validity of Strategic Intervention Materials (SIM) in terms of:

3.1 Content The validity is “Very Satisfactory” with a mean percentage of 4.08.

3.2 Equity and Accessibility the validity is “Very Satisfactory” with a mean percentage of 4.08.

3.3 Assessment the validity is “Outstanding” with a mean percentage of 4.25.

3.4 Presentation and Organization the validity is “Outstanding” with a mean percentage of 4.42.

3.5 Instructional Design and Support the validity is “Very Satisfactory” with a mean percentage of 4.08.

Overall, the composite mean score of the validated SIM is 4.25, which means these materials passed the six criteria.

4. Recommendations given by the validators.

Most of the validators provide a recommendation to enhance and improve the materials. The validators suggested inputting more images to attract the learner's attention to the materials, the proper formatting and consistency of the font style, size, and spacing, and revising the directions/procedures on task and more engaging

activities. These recommendations are relevant to improve the materials and to help learners struggling in mathematics 8.

Conclusions

Below are the conclusions based on the findings of the study.

1. The results of the least mastered competencies of Grade 8 learners indicate that there are specific competencies that need to be addressed to gain valuable insights into the competencies that learners have consistently struggled with. This analysis can inform targeted strategies and improvements to enhance student learning and address areas of weakness.

2. By thoroughly analyzing the difficulties encountered by the Grade 8 learners in mathematics. Based on the overall mean percentage score, learners struggled more with understanding and solving the linear inequalities in two variables. By addressing the difficulties, we gain a deeper understanding of the challenges learners face and develop effective strategies to support their learning.

3. In summary, developing supplemental instructional materials plays vital role in enhancing learning, supporting differentiation, promoting personalized learning, addressing gaps, and fostering engagement among learners. These materials provide valuable resources and support to educators and learners, ultimately contributing to improved educational outcomes.

4. Based on criteria of content, equity and accessibility, assessment, presentation and organization, instructional design and support, and replicability, the criterion for validating supplemental instructional materials involves a thorough evaluation to ensure that the materials meet specific standards and criteria. Overall, the mean percentage of 4.25 validated materials for all six criteria. By conducting a comprehensive analysis based on the validation criteria, we can ensure that the supplemental instructional materials meet the required standards and effectively support teaching and learning.

5. Most of the validators provide a recommendation to enhance and improve the materials.

Recommendations of the validators help ensure the quality of the validated math materials. By identifying areas for improvement or enhancement, recommendations contribute to refining the materials, making them more accurate, relevant, and effective in supporting student learning.

The validators suggested inputting more images to attract the learner's attention to the materials, the proper formatting and consistency of the font style, size, and spacing, and revising the directions/procedures on task and more engaging activities. These recommendations are relevant to improve the materials and to help learners struggling in mathematics.

Lastly, as a result of these studies the utilization of these materials can be used as a basis for the lesson in the Second Quarter of Mathematics 8. These modules are

designed to guide both teachers and learners through a series of lessons and activities that build on each other, promoting a progressive understanding of mathematical concepts in mathematics 8. Modules are often aligned with the curriculum standards and learning objectives. They help ensure that the content covered in the modules aligns with the specific grade-level expectations and educational standards.

Recommendations

Based on the conclusions, the following recommendations as a result of offered:

1. Since the study developed and validated supplemental instructional material specifically in linear inequalities in two variables, administrators and curriculum planners may allow the use of the developed materials in improving Mathematics instructions.
2. Based on the findings, the content validity of the developed learning materials is very valid, thus educators and teachers may use this as an alternative material in teaching Linear Inequalities in Two Variables.
3. The materials are designed to make it easy to understand and could also develop the higher critical thinking needed for life-long learning for learners. Thus, the students may use these learning materials as a guide in Mathematics 8 lessons specifically in Linear Inequalities in Two Variables.
4. Findings of this study may be used by future researchers in conducting similar research or may be used as a reference in crafting and developing Supplemental Instructional Materials in other subject areas.

Compliance with Ethical Standards

The study ensured the informed consent was given to the following respondents. Freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents' well-being was safeguarded, no conflict of interests exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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DEVELOPMENT, UTILIZATION, AND NUTRITIONAL VALUE OF SUPPLEMENTED TILAPIA (*Oreochromis niloticus*) FLOUR PASTRY PRODUCTS

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ABSTRACT

This research investigates the development and nutritional assessment of supplemented tilapia *(Oreochromis niloticus)* flour pastry products, focusing on caramel tart, coconut dumplings, and yema empanaditas. The study aimed to innovate pastry recipes by incorporating tilapia flour, which was prepared through a process of cleaning, steaming, and grinding tilapia fish. The pastry products were evaluated for sensory attributes such as appearance, aroma, taste, and texture by 100 respondents across various age groups, using a five-point hedonic scale. Results indicated high consumer acceptability, with caramel tart scoring the highest in taste. Nutritional analysis of the pastries revealed significant levels of crude protein and fat, particularly in the yema empanaditas, which had a protein content of 15.07%. Shelf-life assessment showed that the pastries could maintain quality for several days at room temperature, with enhanced preservation in sealed containers. The findings suggest that tilapia flour can be effectively used in pastry production, offering a nutritious and appealing food option. This study emphasizes the potential for creating diverse and economically viable food products from fish flour, promoting dietary diversity, and supporting the economic development of tilapia farming communities.

Keywords: *Tilapia, Pastry products, caramel tart, coconut dumplings, yema empanaditas, sensory evaluation, consumer acceptability*

INTRODUCTION

The Philippines, known for its hospitality and natural beauty, is home to a diverse array of aquatic species, many of which are vital to both the economy and cultural practices. The nation's rivers and coastal regions are not only tourist attractions but also crucial habitats for various fish species. In the City of Ilagan, local fishermen have harnessed technology to cultivate Nile tilapia *(Oreochromis niloticus)* in man-made ponds, increasing their availability for commercial and personal use.

The Philippines predominantly cultures three tilapia species: Nile tilapia, Mozambique tilapia *(Oreochromis mossambicus)*, and Blue tilapia *(Oreochromis aureus)*. With production levels rising annually, tilapia has become a key aquaculture species, particularly in Region 2, where it is mainly consumed fresh, with minimal processing into other products (Department of Agriculture - Bureau of Fisheries and Aquatic Resources, 2001).

Dhanapal et al. (2010) have demonstrated that fresh tilapia meat is suitable for developing ready-to-eat and value-added products, including pastries. This research aims to explore the potential of tilapia meat as a primary ingredient in pastry products, thereby enhancing their nutritional value and acceptability.

Nile tilapia, a freshwater fish native to Africa, has become a global favorite due to its versatility and nutritional benefits. It is a popular Filipino dish, often grilled, broiled, steamed, or baked. Nile tilapia is an excellent source of protein, crude fat, crude protein, vitamins, minerals, polyunsaturated fatty acids, and omega-3 fatty acids, with lower mercury levels compared to other fish. Integrating tilapia into pastry products offers nutritious and affordable options for meals and snacks, potentially reducing malnutrition and unemployment by providing essential nutrients and economic opportunities (Izquierdo et al., 2004; Tafur, 2009; Cortés-Sánchez et al., 2019; WHO, 2020).

In the context of Abuan National High School in Cabecera 27, City of Ilagan, the absence of a school canteen means that teachers and students often purchase snacks from outside, which are typically less nutritious. Moreover, many parents in Abuan seek additional livelihoods to support their children’s education and meet daily needs. This situation inspired the researcher to develop nutritious food options using tilapia flour.

Borja and Gemora (2016) highlight the importance Filipinos place on preparing nutritious food, emphasizing the need for adequate nutrition to support growth, maintenance, and repair of cells and tissues. Given the widespread availability and affordability of tilapia, incorporating it into pastry products could address these nutritional needs while providing new economic opportunities.

The study focused on creating and evaluating tilapia-based pastry products—caramel tart, coconut dumplings, and yema empanaditas—in terms of appearance, aroma, taste, texture, and overall acceptability across various age groups. It also examined the nutritional value and shelf life of these products at room temperature. The

research aimed to meet the dual objectives of providing healthy snack options for students and teachers and offering sustainable livelihoods for local parents.

According to the Philippine Statistics Authority, fish and fishery products are the principal protein source for Filipinos, with an annual consumption of 37 kg per person, making up about 12% of total protein intake (BFAR, 2019). Protein from fish is crucial as it contributes significantly to the diet, supporting food security and nutrition (Farzana et al., 2014; Akinoso et al., 2010). In Africa, tilapia is a readily available protein source, accessible to many (Ande et al., 2012). Additionally, tilapia provides 23 grams of protein per 3-ounce serving, making it a valuable food for older adults to prevent age-related muscle loss (Rust, 2020).

The 2020-2025 Dietary Guidelines for Americans recommend consuming seafood twice a week to gain the health benefits associated with omega-3 fatty acids, which are found in tilapia. Omega-3s are linked to reduced risks of diseases such as hypertension, diabetes, and arthritis (Simopoulos, 2011). They also help lower triglyceride levels and increase good cholesterol, contributing to heart health (Hibbs et al., 2018).

The popularity of tilapia in the Philippines has soared, earning it the nickname "aquatic chicken" due to its bland flavor and rapid growth. The Bureau of Fisheries and Aquatic Resources has significantly contributed to this growth by promoting tilapia farming across the country, especially during the COVID-19 pandemic, to support food security (Fitzsimmons, 2005; Manalili, 2020).

Tilapia's versatility extends beyond fresh consumption; it can be processed into various forms, including smoked, dried, and canned fish, with different preservation methods affecting its nutritional composition (Holma and Maalekuu, 2013). For instance, dried fish products like fish crackers and fish galletas are popular snacks in Asian countries, indicating the potential for developing similar products in the Philippines (Nurul et al., 2009; Taewee, 2011).

This research aimed to develop and assess tilapia-based pastry products to provide nutritious and appealing food options while supporting local economies through sustainable fish farming and food processing innovations. By leveraging tilapia's health benefits and availability, this study sought to enhance dietary nutrition and create new livelihood opportunities in the Philippines.

Research Questions

This study explored the development, utilization, and nutritional value of supplemented Tilapia (*Oreochromis niloticus*) flour Pastry Products. Specifically, it sought to answer the following questions:

1. What are the processes involved in developing tilapia pastry food products?
   a. Caramel tart
   b. Coconut dumplings

c. Yema empanaditas

2. What is the level of acceptability of Tilapia pastry products in terms of:
   a. appearance /color
   b. aroma
   c. taste
   d. texture
3. What is the general level of acceptability of Tilapia pastry food products as evaluated by the following groups of respondents:
   a. children
   b. teenagers
   c. adults
   d. experts
4. Is there a significant difference in the general acceptability of the following tilapia pastry food products a. Caramel tart, b. Coconut dumplings, c. Yema empanaditas across age groups?
5. What is the nutritive value of Tilapia pastry food products?
6. What is the shelf-life of tilapia pastry products at room temperature and number of days?

METHODOLOGY

Materials

1. Tools and Equipment

As shown below, preparation tools and equipment were used during the study.

Table 1. Tools and Equipment used in the preparation of Tilapia pastry food products

DESCRIPTION					
Preparation Tools	**Measuring Tools**	**Mixing Tools**	**Cutting Tools**	**Baking Tools**	**Equipment**
Flour Sifter	Measuring spoons	Mixing Bowl small, medium, Large	Knife	Baking pan	Traditional stove *(kalang de kahoy)*
Spatula	Measuring cups	Wire whisk	Kitchen scissors	Tart molder	Meat grinder
Rolling pin		Ladle		Pastry brush	Steamer
Utility tray					Electric Oven

Ingredients

Table 2 shows the ingredients used in the production of Tilapia Pastry Food Products.

Table 2. The proportion of ingredients used in the preparation of Tilapia pastry food products

Ingredients For Dough	Caramel Tart	Coconut Dumplings	Yema Empanaditas
Tilapia Flour (Sifted)	1 Cup	1 Cup	1 Cup
All -Purpose Flour (Sifted)	1 Cup	1 Cup	1 Cup
Cold Butter Cup	8 Tablespoon	8 Tablespoon	8 Tables Spoon
Water	1 ½ Tablespoon	1 ½ Tablespoon	1 ½ Tablespoon
Vinegar	2 Teaspoon	2 Teaspoon	2 Teaspoon
Egg	1 Piece Medium	1 Piece Medium	1 Piece Medium
Salt	½ Teaspoon	½ Teaspoon	½ Teaspoon
	Caramel Filling	**Coconut Filling**	**Yema Filling**
	1/2 cup light brown sugar	½ cup grated coconut	¼ cup All- Purpose Flour
	1 cup Alaska evaporated milk	¼ cup light brown sugar	½ cup water
	1 tablespoon butter cup	¼ cup butter cup	1 small egg yolk
	4 tablespoon cornstarch		1/8 cup butter cup
	2 pieces medium egg		2/3 cups Alaska condensed milk

Developmental Procedure

To perform the research properly, the flow chart of the procedures in making *tilapia pastry food products* such as caramel tart, coconut dumplings, and yema empanaditas was consistently followed. The needed tools, materials equipment, and ingredients were prepared and followed by mixing the major ingredients, cooking, cooling, and packing.

The developmental procedure began with the preparation of tilapia flour, the preparation of dough for the caramel tart, coconut dumpling, and yema empanaditas, the preparation of three different fillings, making the caramel tart, coconut dumplings and yema empanaditas, and baking.

Preparation of Tilapia Flour

The preparation of tilapia flour began by first cleaning the Nile tilapia. The scales and visceral contents were removed using a sharp knife, and the gills and tail were cut off with kitchen scissors. The tilapia was then washed thoroughly with potable water. Next, six cups of water were poured into a steamer, and the tilapia was steamed for 20 minutes. After steaming, the fish was allowed to cool. Once cooled, the top skin was removed by hand, and the fish meat was collected, ensuring all bones and remaining skin were discarded. The collected fish meat was ground using a meat grinder until it resembled wet flour. This ground fish meat was then spread out for sun drying over 2-3 days. When it was partially dried, it was ground again to pulverize it further. The fish meat was then returned to the sun for additional drying, being stirred occasionally to ensure even dryness. Once the desired dryness was achieved, the tilapia flour was sifted using a sieve to make it fine. Finally, the produced tilapia flour was stored in a closed microwave container to maintain its dryness and protect it from moisture and contaminants. This method ensured that the flour remained protein-rich and suitable for various culinary applications.

Preparation of Caramel Tart

To begin the preparation, all necessary ingredients were measured. In a mixing bowl, 1 cup of tilapia flour, 1 cup of all-purpose flour, 8 tablespoons of cold butter, 1 ½ tablespoons of water, 2 teaspoons of vinegar, 1 medium egg, and ½ teaspoon of salt were combined. After mixing these ingredients, the dough was formed into a ball, covered with plastic wrap, and left to proof for 30 minutes.

Once proofed, the working surface was lightly dusted with a small amount of all-purpose flour, and the dough was kneaded until it became pliable. Using a rolling pin, the dough was flattened and portioned with a stainless glass, with each portion equivalent to 1 tablespoon. Boat-shaped tart molds were greased with a little butter, the dough portions were placed into the molds, and 1 teaspoon of caramel filling was added to each.

The oven was preheated to 180°C (355°F), and the tarts were baked for 10 minutes until cooked. After baking, the tarts were allowed to cool before being stored in a storage box.

Preparation of Caramel Filling

The preparation began by measuring all the needed ingredients. In a bowl, 1/2 cup of brown sugar, 1 cup of Alaska evaporated milk, 4 tablespoons of cornstarch, and 2 eggs were mixed using a wire whisk. A pan was placed over low heat, and butter was melted in the pan. The mixture was then poured into the pan, and stirring continued until it cooked and thickened. Once the caramel filling was cooked, it was allowed to cool before being used.

Preparation of Coconut Dumpling

The preparation began by measuring all the necessary ingredients. In a mixing bowl, 1 cup of tilapia flour, 1 cup of all-purpose flour, 8 tablespoons of cold butter, 1 ½ tablespoons of water, 2 teaspoons of vinegar, 1 medium egg, and ½ teaspoon of salt were combined. The mixed dough was formed into a ball, covered with plastic wrap, and left to proof for 30 minutes. After proofing, the working surface was lightly dusted with a small amount of all-purpose flour, and the dough was kneaded until it became pliable. Using a rolling pin, the dough was flattened and portioned using a stainless glass, with each portion equivalent to 1 tablespoon. Each portion was picked up with both palms, filled with 1 teaspoon of coconut filling, and folded to form a ball shape, similar to a ping-pong ball. The oven was preheated to 180°C (355°F), and the dough balls were baked for 10 minutes until cooked. After baking, the coconut dumplings were allowed to cool before being stored in a storage box.

Preparation of Coconut Filling

The preparation began by measuring the needed ingredients. A pan was placed over low heat, and the butter was added, allowing it to melt. Once the butter had melted, the grated coconut and light brown sugar were added to the pan. The mixture was stirred continuously until it was cooked through. After cooking, the coconut filling was allowed to cool before being used.

Preparation of Yema Empanaditas

The preparation began by measuring all the needed ingredients. In a mixing bowl, 1 cup of tilapia flour, 1 cup of all-purpose flour, 8 tablespoons of cold butter, 1 ½ tablespoons of water, 2 teaspoons of vinegar, 1 medium egg, and ½ teaspoon of salt were combined. The dough was then formed into a ball, covered with plastic wrap, and allowed to proof for 30 minutes.

After proofing, the working surface was lightly dusted with a small amount of all-purpose flour, and the dough was kneaded until it reached a pliable consistency. The dough was flattened with a rolling pin to approximately 1/8 inch thickness, and circles were cut out using a glass with a 2-inch diameter.

For each circle, half of the dough's circumference was estimated, and 1 teaspoon of yema filling was added. The dough was folded over the filling, and the edges were crimped with water and a fork to seal them securely.

The oven was preheated to 180°C (355°F), and the filled pastries were baked for approximately 10 minutes, or until they were fully cooked. Once baked, the yema empanaditas were allowed to cool before being transferred to a storage box.

Preparation of Yema Filling

The preparation began by measuring all the needed ingredients. The flour was placed in a pan over low heat and toasted until it turned light brown, which took about 5 minutes. Once toasted, the flour was transferred to a bowl.

In a separate pan, the butter was melted over low heat. The mixture of condensed milk, toasted flour, egg, and water was then poured into the pan with the melted butter. The mixture was stirred continuously with a ladle until it thickened to the point where it could easily be molded into shapes. Once the mixture reached the desired consistency, it was set aside to cool.

Preparation of Tilapia Pastry Food Products **(a) Caramel tart (b) Coconut dumplings (c) Yema empanaditas**

A flow diagram of the procedure for making the Tilapia Pastry Food Products (Caramel tart, Coconut dumplings, and Yema empanaditas) is shown in Figure 1 below.

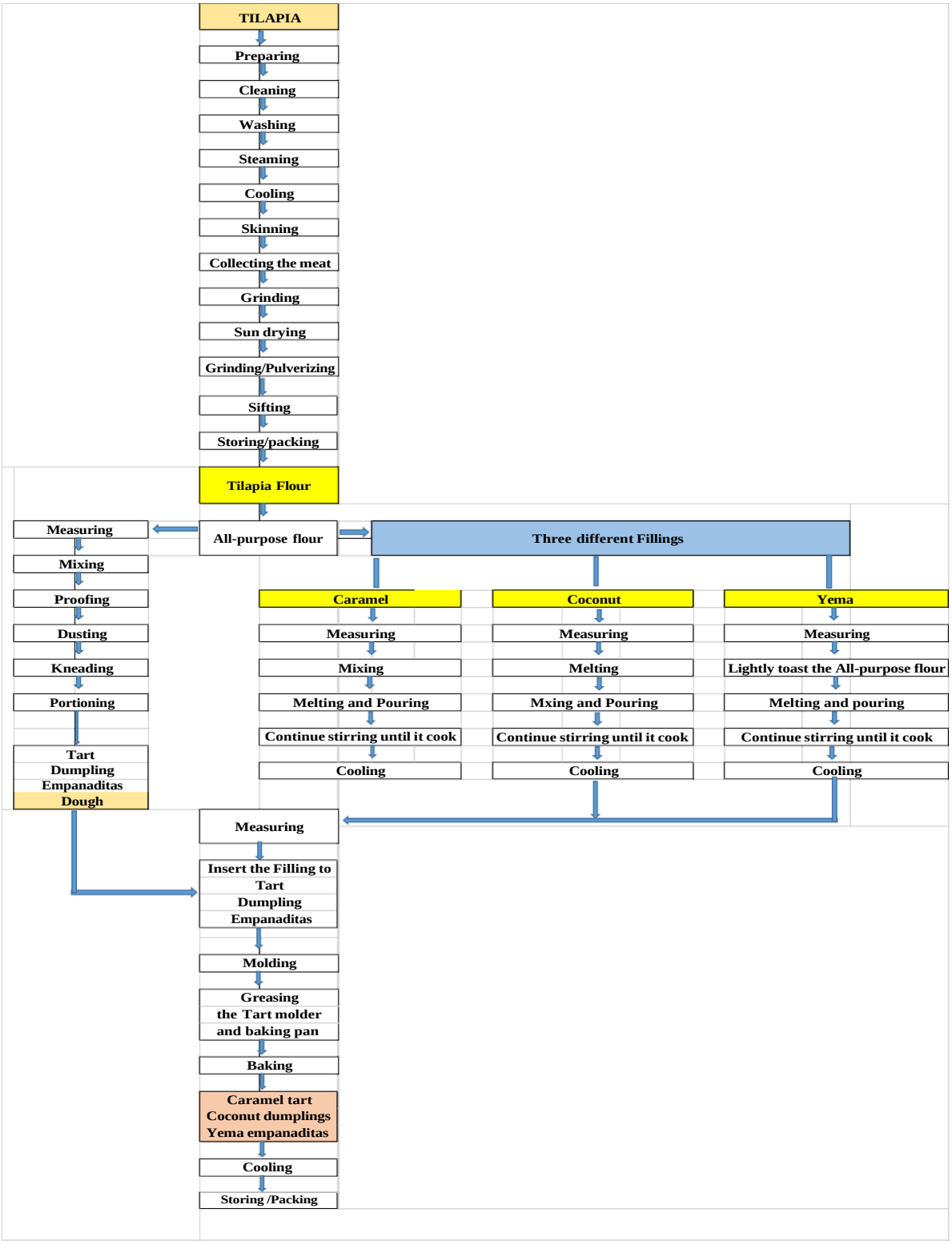


Figure 1. Flow Diagram of the Procedure for Making Tilapia Pastry Food Products

Data Gathering Instrument

The study used a modified instrument from the 2017 study of Prof. Catherine M. Aggabao titled “Macaroons with Shoots from Different Species of Bamboo” at Isabela State University Ilagan Campus. The modified instrument consisted of evaluation criteria on the utilization and nutritional value of tilapia pastry products. The data were gathered through the administered questionnaire checklist to the respondents.

Data Gathering Procedure

Permission to conduct the study through sensory evaluation was requested with the respondents consisting of Children (7-12), Teenagers (13-18), Adults (19-above), and Teachers. After permission was granted, administration of the questionnaires followed. Directions concerning the completion of the questionnaires was discussed by the researcher to the evaluators personally. Copies of the questionnaire checklist were retrieved after they were completed by the respondents. The sensory evaluation through a questionnaire checklist was used to gather information about the utilization and nutritional value of tilapia pastry food products. The observation method was applied to determine the changes in the appearance/color, aroma, taste, and texture.

Sensory Evaluation

The finished products were evaluated by one hundred (100) evaluators from varied age groups who were selected and properly oriented on what and how to evaluate the products using the scorecard with the sample code.

The tilapia pastry products were served. Each evaluator was asked to taste the samples from each food product. Data on the appearance/color, aroma, taste, texture, and general acceptability of each pastry food product were collected, interpreted, and analyzed.

To determine the acceptability of tilapia pastry products made from Nile tilapia flour in terms of appearance/color, aroma, taste, and texture, a score sheet and a five-point hedonic scale with descriptive rating were used.

Scale	Numeric Rating	Descriptive Rating
5	4.50-5.00	Highly Acceptable
4	3.50-4.49	Moderately Acceptable
3	2.50-3.49	Acceptable
2	1.50-2.49	Fairly Acceptable
1	1.00-1.49	Not Acceptable

RESULTS AND DISCUSSION

Product Development

The development of tilapia flour-based pastries involved several meticulous stages. Initially, fresh tilapia was prepared, thoroughly cleaned, and washed under running water. The cleaned tilapia was then steamed until fully cooked, ensuring easy separation of the meat. After steaming, the fish was allowed to cool, and the skin was removed. The meat was carefully collected, separated from bones and other inedible parts, and ground to a fine consistency. This ground meat was sun-dried until completely dehydrated and then pulverized into fine flour. The flour was sifted to achieve a uniform texture and subsequently stored in airtight containers.

For dough preparation, precise measurements of tilapia flour and other ingredients were taken, mixed to form a dough, and allowed to rest and rise during the proofing stage. The dough was dusted lightly to prevent sticking, kneaded until smooth and elastic, and portioned for individual pastries. The filling preparation entailed measuring, cooking, and cooling the ingredients as per the recipe.

Different samples were created to determine the optimal recipe for tilapia pastry products, varying the measurements of Nile tilapia flour to ensure the best quality and acceptability. The best-performing recipe was then used to make caramel tarts, coconut dumplings, and yema empanaditas. This comprehensive process led to the development of high-quality tilapia flour-based pastries that were standardized for consistent production.



Figure 2. Fresh Tilapias are developed into Pastry Products



Figure 3. Grinding/Pulverizing the dried fish meat



Figure 4. Developed Pastry Products (Caramel Tart, Coconut Dumplings, and Yema Empanaditas) made of Tilapia *(Oreochromis niloticus)*

Acceptability of Tilapia Pastry Food Products

Table 3. Level of acceptability of Tilapia pastry food products in terms of appearance/color, aroma, taste, and texture.

Variant	Criteria	Mean	SD	Descriptive Interpretation
Caramel Tart	Appearance	4.67	0.49	Highly Acceptable
	Aroma	4.52	0.67	Highly Acceptable
	Taste	4.78	0.41	Highly Acceptable
	Texture	4.61	0.57	Highly Acceptable
Average		**4.64**	**0.31**	**Highly Acceptable**
Coconut Dumpling	Appearance	4.46	0.67	Moderately acceptable
	Aroma	4.37	0.75	Moderately acceptable
	Taste	4.57	0.59	Highly Acceptable
	Texture	4.58	0.57	Highly Acceptable
Average		**4.49**	**0.38**	**Moderately acceptable**
Yema Empanaditas	Appearance	4.63	0.52	Highly Acceptable
	Aroma	4.51	0.59	Highly Acceptable
	Taste	4.70	0.48	Highly Acceptable
	Texture	4.31	0.70	Moderately acceptable
Average		**4.54**	**0.34**	**Highly Acceptable**

The table presents the level of acceptability of tilapia pastry products among the four groups of respondents in terms of appearance/color, aroma, taste, and texture.

The analysis of respondents' perceptions regarding the acceptability of Tilapia pastry products reveals distinct patterns across three variants: Caramel Tart, Coconut dumplings, and Yema Empanaditas.

For the *Caramel Tart* variant, respondents consistently rated it highly acceptable across all criteria, with mean scores ranging from 4.52 to 4.78. Notably, it garnered particularly strong approval for taste, with a mean score of 4.78, indicating its exceptional flavor.

Conversely, the *Coconut Dumpling* variant, while still moderately acceptable overall with an average mean score of 4.49, received slightly lower ratings for appearance and aroma, with mean scores of 4.46 and 4.37 respectively. However, it excelled in taste and texture, with mean scores of 4.57 and 4.58 respectively.

Lastly, the *Yema Empanaditas* variant exhibited consistently high mean scores across appearance, aroma, and taste, with scores above 4.5, indicating high acceptability. However, its texture received a moderately acceptable rating, with a mean score of 4.31. Despite this, the overall average score of 4.54 suggests that Yema Empanaditas remains highly acceptable.

Overall, the findings underscore the favorable reception of Tilapia pastry products among respondents, with variations observed in specific attributes across different product variants.

General Acceptability Rating of Tilapia Pastry Food Products across Groups of Respondents

Table 4. The general level of acceptability of *Caramel tart* as evaluated by children, teenagers, adults, and experts

Respondents	Product	Criteria	Mean	SD	Descriptive Interpretation
Children	Caramel Tart	Appearance	4.48	0.59	Moderately acceptable
		Aroma	4.52	0.65	Highly Acceptable
		Taste	4.60	0.50	Highly Acceptable
		Texture	4.36	0.70	moderately acceptable
		Overall Mean	**4.49**	**0.24**	**moderately acceptable**
Teenagers		Appearance	4.68	0.48	Highly Acceptable
		Aroma	4.40	0.71	moderately acceptable
		Taste	4.80	0.41	Highly Acceptable
		Texture	4.44	0.58	moderately acceptable
		Overall Mean	**4.58**	**0.28**	**Highly Acceptable**
Adults		Appearance	4.68	0.48	Highly Acceptable
		Aroma	4.44	0.77	moderately acceptable
		Taste	4.76	0.44	Highly Acceptable
		Texture	4.72	0.46	Highly Acceptable
		Overall Mean	**4.65**	**0.31**	**Highly Acceptable**
Experts		Appearance	4.84	0.37	Highly Acceptable
		Aroma	4.72	0.54	Highly Acceptable
		Taste	4.96	0.20	Highly Acceptable
		Texture	4.92	0.28	Highly Acceptable
		Overall Mean	**4.86**	**0.30**	**Highly Acceptable**

The analysis of respondents' evaluations regarding the acceptability of Tilapia pastry food products specifically **Caramel Tart** reveals variations in perceptions across different age groups and expert opinions.

Children's responses indicate a moderately acceptable perception of the Caramel Tart variant, with mean scores ranging from 4.36 to 4.60 across appearance, aroma, taste, and texture. Despite some variability, the overall mean score for children is 4.49, suggesting a moderate level of acceptability among this demographic.

Teenagers, on the other hand, rated the Caramel Tart variant more favorably, with mean scores ranging from 4.40 to 4.80 across criteria. Their overall mean score of 4.58 indicates a highly acceptable perception of the product, particularly in terms of appearance, taste, and overall acceptability.

Adult respondents rated the Caramel Tart variant similarly to teenagers, with mean scores ranging from 4.44 to 4.76 across criteria. Their overall mean score of 4.65 indicates a highly acceptable perception of the product, with particularly high ratings for taste and texture.

In contrast, *experts* evaluated the Caramel Tart variant even more positively, with mean scores ranging from 4.72 to 4.96 across criteria. Their overall mean score of 4.86 suggests a highly favorable perception of the product, with consistently high ratings across all evaluated aspects.

Overall, while there are slight variations in the perception of Caramel Tart among different respondent groups, the general trend indicates a high level of acceptability across all demographics, with experts showing the most positive evaluations.

Table 5. The general level of acceptability of *Coconut Dumplings* as evaluated by children, teenagers, adults, and experts

Respondents	Product	Criteria	Mean	SD	Descriptive Interpretation
Children	Coconut Dumpling	Appearance	4.28	0.74	Moderately acceptable
		Aroma	4.20	0.82	Moderately acceptable
		Taste	4.40	0.64	Moderately acceptable
		Texture	4.60	0.50	Highly Acceptable
		Overall Mean	**4.37**	**0.31**	**Moderately acceptable**
Teenagers		Appearance	4.28	0.74	Moderately acceptable
		Aroma	4.28	0.74	Moderately acceptable
		Taste	4.64	0.49	Highly Acceptable
		Texture	4.68	0.48	Highly Acceptable
		Overall Mean	**4.47**	**0.33**	**Moderately acceptable**
Adults		Appearance	4.48	0.65	Moderately acceptable
		Aroma	4.24	0.78	Moderately acceptable
		Taste	4.36	0.70	Moderately acceptable
		Texture	4.28	0.74	Moderately acceptable
		Overall Mean	**4.34**	**0.37**	**Moderately acceptable**
Experts		Appearance	4.80	0.41	Highly Acceptable
		Aroma	4.76	0.52	Highly Acceptable
		Taste	4.88	0.33	Highly Acceptable
		Texture	4.76	0.43	Highly Acceptable
		Overall Mean	**4.80**	**0.35**	**Highly Acceptable**

The respondents' perceptions regarding the acceptability of **Coconut Dumplings** show varying perspectives across different age groups and expert opinions.

Children provided moderately acceptable ratings for the Coconut Dumpling variant, with mean scores ranging from 4.20 to 4.60 across appearance, aroma, taste, and texture. Despite the variability in ratings, the overall mean score for children is 4.37, suggesting a moderately acceptable perception among this demographic.

Similarly, *teenagers* rated the Coconut Dumpling variant as moderately acceptable, with mean scores ranging from 4.28 to 4.68 across the criteria. However,

their overall mean score of 4.47 indicates a slightly higher level of acceptability compared to children.

Adult respondents also rated the Coconut Dumpling variant as moderately acceptable, with mean scores ranging from 4.24 to 4.48 across the criteria. Their overall mean score of 4.34 aligns with the perceptions of children and teenagers, indicating a consistent level of acceptability across different age groups.

In contrast, *experts* evaluated the Coconut Dumpling variant more positively, with mean scores ranging from 4.76 to 4.88 across criteria. Their overall mean score of 4.80 suggests a highly favorable perception of the product, with consistently high ratings across all evaluated aspects.

Overall, while there are variations in the perception of Coconut Dumplings among different respondent groups, the general trend indicates a moderately acceptable level of acceptability across all demographics, with experts providing the most positive evaluations.

Table 6. The general level of acceptability of *Yema Empanaditas* as evaluated by children, teenagers, adults, and experts

Respondents	Product	Criteria	Mean	SD	Descriptive Interpretation
Children	Yema Empanaditas	Appearance	4.64	0.57	Highly Acceptable
		Aroma	4.44	0.58	Moderately acceptable
		Taste	4.60	0.50	Highly Acceptable
		Texture	3.92	0.70	Moderately acceptable
		Overall Mean	**4.40**	**0.31**	**Moderately acceptable**
Teenagers		Appearance	4.44	0.51	Moderately acceptable
		Aroma	4.36	0.58	Moderately acceptable
		Taste	4.80	0.41	Highly Acceptable
		Texture	4.44	0.58	Moderately acceptable
		Overall Mean	**4.53**	**0.19**	**Highly Acceptable**
Adults		Appearance	4.56	0.58	Highly Acceptable
		Aroma	4.36	0.70	Moderately acceptable
		Taste	4.48	0.59	Moderately acceptable
		Texture	4.08	0.76	Moderately acceptable
		Overall Mean	**4.37**	**0.36**	**Moderately acceptable**
Experts		Appearance	4.88	0.33	Highly Acceptable
		Aroma	4.80	0.41	Highly Acceptable
		Taste	4.92	0.28	Highly Acceptable
		Texture	4.80	0.41	Highly Acceptable
		Overall Mean	**4.85**	**0.27**	**Highly Acceptable**

The table presents the level of acceptability of the four groups of respondents of *Yema Empanaditas.*

Children rated the Yema Empanaditas variant as moderately acceptable, with mean scores ranging from 3.92 to 4.64 across appearance, aroma, taste, and texture. While

aspects like appearance and taste were highly acceptable, texture received a lower rating, contributing to an overall mean score of 4.40, indicating a moderately acceptable perception among this demographic.

Conversely, *teenagers* perceived the Yema Empanaditas variant more favorably, with mean scores ranging from 4.36 to 4.80 across criteria. Their overall mean score of 4.53 suggests a highly acceptable perception of the product, particularly in terms of taste, which received the highest rating among all criteria.

Adult respondents rated the Yema Empanaditas variant similarly to children, with mean scores ranging from 4.08 to 4.56 across criteria. Their overall mean score of 4.37 aligns with the perceptions of children, indicating a consistent level of moderately acceptable acceptability across different age groups.

In contrast, *experts* evaluated the Yema Empanaditas variant more positively, with mean scores ranging from 4.80 to 4.92 across criteria. Their overall mean score of 4.85 suggests a highly favorable perception of the product, with consistently high ratings across all evaluated aspects, particularly in appearance, aroma, taste, and texture.

Overall, while there are variations in the perception of Yema Empanaditas among different respondent groups, the general trend indicates a moderately to a highly acceptable level of acceptability across all demographics, with experts providing the most positive evaluations.

Comparison in the Acceptability of Three Tilapia Pastry Food Products

Table 5. Comparison in the General Acceptability of Tilapia Pastry Food Products

Food products	F-value	p-value	Comparison	Decision	Remarks
Caramel Tart	7.65	0.00	p-value < 0.05	Reject Ho	Difference is significant
Coconut Dumpling	9.45	0.00	p-value < 0.05	Reject Ho	Difference is significant
Yema Empanaditas	14.37	0.00	p-value < 0.05	Reject Ho	Difference is significant

Table 6. Post-hoc analysis using Tukey HSD on the significant difference of the respondents' general acceptability of Tilapia Pastry Food Products

Dependent Variable	Groups		Mean Difference	p-value
Caramel Tart	Children	Teenagers	-0.09	0.68
		Adults	-0.16	0.20
		Experts	-0.37*	0.00
	Teenagers	Children	0.09	0.68
		Adults	-0.07	0.82
		Experts	-0.28*	0.00
	Adults	Children	0.16	0.20
		Teenagers	0.07	0.82
		Experts	-0.21	0.05
	Experts	Children	0.37*	0.00
		Teenager	0.28*	0.00
		Adults	0.21	0.05
Coconut Dumpling	Children	Teenagers	-0.10	0.73
		Adults	0.03	0.99
		Experts	-0.43*	0.00
	Teenager	Children	0.10	0.73
		Adults	0.13	0.54
		Experts	-0.33*	0.00
	Adults	Children	-0.03	0.99
		Teenagers	-0.13	0.54
		Experts	-0.46*	0.00
	Experts	Children	0.43*	0.00
		Teenager	0.33*	0.00
		Adults	0.46*	0.00
Yema Empanaditas	Children	Teenagers	-0.13	0.39
		Adults	0.03	0.98
		Experts	-0.45*	0.00
	Teenager	Children	0.13	0.39
		Adults	0.16	0.21
		Experts	-0.32*	0.00
	Adults	Children	-0.03	0.98
		Teenagers	-0.16	0.21
		Experts	-0.48*	0.00
	Experts	Children	0.45*	0.00
		Teenager	0.32*	0.00
		Adults	0.48*	0.00

The table presents the analysis of the significant difference in the general acceptability of the three tilapia pastry products across children, teenagers, adults, and

experts. It also includes a Post Hoc Analysis using Tukey HSD to determine which among the groups differ in perceptions.

The analysis reveals a significant difference in the general acceptability of the three tilapia pastry food products (Caramel Tart, Coconut Dumpling, and Yema Empanaditas) across age groups, as indicated by the obtained F-values and p-values
.

For *Caramel Tart*, the F-value of 7.65 with a p-value less than 0.05 indicates a rejection of the null hypothesis, signifying a significant difference in acceptability across age groups. Specifically, post-hoc analysis using Tukey HSD reveals significant differences between children and experts, as well as between teenagers and experts, with experts rating the Caramel Tart significantly higher in general acceptability compared to both children and teenagers
.

Similarly, for *Coconut Dumpling*, the F-value of 9.45 with a p-value less than 0.05 signifies a significant difference in acceptability across age groups. Post-hoc analysis shows significant differences between children and experts, as well as between teenagers and experts, with experts rating the Coconut Dumpling significantly higher in general acceptability compared to both children and teenagers.

For *Yema Empanaditas*, the F-value of 14.37 with a p-value less than 0.05 also indicates a significant difference in acceptability across age groups. Post-hoc analysis reveals significant differences between children and experts, between teenagers and experts, and between adults and experts, with experts rating Yema Empanaditas significantly higher in general acceptability compared to all other age groups.

In summary, the F-values and p-values confirm significant differences in the general acceptability of all three tilapia pastry food products across age groups, with experts consistently rating them higher compared to children, teenagers, and adults.

Table 6. Nutritive Value of Tilapia Pastry Food Products Report of Analysis

Lab. No	Sample Description	Crude Protein	Crude Fat	Moisture
		%	%	%
FT-24-0005	Yema empanaditas, 1	15.07	15.09	25.48
FT-24-0006	Coconut dumplings, 2	13.46	14.10	19.74
FT-24-0007	Caramel tart, 3	11.49	14.45	33.15

Note: 1) *Sample will be kept only for a month from the date received; 2) environmental conditions, Temperature: 25 Degrees °C±3, Relative Humidity: 40-60%*

Table 6 shows the result of the Analysis of Tilapia pastry food products conducted by the Department of Agriculture Regional Field Office No.02 Tuguegarao City, Cagayan Integrated Laboratory Division with laboratory number FT24- 005-007 the requested service/s Crude Fat, Crude Protein and Moisture.

The *Caramel Tart* based on the test semi-automatic Kjeldahl method using the Reference Method (AOAC Official Method 984.13) has a Crude Protein of 11. 49%; ANKOM Filter Bag Technique using the Reference Method (In-house method) has Crude Fat of 14.45%; the Gravimetric Method using the Reference Method (AOAC Official Method 934.0) has moisture of 33.15%.

The *Coconut Dumplings* based on the test semi-automatic Kjeldahl method using the Reference Method (AOAC Official Method 984.13) have a Crude Protein of 13. 46%; ANKOM Filter Bag Technique using the Reference Method (In-house method) has Crude Fat of 14.10 %; the Gravimetric Method using the Reference Method (AOAC Official Method 934.0) has moisture of 19.74%.

The *Yema Empanaditas* based on the test semi-automatic Kjeldahl method using the Reference Method (AOAC Official Method 984.13) has a Crude Protein of 15.07%; ANKOM Filter Bag Technique using the Reference Method (In-house method) has Crude Fat 15.09 %; the Gravimetric Method using the Reference Method (AOAC Official Method 934.0) has moisture of 25.08%.

Shelf-Life of Tilapia Pastry Products at Normal Room Temperature

An 11-day observation was conducted on caramel tart, coconut dumplings, and yema empanaditas stored at normal room temperature. The following observations were noted:

Day 1: The caramel tart, coconut dumplings, and yema empanaditas had perfect appearance, aroma, taste, and texture.
Day 2: The pastries maintained their perfect appearance, aroma, taste, and texture.
Day 3: When exposed to open air, the crusts of all three pastries became crumbly and hard.
Day 4: The crusts remained hard.
Day 5: No additional changes were observed.
Day 6: No changes occurred.
Day 7: No changes were observed.
Day 8: No changes were observed.
Day 9: The aroma decreased, with a reduction in the initial fishy smell.
Day 10: The crusts of the pastries hardened further.
Day 11: The crusts maintained their color and firmness, but an unpleasant smell indicating spoilage was present in the fillings.

Shelf-Life of Tilapia Pastry Products in Normal Room Temperature in a Closed Microwave Container

A five-day observation was also conducted on caramel tart, coconut dumplings, and yema empanaditas stored at normal room temperature in tightly sealed containers. The following observations were noted:

Day 1: The pastries had perfect appearance, aroma, taste, and texture.
Day 2: The pastries maintained their normal condition.
Day 3: The crusts of the pastries reduced in firmness.
Day 4: The crusts became soft.
Day 5:

- The caramel tart's crust became soft, and white molds with discoloration formed on the filling.
- The coconut dumpling's crust became soft, with a white spider-web-like structure forming between the coconut filling and producing a foul odor.
- The yema empanaditas' crust became soft, and the filling became moist and produced a foul odor indicating spoilage.

Conclusions

The development and evaluation of tilapia *(Oreochromis niloticus)* flour-based pastry products, namely caramel tarts, coconut dumplings, and yema empanaditas, prove their high nutritional value and general acceptability across various demographics. The process of creating these pastries ensures the production of high-quality, standardized products. The acceptability ratings indicate an extreme preference for the caramel tart variant, while all three products received favorable evaluations, especially from expert respondents. Nutritional analysis confirmed that these pastries are rich in protein and provide essential nutrients, aligning with the benefits of fish consumption in the diet. Shelf-life studies highlighted the importance of proper storage to maintain quality and prevent spoilage. Overall, tilapia pastry products offer a nutritious, appealing food option with broad acceptability, emphasizing their potential as innovative and healthy additions to the culinary market.

Recommendations

In light of the findings and conclusions, this study has the following recommendations:

1. Recipes should be continuously refined to enhance the sensory attributes of tilapia pastry products. The focus should be on improving aspects such as appearance, aroma, taste, and texture to ensure consistent high acceptability across all variants.
2. The consumers should be educated about the nutritional value of tilapia pastry products, emphasizing their high protein content and essential nutrient profile. This

should be done through packaging labels, marketing materials, or nutritional awareness campaigns.

3. Marketing strategies should be tailored to target specific demographic groups based on their preferences and perceptions. For instance, the unique flavors and textures of each variant should be highlighted to appeal to diverse consumer segments.
4. There should be clear guidelines on proper storage to maintain product quality and prolong shelf-life. This may include recommending airtight containers or refrigeration to prevent moisture absorption and spoilage.
5. Continuous innovation in tilapia pastry product development like exploring new flavors, fillings, and pastry formats should be encouraged. This could involve collaborating with culinary experts or conducting consumer surveys to identify emerging trends and preferences.
6. Implementation of stringent quality control measures throughout the production process to ensure consistency and adherence to standards should be in place. Regular sensory evaluations and nutritional analyses can help maintain product quality and meet consumer expectations.
7. Foster collaboration between the academe, industry, and government agencies (DOST, DA, and DTI) to further research on tilapia pastry products. This could include investigating innovative processing techniques, exploring novel ingredients, and evaluating the health benefits of consuming these products

Compliance with Ethical Standards

The researcher's unwavering commitment to ethical standards is evident in the meticulous adherence to principles of integrity, respect, and responsibility towards participants. Prior to the study, informed consent was obtained, ensuring participants' understanding of the research purpose and procedures, while maintaining confidentiality and anonymity throughout. By avoiding conflicts of interest, plagiarism, and bias, the researcher upheld the study's credibility and trustworthiness and ensured that the findings were used solely for research purposes, reflecting a dedication to ethical research conduct.

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EFFECTIVENESS OF TALKING PEN IN IMPROVING THE MACRO SKILLS OF THE GRADE III LEARNERS

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ABSTRACT

This pre-experimental study investigates the impact of the Innovative Talking Pen on the macro skills of third-grade learners. The research employs a comprehensive design to explore real-life experiences, perceptions, and narratives of both teachers and learners within their natural learning environment. Twenty Grade III learners and five teachers from the Division of Misamis Oriental participated, and ethical considerations were taken into account through proper permissions and informed consent. An adapted and modified rubric was used to determine the Listening and Viewing, Speaking, and writing skills results of the learners. While in reading we utilized the Phil-IRI assessment. Researcher-made interview questions are also one of the instruments for the teacher-participants. Initial assessments demonstrated competencies spanning from "Good" to "Average," and “Frustration” in reading providing a foundation for the intervention. After the program, learners exhibited a steady and positive improvement, resulting in an overall average score of "Excellent" in listening, viewing, speaking, and writing, and "Instructional" in reading. Paired t-tests confirmed significant differences, validating the effectiveness of the Talking Pen. The teacher also concluded through an interview that utilizing a talking pen engages students and motivates them to participate actively in class. This study highlights the significant impact of the Talking Pen in improving macro skills, and recommends its incorporation into daily classroom practices. The results demonstrate that interactive and technology-enhanced methods. The study suggests that educators should adapt and invest in Talking Pens, creating a stimulating learning environment where students can participate actively in the learning process. This research adds to the ongoing discussion on innovative teaching tools and their positive

effect on language development, emphasizing the value of keeping up with current educational trends.

Keywords: *listening and viewing, speaking, reading, writing skills*

INTRODUCTION

For effective and meaningful communication every individual must develop the four macro skills of language – Listening and Viewing, Speaking, Reading, and Writing. Macro Skills are the foundation and largest skills that an individual needs to master to communicate and comprehend well. As stated in DepEd Order No 47, s. 2016, Early Childhood learners must always demonstrate the expected competency, always participate in different activities and work independently, and always perform tasks advanced in some aspects including Language, Literacy, and Communication Domains that focus on the four macro skills – Listening and Viewing, Speaking, Reading, and Writing.

In the Early Childhood Progress Report Card stipulated in DepEd Order No. 47, s. 2016 also known as Omnibus Policy on Early Childhood Education, the first macro skill is listening and viewing. This allows Early Childhood Educators to develop the Listening and Viewing Skills of Early Childhood by allowing them to listen attentively, recall details, analyze videos, photographs, pictures, and television, discriminate objects and pictures, and predict story outcomes. In the Canadian Common Curriculum Framework, viewing is defined as ‘an active process of attending and comprehending visual media, such as television, advertising images, films, diagrams, symbols, photographs, videos, drama, drawings, sculpture, and paintings.’ Listening and viewing are essential for effective communication, enabling early childhood learners to gain a deeper understanding of others' perspectives and fostering empathy. They also facilitate the absorption of information from various media, enhancing learning and information retention.

Speaking skills are equally important skills that an early childhood learner needs to develop consistently as well. As stated by Spratt, et al. (2005) speaking involves the speaker using speech to express meanings to other people. In the same line, Nunan says that speaking is a productive oral skill. It involves the production of verbal utterances to comprehend meaning. In addition, speaking is a social communication that aims at sharing values and traditions that bind a community together (Richards & Renandya, 2002). In the Early Childhood Curriculum of the Philippines, educators assess the speaking skills of early childhood learners by observing if the child uses proper expression and polite greetings, talks about details of objects, and participates actively in class activities such as poems and rhymes. Speaking is crucial for expressing one's thoughts, ideas, and emotions, fostering effective communication and connection with others. It also plays a pivotal role in academic success, as it allows early childhood learners to articulate their expertise and influence those around them.

Just like the other macro skills, reading is also essential for every learner. Reading is about analyzing written and printed letters and words. For early childhood learners, reading is crucial as it lays the foundation for literacy and language development, helping them build vocabulary, comprehension, and communication skills essential for future academic success. Additionally, reading at this age sparks curiosity, imagination, and a love for books, setting the stage for a lifelong passion for learning. With that, Early Childhood educators develop reading skills by introducing letter sounds and names and interpreting information from books, pictures, and other printed materials.

Lastly, writing is also equally essential for early childhood learners. It helps them develop fine motor skills, hand-eye coordination, and the ability to express their thoughts and ideas. It also serves as a creative outlet, enabling young learners to communicate and share their experiences, which is fundamental for their cognitive and emotional development. Early childhood educators develop writing skills through regular practice, coloring, tracing and even drawing.

As generations evolve, so do the interests of early childhood learners in developing their four macro skills. Young children today exhibit less enthusiasm for traditional instructional materials that educators typically use in their daily classes. Charts, manipulative yet not interactive materials, and other traditional instructional materials are less attractive to young children. Early childhood learners are exposed to technology and that makes them interested in something associated with technology. The study showed that 1234 early childhood educators agreed that using digital technology, such as cameras, video games, computers, tablets, TV, ebooks, internet, smartphones, etc., had a strong influence in assisting learning (Blackwell et al., 2014). In the context of this research, the researcher observed that young children are unmotivated and less engaged in class while learning. With that, it is a great challenge for an educator to look for manipulative materials that are interactive as well and that will assist the learner in their learning even if the teacher is not around.

The researchers discovered the existence of a Talking Pen Learning Tool. According to the Grolier website, talking or reading pen is a thematic learning sequence based on everyday situations and common encounters that focuses on building key language skills such as vocabulary, grammar and sentence patterns, reading and comprehension, speaking and pronunciation, writing, and listening and viewing. Additionally, it provides extensive read-aloud audio that helps boost a child’s language confidence. Children can practice independently at ease and in their own time having a talking pen as their guide. In addition, researcher suggests that audiobooks give students practice with accurately tracking text, which eventually leads to word recognition. The talking pen also attempts to teach children the pre-reading skills of letter perception and phonemic awareness on an exercise page of the textbook.

This innovative, interactive talking pen is aligned with Lev Vygotsky's Zone of Proximal Development (ZPD) and scaffolding theory, which emphasizes that learners can achieve greater progress when they have supportive individuals and tools to assist them, compared to when they learn in isolation without such aid. Moreover, the scaffolding

theory is a learning tool that learners use to advance levels in the zone of proximal development. Additionally, learning tools can also boost and increase their engagement, and motivation, and improve retention. It can help the learner develop certain competencies in a more systematic approach.

With that, the researcher believes that talking pens can provide early childhood learners an aid to master the four macro skills of Literacy, Language, and Communication Domain while learning with teachers and even independently. The talking pen can provide appropriate learning experiences and help them develop and even realize their potential in the four macro skills. This provides immediate feedback and guidance as the learners engage with it. Over time, as the learner's skills improve, learners can start using the talking pen with less assistance and it develop independence.

Thus, this study sought to investigate the effectiveness of Talking Pen in improving the macro skills of Grade III learners from the Division of Misamis Oriental for the school year 2023-2024.

Research Questions

As children are leaning towards a technological world, education must as well adapt to the changes and trends of the generation for better learning. Talking Pen is one of the interactive and engaging materials that children can play with while learning. Thus this study seeks to investigate the effectiveness of the talking pen in the macro skills such as listening and viewing, speaking, reading, and writing, of the Early Childhood Learners. Specifically, this study aims to address the following questions:

1. What are the level of performance skills of Grade III Learners before and after the conduct of Innovative Talking Pen in terms of:
   1.1. Listening and Viewing;
   1.2. Speaking;
   1.3. Reading;
   1.4. Writing?
2. Is there a significant difference between the level of macro skills of the Grade III Learners before and after utilizing the Innovative Talking Pen?
3. What are the teachers' feedback on incorporating a talking pen?

METHODOLOGY

Design

This research employs a pre-experimental study design to offer a comprehensive and context-specific examination of the influence of the Innovative Talking Pen on third-grade learners' macro skills. The pre-experimental design incorporates certain experimental elements while omitting others, resulting in an experiment that falls short of being classified as truly experimental. This design facilitates an in-depth exploration of

the real-life experiences, perceptions, and narratives of both teachers and students within their natural learning environment, allowing us to uncover the nuanced aspects of the Talking Pen's effectiveness.

Participants

The participants of this study encompass twenty (20) Grade III learners and five (5) teachers from the Division of Misamis Oriental. This study used a random sampling procedure in identifying the teachers first and later on identifying the participants randomly.

Research Instrument

The study utilized a researcher-made assessment to collect mixed-method data, to evaluate the effectiveness of the Innovative Talking Pen on the macro skills of third-grade students. In listening and Viewing, the researchers adapted and modified rubrics from Paul Krupakar (2020) to assess the listening and viewing skills of the participants. In Speaking Skills, the researcher adapted and modified rubrics from Shahidah and Umasugi (2021) to assess the speaking skills of the participants. In reading, the researcher adapted the Philippine Informal Reading Inventory. Lastly, in writing, the researcher adapted and modified rubrics from Goodwin and Kirkpatrick (2023) to assess the writing skills of the participants.

The questionnaire's content validity and reliability were carefully considered during its development. To ensure content validity, a panel of experts that included Public School Supervisors and two (2) Master Teachers critically reviewed the items and provided feedback and suggestions to enhance the questionnaire's clarity, relevance, and alignment with the study objectives. The instrument’s internal consistency was assessed using Cronbach's alpha coefficient with the result of 0.87 which implies a ‘Good’ research instrument’, with the obtained value confirming the instrument's reliability and the consistent measurement of intended constructs.

Statistical Treatment

Descriptive statistics, including mean scores, were used to analyze the quantitative data and assess the overall and individual competency-level perceptions of both teachers and students regarding the Talking Pen intervention. Pre-test and post-test means were compared using paired t-tests to determine the effectiveness of the intervention. The researcher also used thematic analysis in the qualitative data from the teacher’s interview to find the feedback from the teachers.

RESULTS

This research sought to find the effectiveness of the talking pen in the macro skills of Early Childhood learners. Thus, the results of the data were collected and presented in tabular form. The interpretation was discussed thoroughly in this study.

1. What is the level of macro skills of Grade III Learners before and after the conduct of Innovative Talking Pen in terms of;

1.1 Listening and Viewing;
1.2 Speaking;
1.3 Reading; and
1.4 Writing?

To find the effectiveness of the innovative talking pen, there is a need to find the results of the pre-assessment test and the post-assessment test. These data were considered essential in the way that they provided a clear and transparent impact of the talking pen on the macro skills of the learners.

Table 1:
Learners' Listening and Viewing Skills Results

Expected Competency	Pre-test		Post-test	
	Mean	Description	Mean	Description
Level of Engagement (10 pts)	5.8	Good	9.4	Excellent
Topic Awareness (10 pts)	4.9	Average	7.5	Good
Fluency in English (10 pts)	3.5	Average	5.0	Good
Non-verbal Communication (10 pts)	4.8	Average	8.3	Good
Listening Span (10 pts)	6.0	Good	8.9	Excellent
Viewing Span (10 pts)	6.7	Good	9.1	Excellent
Total	**5.28**	**Good**	**8.03**	**Excellent**

Table 2:
Learners' Speaking Skills Results

Expected Competency	Pre-test		Post-test	
	Mean	Description	Mean	Description
Grammar (5 pts)	1.9	Good	3.5	Good
Vocabulary (5 pts)	2.3	Average	3.6	Good

Fluency (5 pts)	2.9	Good	3.7	Good
Pronunciation (5 pts)	2.9	Good	4.0	Excellent
Accuracy (5 pts)	2.7	Good	3.9	Excellent
Comprehensibility (5 pts)	3.1	Average	3.9	Excellent
Total	**2.63**	**Good**	**3.76**	**Excellent**

Table 3:
Learners' Reading Skills Results

Expected Competency	Pre-test		Post-test	
	Mean	**Description**	**Mean**	**Description**
Word Reading	78	Frustration	95	Instructional
Comprehension	52	Frustration	68	Instructional

Table 4:
Learners' Writing Skills Results

Rubrics	Pre-test		Post-test	
	Mean Scores	**Description**	**Mean Scores**	**Description**
Function (15 pts)	7.4	Average	10.5	Good
Format (20 pts.)	13.1	Good	16.0	Excellent
Content (50 pts.)	24.0	Average	34.5	Average
Grammar and Mechanics (15 pts.)	6.5	Average	9.2	Average
Total	51	Average	70.2	Average

2. Is there a significant difference between the level of macro skills of the Grade III Learners before and after utilizing the Innovative Talking Pen?

To find the effectiveness of the innovative talking pen, there is a need to consider the significant difference between the pre-test and post-test assessment. These data were considered essential in the way that they provided a clear and transparent impact of the talking pen on the macro skills of the learners. The table 5 presents the result of the data computed using the paired t-test that includes the four (4) macro skills such as listening and viewing, speaking, reading, and writing.

Table 5:
Significant Difference

Macro Skills	Pre-test	Post-Test Mean	p-value	Interpretation
Listening and Viewing	5.28	8.03	.013	S
Speaking	2.75	3.76	.042	S
Reading	65	82	.019	S
Writing	51	70.2	.086	NS

3. What are the teachers' feedback in incorporating a talking pen?

To find the effectiveness of the innovative talking pen, there is a need to consider the feedback of the teacher-implementer of the talking pen. These data were considered essential in the way that they provided a clear and transparent impact of the talking pen on the macro skills of the learners.

Table 6:
Teacher's Feedback on Talking Pen

Themes	Sample supporting significant statement
Listening and Viewing Skills	*"Students demonstrate improved understanding of spoken language as they engage with audio content provided by the talking pen."* *"Listening to correct pronunciation models through the pen can contribute to improved pronunciation skills."* *"Students can recall details from stories/poems/songs listened to."* *"They can relate story events to personal experiences"* *"They can sequence events from a story listened to"* *"can discriminate objects/pictures as same and different, identifies missing parts of objects/pictures, and identifies which objects do not belong to the group"*
Speaking Skills	*"My students can talk about details of objects, people, etc. using appropriate speaking vocabulary"* *"They can participate actively in class activities and discussions by responding to questions accordingly."* *"Students can retell simple stories or narrate personal experiences"*
Reading Skills	*"Interactive read-aloud and additional explanations provided by the pen can help students better understand and comprehend written texts."*

	"It is engaging in the way that students improved their word recognition skills, and their fluency as well. *"interpret information from simple pictographs, maps, and other environmental print"* *"Students can distinguish words that rhyme."*
Writing Skills	*"Students can write words correctly."* *"My students have shown little improvement in sentence structure and independence in writing."*

DISCUSSION

Listening and viewing are the first macro skills that a child develops. It is their one way to communicate with people around them. In daily life, listening is an everyday activity that has an important role in receiving information (Nushi & Orouji, 2020). Rost (2013) stated that listening refers to a complex process that allows people to comprehend spoken language. Language is a main tool of communication and it is confirmed as a connection of human beings. However, communication does not include only speaking, but also listening which is the way to understand and feel how the conversation or relationship going on (Djabborova 2020). The teacher must incorporate different strategies to enhance learners' listening skills.

Table 1 presents the pretest and posttest of Listening and Viewing. The total mean score for listening and viewing skills for the pretest is 5.28, which falls within the "Good" range. This means that the participants have a good-level skill in Listening and Viewing which includes the level of engagement, awareness of the topic, fluency in English, Non-verbal communication, listening span, as well as viewing span. This implies that learners actively participate in the discussion and show interest in the class discussion, asking for clarifications, and sharing their ideas even before the incorporation of the talking pen. The table also presents that students have a good-level viewing span with a 6.7 mean score. This implies that students can watch certain educational videos. Moreover, the table presents that Fluency in English obtains the lowest mean among the criteria obtaining a 3.5 mean score. This implies that students need to improve their fluency with the help of the talking pen.

Table 1 also presents the post-assessment test results which obtained an 8.03 mean score from the criteria which includes level of engagement, awareness of the topic, fluency in English, Non-verbal communication, listening span, as well as viewing span. This reveals that students improved their listening and viewing skills with the help of the talking pen. Students can interpret and communicate using non-verbal cues. They can learn and talk about the topics. The table also presents that students obtain the highest mean 9.4 in the Level of Engagement criteria. This means that after the integration of the talking pen, students can actively participate in the class discussion by asking questions, and confidently share ideas and thoughts. In contrast, the table presents the lowest mean 5.0 'Good' in Fluency. This implies that students still need to learn more in expressing

their ideas fluently in English. However, despite being the lowest among the criteria, the table also shows that there is an improvement in the student in terms of fluency in English.

The data from table 1 shows the improvement of the students in listening and viewing skills. Students improve their listening and viewing skills by utilizing the talking pen which allows them to be more motivated and engaged in the class. Learning is the development of new knowledge, skills, or attitudes as an individual interacts with learning resources (Karlina et al., 2020). This means that through learning resources, and the talking pen, students can be actively engaged and motivated in class. They are confident in sharing their ideas and thoughts, asking questions, and showing interest in learning from the discussion.

The second macro skill developed in the child is their speaking skills. Speaking skills are not developed naturally. The child acquire and develops their speaking skills from the people around them. What the child hears from their mother, father, or even from the community, is the basis of how the child speaks. Even though the child already developed his speaking skills at home, there is still a need to develop his speaking skills at school to communicate effectively. Teaching speaking has been given much importance at school for many years. This is the reason why most of the competencies in the K to 12 curriculum push learners to perform various activities that deal with speaking such as declaration, reciting of poems, reporting, oral reading, etc. Making the proper sounds, selecting the appropriate words, and understanding structures are only a portion of speaking (Rao, 2019).

Table 2 presents the results of the pre-assessment test and post-assessment test of the speaking skills of the Early Childhood learners. The rubrics include grammar, vocabulary, fluency, pronunciation, accuracy, and comprehensibility which are considered the most effective criteria in assessing the speaking skills of the students (Syahidah & Umasugi, 2021). In the pre-test assessment, it shows that the student obtains 2.63 mean scores or ‘Good’. This implies that students have average grammar, comprehensibility, and vocabulary skills, and are good in fluency, pronunciation, and accuracy skills. This implies that students need to regularly review rules in grammar, practice correct grammar in speaking, read books, and learn new words. Students also need to engage in speaking activities in school such as poem recitation and other activities to enhance their speaking skills. This also implies that students still need to improve their pronunciation. Through listening to how the talking pen pronounces the words, students need to imitate the pen. Lastly, the data implies that students still need to practice, improve, and enhance their speaking skills.

Table 2 also presents the post-assessment test that obtains 3.76 ‘Excellent.’ This implies that after the implementation of the talking pen, students improve and enhance their speaking skills. They improve in proper grammar and gradually enhance their skills in using correct structure and word forms. This also implies that students enhance their vocabulary skills and can express their thoughts effectively. The table also presents the pronunciation that obtained the highest mean score from the post-assessment test. This implies that students improve their skills in speaking the correct and clear pronunciation

when speaking in the class discussion. Lastly, this reveals that talking pens helped the students improve their speaking skills which serves as one of the most essential skills of a human being.

Learners can easily adjust and enhance their speaking skills and learn at their own pace through the help of a speaking pen (Tsubak & Maeda, 2020). This provides a supplementary statement that talking pens influence the speaking skills of the students. Regularly practicing correct pronunciation provides confidence in sharing ideas and thoughts.

Table 3 presents the Learners' Reading Skills Results. After the pretest, it was found that the average score for learners in oral reading was 78, while in comprehension it was 52, which both classified as "frustration". This indicates that these learners require additional guidance and support from both parents and teachers to enhance their reading abilities. It is important to note that these learners may currently possess low reading skills. To address this, the Department of Education's Every Child A Reader Program (ECARP) aims to ensure that every child can read by the end of Grade Three (DepEd Order No. 45 s 2002). To achieve this goal, DepEd has implemented various intervention and remediation programs through teachers. The DepEd Division of Misamis Oriental has introduced the Be More Power V 200 reading program, which aims to teach learners at least 200 MELCs-based vocabulary words within 10 weeks.

On the other hand, table 3 also shows the post-test results with a mean of 95 in oral reading and 68 in comprehension both reflected as instructional in reading level. This means that most of the learners can respond to the teachers while administering the Phil-IRI. These types of learners need intervention to develop further their reading ability. It indicates that these learners have average reading skills. It signifies that teachers need activities to develop the reading skills of these learners. These learners can read the passage with a little scaffolding from the teachers or parents. So, they need activities and more time in reading to enhance their reading skills. It could be noticed that in their reading activities, most learners find it hard to read some words in a selection. Teachers still need to explain some words for them to understand. A study revealed that programs like the "Read to Live" program improve learners' reading ability (Sampang, 2023) .

Writing skill has a vital role in learning because it is needed to support the learners' academic success (Aliyu, 2020). Writing skill is a thinking tool for the other three language skills and language components, such as vocabulary, pronunciation, and grammar (Khazrouni, 2019). Learning activities using a talking pen can be an alternative method to the learning process. It can make students happy to learn and active to learn (Iffah & Rodiyah, 2022).

Table 4 presents the data from pre-assessment and post-assessment of the writing skills of the early childhood learners, particularly Grade III learners. The rubrics contain Function, format, content, grammar, and mechanics that are considered the most effective criteria in assessing the writing skills of the students (Goodwin & Kirkpatrick, 2023).

In the pre-assessment, table 4 presents that students obtain a mean total of 51 or in the ‘Average’ Level. This means that students still need to improve and enhance their writing skills using the talking pen. This means that students lack exposure to writing that will help them develop and improve their skills. Moreover, the data also implies that students must regularly practice writing from simple to complex to improve their writing skills. This also implies that students must explore and engage their self in materials that would improve their skills. Although they already have the skills in writing or expressing their ideas through writing, the data still shows that student needs to enhance their skills.

Table 4 also shows the post-assessment of the wiring skills of the students who obtain 70.2 or ‘Avarge level’. Despite being level at the range of average, there is still improvement in the students as shown in the table. This simply means that talking pen has an impact on the skills of the students in writing. Although it did not have a huge impact compared to the other macro skills, it still showed an increase in mean scores. At the end of the implementation of the talking pen, students can improve their way of expressing a clear understanding of a certain topic. They also improve when it comes to the format of the paper such as the structure that helps convey the message of their composition. The results also show improvement in expressing the clear purpose of the composition. Lastly, they also improve a little in grammar and mechanics that involve the use of tenses and punctuation in written communication.

In listening and viewing, table 4 shows that there is a significant difference between the pre-test and post-test of the early childhood learner with a p-value of .013. This means that with the help of the talking pen, students can improve their listening and viewing skills. This also implies that talking the pen is an effective teaching tool in developing and enhancing the skills of the students in terms of listening and viewing. Children develop their listening and viewing based on their environment and the usual things happening around them. Developing listening and viewing skills at school requires learning resources such as radio, speaking pens, TV, etc. (Karlina et al., 2020).

In speaking skills, table 5 shows that there is a significant difference between the pre-test and post-test of the early childhood learner with a p-value of 0.042. This means that talking pens have a great impact on the development and enhancement of the speaking skills of early childhood learners. It improves their pronunciation skills and develops confidence in active class participants. Learners can easily adjust and enhance their speaking skills and learn at their own pace through the help of a speaking pen (Tsubak & Maeda, 2020). This provides a supplementary statement that talking pens influence the speaking skills of the students. Regularly practicing correct pronunciation provides confidence in sharing ideas and thoughts.

In reading skills, table 5 shows that there is a significant difference between the pre-test and post-test of the early childhood learner with a p-value of 0.019. This means that talking pens have a great impact on the development and enhancement of the reading skills of early childhood learners. This implies that by utilizing the talking pen, students can improve their reading skills, and their ability to recognize words. Abdullah (2018) added that reading can be improved by the use of some activities and techniques

such as skimming and scanning and with the use of technology. Technology can thus play a great role in students' learning outcomes. The results of the Rufaidah et al. (2021) study show that students are better readers in incorporating technology into their reading practices at home or in school.

In writing skills, table 5 shows that there is no significant difference between the pre-test and post-test of the early childhood learner with a p-value of 0.086. Although the data on the writing skills shows improvement in the student's ability in writing, still there is no great difference between the two assessments. This means that students still need to practice their writing skills further by utilizing the talking pen for better results. This also implies that talking pen has a limited interaction with it comes to writing and in more focus on improving pronunciation, vocabulary, and fluency.

After implementing the Talking Pen Innovation, these are the feedback from the teachers as shown in table 6:

Listening and Viewing Skills. Listening is defined by Demirel (2003) as a skill of understanding a speaker’s message correctly and reacting accordingly by Ergin and Birol (2000) as a psychological process that starts with being aware of and paying attention to sound and speaking images, continues with identifying and remembering certain auditory signs; and that ends up with making sense of them. In utilizing the talking pen in developing the listening and viewing skills of the students, teachers revealed that student improves their attention and focus by listening to stories, poems, and songs from the pens and actively engaging in viewing pictures from the books. Additionally, students also show improved proficiency in active listening and can listen attentively to stories, poems, and songs. Students also show their ability to recall details, sequence events, and infer characters from the stories they listened to.

Speaking Skills. Speaking is the skill that allows every student to communicate effectively. These skills allow the student to relay information verbally to others. The teacher revealed that speaking is one of the important skills that needs to be improved and developed well. That is why, various activities are implemented inside the classroom to develop the speaking skills of the students such as reciting poems, sharing ideas and thoughts, and narrating stories. With the help of the innovative talking pen, teacher 4 reveals that students can participate actively in class such as reciting poems, rhymes, and responding to the discussion. Additionally, students can retell simple stories and narrate them in the class. As talking pens boost engagement and motivation, students can learn by asking simple questions and talking about details and people using appropriate speaking vocabulary. Students also improve their confidence in speaking and sharing their ideas and thoughts inside and outside the classroom. It also enhances student’s fluency during oral activities. It also enhances students’ intonation, pronunciation, and articulation making it easier for the teacher to understand the students. Lastly, it also increased engagement in oral activities like poems reciting, and conversation.

Reading Skills. Reading is one of the important skills in language learning (Yu, 2015). It is generally defined as the process of recognition and comprehension of written materials (Heriyawati, Saukah, & Widiati, 2018). In a similar vein, Kasımi (2012), Pearson and Cervetti (2013), and Alyousef (2005) argue that reading is a complex process integrating some cognitive processes, skills, text knowledge, strategic knowledge, and contexts to construct meaning from reading material and interpret the information. In the digital era, students as readers should master the micro kills and macro skills of reading comprehension to comprehend multimodal texts. The reading skills cover micro-skills and macros skills of reading comprehension (Brown & Abewickrama, 2010). With that, through utilizing a talking pen, teachers reveal that students demonstrate improvement in word recognition skills and enhance fluency in reading. This also improves students' pronunciation and articulation accurately and presents better comprehension of the content they read. Teacher 4 stated that students improved their retention and recall of information. Additionally, student increased independence in reading, increased engagement and interest in reading, and can use talking pens to read and explore text on their own.

Writing Skills. Writing skill has a vital role in learning because it is needed to support the learners' academic success (Aliyu, 2020). Writing skill is a thinking tool for vocabulary, pronunciation, and grammar (Khazrouni, 2019). Khazrouni further claimed that English writing skill has an important role for EFL learners to develop several skills in their English learning, such as analyzing, arguing, and critical thinking skills. Through the use of a talking pen, Teacher 3 claimed that students can slightly improve their spelling skills and be able to write words from dictation. However, teacher 3 also claimed that among the macro skills, writing skills have the least improvement in utilizing a talking pen. Teacher 2, additionally mentioned that talking pen has helped students gain basic knowledge in sentence structure although it takes time to understand and develop. Furthermore, students develop independence in writing correct spelling and clarity.

Conclusions

The results of this study demonstrate the impact of the Talking Pen intervention on improving macro skills among learners, especially in Listening and Viewing, Speaking, and Reading Skills. The researchers concluded the effectiveness of talking pens in improving the Listening and Viewing, Speaking, and Reading Skills of the learners. Based on the results, the researchers reflect on how tiny interactive and manipulative materials have a huge impact on learners, especially in enhancing and improving their macro skills. The researchers made a realization that learners are more motivated and engaging in class discussions where the trends in their generation are incorporated just like talking pens.

Recommendations

In light of the results and findings in the study, the researchers recommend incorporating a talking pen in the daily class, especially for remediation and intervention classes. Talking pen is an example of an interactive and manipulative material that is an essential tool in developing macro skills in students in this contemporary world. Additionally, the research recommends creating a conducive venue where students can enjoy and engage themselves in learning concepts utilizing a talking pen. The researcher also recommends allocating a budget to invest in talking pens, especially in Early Childhood Children where children need to be motivated while learning.

Compliance with Ethical Standards

To ensure ethical considerations, we have sought and obtained proper permissions from the relevant authorities and secured informed consent from all participants before data collection. The researcher assured them that their responses would be kept confidential.

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EKSPLORATORING PAGSUSURI SA KAKAYAHAN AT SALIK NA NAKAAAPEKTO SA KOMPREHENSIYON SA PAGBASA SA FILIPINO

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ABSTRACT

Through Sequential Exploratory Mixed Method research, the study aimed to measure the comprehension ability of 190 Grade 6 pupils in reading Filipino using the Philippine Informal Reading Inventory (Phil-IRI), and analyze the various factors that affects their reading comprehension skills. Based on the results, it was discovered that the level of comprehension of the respondents which obtained a weighted mean of 49.78 was in *frustration*. The study also found that the low comprehension level of the respondents is influenced by a collective internal and external factor such as interest, insufficient reading materials, low exposure to language, absenteeism, and lack of reading habit. From the collected data, it is recommended for the reading teachers to develop an appropriate reading activity that give emphasis on the specific needs of the students and takes into account the factors that influence the ability of the students to understand reading text and materials in Filipino.

Keywords: *comprehension skills, factors affecting reading skills, reading in Filipino*

INTRODUCTION (INTRODUKSIYON)

Ang pagbasa ay isa sa mga mahalagang makrong kasanayang dapat taglayin ng isang indibiduwal sapagkat ito ang pundasyon ng pagkatuto at dito nagsisimula ang pagkuha ng mga kaalaman mula sa pinakasimple hanggang sa pinakakomplikadong

impormasyon. Kaugnay nito, ang pagpapatupad ng R.A. 10533, o ang K–12 *Basic Education Program* ay nakatali sa kahalagahan ng pagpapataas ng mga kasanayan sa pagbabasa ng mga mag-aaral. Ang ganitong mga hangarin ng kurikulum ay malinaw na nakabalangkas sa DepEd Memorandum No. 173, s. 2019, na sumusuporta sa implementasyon ng programang K-12 na patuloy na tumutupad sa mandato na magprodyus ng produktibo at responsableng mamamayan na nagtataglay ng mahahalagang kasanayan para sa patuloy na pagkatuto. Kaya naman, hinikayat ng Kagawaran na bigyang-tuon ng mga guro ang paglinang sa kasanayan ng mga mag-aaral sa pagbasa bilang integral na salik sa pagkatuto.

Ganoon pa man, kapansin-pansin ang suliranin sa literasi ng mga mag-aaral sa pagbabasa. Sa datos ng DepEd (2019), nakita na maraming mag-aaral ang nahihirapan na makamit ang mga pamantayan sa pagkatuto sa *early language, literacy and numeracy*. Binigyang-diin ng DepEd (2022) na ang mababang performans na ito sa pagkatuto ay bunga ng mababang kasanayan sa pag-unawa sa pagbasa ng mga mag-aaral. Ang mga mag-aaral sa elementarya at hayskul ay parehong may kakulangan sa mga kasanayan sa literasi sa parehong wika at nilalaman, higit sa lahat sa pagbabasa. Ayon pa sa ulat ng Department of Eduaction Regional Office 8 (2022), 9 mula sa bawat 10 mag-aaral ay may mababang kasanayan sa pagbasa. Ang datos na ito ay isang seryosong suliranin na nangangailangan ng agarang aksiyon dahil ang pagbabasa ang pundasyon sa pagkatuto ng mga mag-aaral.

Ang literasi sa pagbasa ay tinitingnan bilang pundasyon para sa ganap na pakikilahok sa kontemporanyong lipunan. Ang *Programme for International Student Assessment* (PISA) ay nananawagan sa mga mag-aaral na isama at ilapat ang tekstuwal na impormasyon, at mga imbak na kaalaman sa pagganap sa lipunan (Roque et al., 2023). Kaya naman, ang DepEd ay tumugon sa suliraning ito sa pamamagitan ng paglulunsad ng mga programa at hakbang upang maisakatuparan ang kahingian sa pangangailangan sa mabungang pagbasa ng mga mag-aaral. Isa na rito ang paggamit ng *Philippine Informal Reading Inventory* (Phil-IRI). Ito ay pagtataya sa kahusayan sa pagbasa ng mga mag-aaral sa pamamagitan ng pagkilala ng salita at pag-unawa sa pagbasa sa Ingles at Filipino sa pamamagitan ng pagmamarka sa mga mag-aaral sa kawastuhan ng pagkilala ng salita at mga tanong sa pag-unawa batay sa isang set ng pamantayan sa antas ng pagbasa (DepEd, 2018; Aquino & De Vera, 2018).

Ang pagpapatupad ng Phil-IRI ay direktang tumutugon sa layunin ng DepEd na linangin ang kahusayan sa pagbasa ng bawat batang Pilipino. Ang impormal na imbentaryong ito ay gumagamit ng mga markadong sipi upang sukatin ang pagganap ng isang indibiduwal na mag-aaral sa pasalitang pagbabasa, tahimik na pagbabasa, at pag-unawa sa pakikinig upang matiyak ang antas ng kasanayan sa pagbasa ng mag-aaral. Ang Phil-IRI ay sumusukat sa mga kakayahan ng mga mag-aaral at pangkalahatang pagganap sa pagbasa, at ang impormasyong nakuha sa pamamagitan nito ay maaaring magamit upang bumuo o iakma ang silid-aralan, maliit na grupo, o indibidwal na pagtuturo upang umangkop sa mga pangangailangan at kakayahan ng mga mag-aaral (DepEd, 2018).

Sa pag-aaral na ito, binigyang-halaga ang paggamit ng Phil-IRI bilang mapagkakatiwalaang *tool* upang tayain ang antas ng pag-unawa ng mga mag-aaral sa pagbasa sa Filipino. Bagamat ang ganitong tuon ay nakita na sa ilang pag-aaral, ninais tugunan ng mananaliksik ang pagtukoy sa kasanayan ng mga mag-aaral hindi lamang sa kuwantitatibong pagsukat bagkus ay kasama sa saklaw ng pananaliksik ang pagsipat sa mga salik na nakaaapekto sa kakayahan ng mga mag-aaral sa pag-unawa sa mga babasahing Filipino. Sa konteksto ng pag-aaral, ang parehong tuon ay magbibigay ng mga emperikal na batayan upang bumuo at magpatupad ng programang pangklasrum na naaayon sa aktuwal na pangangailangan ng mga mag-aaral tungo sa pagpapaunlad ng literasi sa pagbasa. Ito ay isang paraan upang magkaroon ng angkop na programang pangklasrum at magbigay ng solusyon mula sa maykrolebel na antas patungo sa mas malawak na saklaw ng pagtugon sa matagal nang suliranin ng Kagawaran hinggil sa literasi ng mga mag-aaral sa pagbabasa.

Research Questions (Layunin ng Pag-aaral)

Ang pag-aaral na ito ay nakatuon sa pagtukoy sa antas ng kasanayan sa pag-unawa sa pagbasa ng mga mag-aaral at pagsusuri sa mga salik na nakaaapekto rito. Tinitiyak sap ag-aaral na masagot ang sumusunod:

1. Ano ang antas ng pag-unawa ng mga mag-aaral sa pagbasa sa Filipino?
2. Ano ang mga salik na nakaaapekto sa pag-unawa ng mga mag-aaral sa pagbasa sa Filipino?

Review of Literature and Studies (Rebyu sa mga Literatura at Pag-aaral)

Ang pagbasa ay isang magandang gawaing pangkaisipan na naghihikayat ng interaktibong pakikisangkot ng isang indibiduwal sa parehong haka at katotohanan. Ito ay isang paraan upang palawakin ang kamalayan ng isang tao sa mga umiiral na usapin at kalagayang panlipunan sa pamamagitan ng pagbibigay kahulugan at/o interpretasyon sa mga nakalimbag na simbolo. Ayon pa kina Quintino at Abagon (2021), ang pagbabasa ay isa sa mga pangunahing kasanayan sa wika na dapat pinagkadalubhasaan ng mga mag-aaral. Sa pamamagitan ng pagbabasa, natutuklasan ang malawak na kaisipan ng teksto tungo sa mabungang pagkatuto. Dagdag pa ni Delgado (2015), ang pagbasa ay isang kognitibong proseso ng pag-unawa sa mensaheng nakalimbag o ng ano mang wikang nakasulat. Giit pa niya, ang pagbasa ay daan tungo sa kaalaman. Samakatuwid, ang pagbabasa ay isa sa mga pangunahing kasanayan upang masiguro ang matagumpay na pagkatuto sa Filipino at iba pang lawak ng pagkatuto.

Ang kasanayan sa pagbasa ay isa sa mga pinakamahalagang kasanayan dahil ito ang pundasyon ng pagtamo ng kaalaman at pag-unawa sa ano mang asignatura (Tajinan & Tajinan, 2023). Kaya naman, ito ay isang mahalagang pagsasaalang-alang sa pagbuo at pagdisenyo ng mga pagpaplanong pampagkatuto upang maisama bilang integral na elemento ang pagbasa sa ano mang gawaing pangklasrum. Ayon pa kina Erkek (2022) at Krawits et al. (2022), ang pagbasa ay gumaganap ng mahalagang papel upang

gabayan at tulungan ang isang indibiduwal na tingnan ang realidad ng mundo sapagakat ang pagmomodelo sa kalagayan at suliraning nararanasan sa loob o labas ng paaralan ay itinatanghal sa pamamagitan ng mga simbolong pangwika. Ang pag-unawa sa pagbasa ay nagbibigay-daan sa mambabasa na magkaroon ng bukas na pagtingin sa mga katotohanang umiiral dahil ito ang naglulundo sa paghubog ng mga kahulugan gamit ang wika.

Ayon pa kina Roque et al. (2023), ang pagbabasa ay mahalaga para sa tagumpay sa maraming magkakaibang sosyo-ekonomikong industriya. Ang pagbabasa ay isang mahalagang kasanayang dapat taglayin ng lahat sapagkat ang pag-unawa sa pagbasa at katatasan dito ay mga kasanayang lubos na pinahahalagahan sa panlipunan at pang-ekonomiyang pag-unlad. Mula sa ganitong katotohanan, hindi maitatanggi na sa kasalukuyan, maraming kabataan ang nahihirapan pa rin sa pagbabasa.

Ang mga suliranin sa mababang literasi sa pagbasa ng mga mag-aaral ay matagal ng sabjek ng iba't ibang programang pang-edukasyon sa Pilipinas. Ang Kagawaran ay nagtalaga ng mga pagsasanay para sa mga guro, nagtaguyod ng mga proyektong nauugnay sa pagbasa, at naglunsad ng pagpapayaman sa mga pasilidad at kagamitan upang makapagbigay ng solusyon sa nasabing suliranin. Subalit sa kabila ng ganitong pagsisikap, kapansin-pansin pa rin ang mababang pagganap ng mga mag-aaral. Sa isinagawang pagtaya sa 2018 Program for International Student Assessment (PISA) ng Organization for Economic Co-operation and Development (OECD), nakakuha lamang ng ranggong 340 ang Pilipinas, na mas mababa sa *average* ng mga kalahok na bansa ng OECD (DepEd, 2019).

Dagdag pa, sa konteksto ng paglipat ng modalidad ng pagtuturo patungong *Modular Distance Learning* (MDL) sa panahon ng pandemya, natuklasan ng UNICEF na sa 122 na mga bansa, ang mga paaralan sa Pilipinas ang may pinakamahabang yugto ng panahon ng pagsasara ng paaralan at nanatili sa MDL. Bilang resulta, wala pang 15% ng mga mag-aaral, o humigit-kumulang tatlo sa bawat 20, ang nakararanas ng kahirapan sa pagbasa ng mga simpleng teksto. Ang datos na ito ng UNICEF ay nagpapakita ng tinatawag na *learning poverty* sa Pilipinas – tinukoy ng *World Bank* bilang bahagi ng 10 taong-gulang na hindi nakababasa o nakauunawa ng isang simpleng kuwento—na higit sa 85 porsiyento, na bahagyang mas mahusay kaysa sa pagtatantya ng World Bank na kasing taas ng 90 porsiyento noong Nobyembre ng nakaraang taon (De Vera, 2022).

Ang ganitong kaso ng pagbaba ng literasi sa pagbasa ng mga mag-aaral ay mas higit na nakababahala lalo pa't nagkaroon ng mas malawak na puwang sa pagitan ng sinubaybayang pag-aaral dahil sa modalidad ng pagtuturo sa panahon ng pandemya. Sa ganitong moda ng pagtuturo, maraming mag-aaral ang nangangailangan ng gabay mula sa guro upang maunawaan nang lubos ang mga aralin. Sang-ayon dito ang mga guro sapagkat ang mga materyales sa pag-aaral ay hindi maunawaan nang mabuti ng mga mag-aaral sa onlayn na pag-aaral, na nagreresulta sa maraming mga mag-aaral na magtamo ng mababang performans sa pagkatuto. Isa sa mga kahirapan na kinaharap ng mga mag-aaral sa mga gawain sa pagbabasa ay ang kahirapan sa pag-unawa sa pagbasa, lalo na ang mga mahahabang teksto (Daulay & Nurmnalina, 2021; Kuşdemir &

Bulut, 2018).

Sa konteksto ng pag-aaral, mahihinuha mula sa binanggit na sanhi ng mababang kasanayan sa pag-unawa sa pagbasa ng mga mag-aaral na isang malaking salik ang kawalan ng sapat na paggabay at suporta mula sa guro sa pagkatuto ng mga mag-aaral. Ang MDL na pansamantalang solusyon sa pagsasara ng mga paaralan sa panahon ng COVID-19 ay mas nagdulot ng suliranin sa literasi ng mga mag-aaral sa pagbasa dahil sa paraan ng pagkatuto, uri ng materyal na ginagamit sa pag-aaral, at kawalan ng sapat na fidbak at *reinforcement* upang tugunan ang puwang (gap) at kakulangan sa pag-unawa ng mga mag-aaral.

Dagdag pa, ang paggamit ng modernisadong paraan ng pagtuturo ay maisaalang-alang din bilang balakid sa literasi sa pagbasa ng mga mag-aaral lalo na sa mga babasahing Filipino. Paliwanag nina Parado at Reduban (2020), dahil sa modernisadong pagtuturo, ang lahat ay nagbago kasama na rito ang mundo ng pagbasa. Ang mga mag-aaral ngayon ay babad sa internet na dahilan kung bakit karamihan sa mga ito ang hindi makapagbasa ng mga libro at ginagawang katuwiran ang mas mabilis na akses sa mga e-book.

Dahil sa pagbabagong ito, mas naitulak ang marami pang dahilan upang unti-unting bumaba ang interes ng mga mag-aaral sa pagbasa ng mga akdang Filipino na sa huli ay naging dahilan ng pagbaba ng kakayahan sa pag-unawa sa pagbasa ng Filipino. Ayon sa sarbey ng National Book Development Board ([NBDB], 2012) na ginawa taong 2003, 2007, at 2012. Sa taong 2003, tinatayang nasa 94% sa mga Pilipino ang nagbabasa ng mga materyal na babasahin. Ibig sabihin na sa taong ito ay mataas pa ang paggamit sa mga akdang Filipino sa pagbasa at nakapaglalaan pa ng oras sa pagbasa ng Filipino. Subalit ang ganitong datos ay nakitaan ng makabuluhang pagbaba ng 2% noong 2007. Pagkatapos ng limang (5) taon ay mas higit pang nakita ang pagdeklayn ng bahagdan. Nang 2012, bumaba sa 88% na lamang sa mga Pilipino ang nagbabasa ng babasahing Filipino. Bagamat hindi ito gaanong malaki, makabuluhan pa rin ang datos ng sarbey dahil ipinakikita lamang nito ang patuloy na pagbaba ng interes sa pagbabasa ng Filipino.

Samakatuwid, ang mga nalikom na datos mula sa mga literatura ay pagpapakita lamang sa kabuoang kaligiran ng suliranin sa mababang literasi ng pag-unawa sa pagbasa ng mga mag-aaral. Ang pagpapatibay na ito ay paglalarawan sa suliranin at pagtalakay sa mga potensiyal na salik na nakaaapekto sa patuloy na pagbaba ng kasanayan ng mga mag-aaral sa pagbasa. Sa ganoon, nararapat lamang ang pagsasagawa ng mas malawak na pagbibigay-tuon sa suliranin upang makabuo ng mga angkop na interbensiyon. Tulad ng mga binanggit, mahalaga ang papel na ginagampanan ng pagbasa sa pagkatuto ng mga mag-aaral sapagkat ito ang pundasyon ng paglago ng kaalaman ng bawat indibiduwal dahil ang kasanayan sa pagbasa ay itinuturing na esensiyal na pangangailangan sa kasalukuyan.

Ang mababang literasi sa pag-unawa sa pagbasa ay maaaring tingnan bilang produkto ng kolektibong salik na nakaaapekto sa pag-unlad ng mga mag-aaral sa larang

ng pagbasa. Kaugnay nito, mahalagang matukoy ang antas ng kasanayan sa pagbasa ng mga mag-aaral dahil isa ito sa mga balakid na nakaaapekto sa pag-unawa sa pagbasa ng mga mag-aaral. Paliwanag ni Cimmiyotti (2013), mahalagang bigyang-pansin ang paglinang sa pagbasa dahil ito ang pundasyon ng lahat ng akademikong pag-aaral. Giit niya, ang mga mag-aaral na walang kasanayan sa mabungang pagbasa ay may limitadong pagkakataon na makamit ang malawak na oportunidad sa pagtamo at akses sa malawak na impormasyon. Ganoon pa man, kaakibat na gampanin sa pagsulong ng literasi sa pagbasa ang pagpapataas ng interes ng mga mag-aaral sa pagbasa. Sa isinagawang pag-aaral nina Parado at Reduban (2020), napatunayang may malaking kaugnayan ang interes sa pagbasa sa mga babasahing Filipino sa pagtataguyod ng mabungang pagbasa at pag-unawa ng mga mag-aaral. Kung ganoon, ang unang pagsasaalang-alang sa paglinang sa kakayahan ng mga mag-aaral sa pagbasa ay ang pagpukaw sa interes ng mga ito upang madaling madebelop sa mga mag-aaral ang kasanayan sa pagbasa at matagumpay na makisangkot sa ano mang gawaing may kinalaman sa pagbasa sa Filipino**.**

Samantala, sa isinagawang pag-aaral nina Roque et al. (2023) hinggil sa pagtaya sa abilidad ng mga mag-aaral sa pagbasa sa *post-pandemic* bilang batayan sa pagbuo ng *remediation program*, natuklasan na ilan sa mga nakaaapekto sa kasanayan ng mga mag-aaral sa pagbasa ay ang kanilang demograpikong profayl. Nakita na kung ibabatay sa *grade level* ng mga mag-aaral ang abilidad nito sa pagbasa, mababa ang kasanayan ng mga ito. Ganoon din, nakita sa isinagawang pag-aaral na karaniwan sa mga *non-readers* ay mga lalaki bagamat malaking bilang sa mga naging respondenteng lalaki ay mga *independent readers*. Sa huli, tinitingnan ng mga magulang ng mga mag-aaral na ang panloob na salik hinggil sa kahandaan at motibasyon o interes ng mga mag-aaral ay isa sa mga pangunahing balakid na nagreresulta sa mababang kasanayan sa pag-unawa sa pagbasa. Kasama rin sa mga natukoy na salik ang kawalan ng sapat na gabay sa pag-aaral sa ilalim ng Modular Distance Learning (MDL) sa panahon ng pandemya.

Sa pag-aaral naman nina Guimba at Alico (2015), napatunayan na ang mababang antas ng pag-unawa ng mga mag-aaral ay makabuluhang nauugnay sa pandamdaming salik ng pagkabalisa (anxiety) ng mga mag-aaral. Napatunayan na ang pagkabalisa sa pagbabasa ay umiiral. Sa katunayan, ang pag-aaral na ito ay nagpatunay na ang pagkabalisa sa pagbabasa ay nakita sa tatlong magkakaibang kategorya sa pagbasa, katulad ng *top-down* na pagbabasa, *bottom-up* na pagbabasa, at pagbabasa sa silid-aralan. Tulad ng natuklasan sa pag-aaral, ang mga mag-aaral sa pangkalahatan ay may mataas na pagkabalisa (anxiety) sa lahat ng kategorya ng pagbabasa. Isa sa mga dahilan nito ay ang kaligirang pangwika na nagsaad na ang hindi pagiging pamilyar sa wika ng materyal ay nakapagdudulot ng mataas na antas ng pagkabalisa sa pagbasa na sa huli ay nakaaapekto sa antas ng kanilang pag-unawa.

Kaya naman, batay sa mga natuklasan sa pag-aaral nina Roque et al. (2023) at Guimba at Alico (2015), isang mahalagang pagsasaalang-alang sa pagtuturo ang pagbibigay-diin sa uri ng materyal na gagamitin sa pagbasa at ang pagbibigay ng mga gawaing nagtataguyod ng pagpapataas sa interes at motibasyon ng mga mag-aaral. Ang pagbibigay konsiderasyon sa mga salik na ito ay katulad na tuon ng kasalukuyang pag-

aaral sapagkat ang ganitong mga input ang gagamiting lunsaran at batayan ng mananaliksik sa pagbuo ng programang pangklasrum na nagtataguyod sa pagpapaunlad ng kasanayan ng mga mag-aaral sa pag-unawa sa pagbasa sa Filipino.

Paliwanag pa nina Almirol at Catoto (2022), ang mga guro ay gumanap ng isang mahalagang papel sa panahon ng kawalan ng katiyakan sa pagtulong sa kanilang mga mag-aaral na mapahusay ang kanilang mga kasanayan sa pagbabasa sa wika. Ito ay sa kabila ng matagumpay na resulta ng kanilang isinagawang pag-aaral upang bigyang solusyon ang mababang performans ng mga mag-aaral sa pagbasa. Napatunayan sa pag-aaral na ito na binago ng programa sa pagbasa ang buhay ng mga mag-aaral. Nakita na ito ay isang epektibong diskarte batay sa iba't ibang mga aktibidad na ibinigay ng guro. Maliban dito, ang presensiya at paggabay ng guro ay nakatutulong dahil nagagawang magtanong ng mga mag-aaral ng mga bagay na mahirap gawin nang mag-isa. Dagdag pa, maaari lang maging matatas na mambabasa ang mag-aaral kung bibigyan sila ng mga tekstong nakalimbag, at mga *digital* na materyales, pati na rin ang pagsasanay sa kanila sa pamamagitan ng pagmomodelo at *shared practice* na humahantong sa *autonomous* na pagsasanay.

Sa konteksto ng Modular Distance Learning (MDL), tinitingnan ng ilang mananaliksik ang paraang ito bilang sanhi ng mas pagbaba sa kasanayan ng mga mag-aaral sa pagbasa. Sa isinagawang pag-aaral nina Gueta at Janer (2021), hinggil sa mga hamon sa *distance learning* gamit ang *Self-Learning Modules (SLM)*, natuklasan sa resulta ng pagsusulit na ang paggamit ng SLM sa taong panuruan 2021-2022 ay nakababahala sapagkat ang *literacy rate* ng mga mag-aaral ay mas mababa sa *average*, at naobserbahan na ang mga mag-aaral ay nakararanas ng kahirapan sa pag-unawa sa pagbasa. Ang ganitong dahilan ay iniuugnay sa mahinang koneksiyon sa mga malalayong lokasyon, pati na rin ang kakulangan ng mga mapagkukunan sa pagbabasa sa bansa.

Ang paglipat ng sistemang pang-edukasyon patungong MDL sa panahon ng pandemya ay nagdulot ng maraming epekto sa kalidad ng pagtuturo at pagkatuto. Ipinaliwanag sa pag-aaral nina Sucena et al. (2022), na ang mga pangmatagalang panlipunang implikasyon ng sistemang ito ng pag-aaral ay tila malala dahil nagkaroon ito ng direktang epekto sa parehong maikli at pangmatagalang karanasan ng mga guro at mga mag-aaral. Halimbawa, sa panandaliang panahon, ipinakita ng mga pananaliksik na ang pagsasara ng mga paaralan sa panahon ng COVID-19 ay nagbunga ng malaking pagkalugi sa pag-aaral, lalo na para sa mga mag-aaral na may mababang pagganap sa pagkatuto na maaaring magkaroon ng pangmatagalang epekto sa personal na kakayahan sa pagbabasa at mga potensyal na epekto sa pagbaba ng antas ng pag-unawa sa pagbasa. Dagdag pa ni Bol (2020), ang ganitong sistema ay nagbigay-diin sa hindi pagkakapantay-pantay ng mga mag-aaral dahil sa mga pagkakaiba-iba sa akses at pagkakataon na matuto sa bahay.

Ang mga punto ng pagpapaliwanag mula sa mga binanggit na resulta ng mga pag-aaral ay pagtatanghal lamang sa gampanin ng kabuoang edukatibong proseso sa paglinang sa kasanayan ng mga mag-aaral sa pagbasa. Magkaakibat ang papel na

ginagampanan ng parehong guro at mag-aaral sa pagdebelop sa mga kasanayang ito kung kayat nararapat lamang na magkaroon ng pantay na pag-unawa sa kalikasan ng kakayahan ng isang indibiduwal at pag-unawa sa pangangailangan nito upang maiangkop at maibigay ang sapat na suporta sa mag-aaral tungo sa epektibong pagkatuto. Sa usapin ng pagbasa, kinakailangang naiaangkop ng guro ang mga gawain at materyal na ibinibigay upang mas maging makabuluhan ito sa bata.

Binigyang-diin sa pag-aaral nina Claessen et al. (2020), na ang suliranin sa pagbasa ay isang usaping nakikita sa lipunan ng tao. Malinaw na ipinakita sa resulta ng *Programme for International Student Assessment* (PISA) 2018 na ang pagbasa ay isa sa mga saklaw na kung saan ang mga mag-aaral sa Pilipinas na nasa labinlimang taong gulang (15) ay nakakuha ng mababang marka at may *average reading score* lamang na 340 na mababa kumpara sa mga ibang mga bansang lumahok sa PISA 2018. Ang Pilipinas ay nagkamit lamang ng makabuluhang rate ng mababang pagganap sa lahat ng mga bansang kalahok. Ibig sabihin, 80% ng mga Pilipinong mag-aaral ay hindi nakaabot sa pinakamababang antas ng kasanayan sa pagbasa.

Kaugnay sa suliraning ito, ang Kagawaran ng Edukasyon ay naglunsad ng programang *Hamon: Bawat Bata Bumabasa* (3Bs) upang paigtingin ang adbokasiya para sa pagbabasa at sa pamamagitan ng pagtugon sa gampanin ng mga guro at pag-ako na gawing mambabasa ang bawat mag-aaral ayon sa antas o baitang ng kaniyang pag-aaral. Ang inisyatibang ito ng Kagawaran ay isang makulay na pag-asa para sa mga mag-aaral na nakararanas ng kahirapan sa pagbasa na makawala sa mababang literasi sa pagbasa sa pamamagitan ng pagbibigay ng maayos at angkop na kapaligiran sa pagbasa, programang pagtuturo, at suportang pampamilya.

Mahihinuhang ang mga kapaligiran sa pagbabasa ay dapat na idinidisenyo upang maalis ang mga kahirapan sa pagbabasa ng mga mag-aaral at upang maging maluwag ang kanilang pakiramdam at malayang maipahayag ang kanilang sarili. Bilang karagdagan, ang pagkatuto ng mga mag-aaral ay dapat na sinusuportahan ng mga materyal na naaayon sa kanilang mga interes at kakayahan kasama ang suporta mula sa guro at sa mga miyembro ng pamilya ng mga mag-aaral. Ayon pa kina Torgesen (2000) at Westwood (2008), ang pananaliksik ay nagpapatunay sa kabisaan ng pagpapaalam sa mga mag-aaral sa kahirapang nararanasan, at mga programang nakabatay sa diskarte na isinasagawa sa pakikipagtulungan ng guro at pamilya.

Sa kabila ng mga binabanggit ng mga pag-aaral hinggil sa suliranin sa mababang literasi ng mga mag-aaral sa pagbasa, hindi maikakaila ang mga aksiyon at pagtugon ng kagawaran at ibang mga iskolar upang makapaglaan ng mga nararapat na pagpapasya sa paglutas sa suliraning ito. Sa pag-aaral nina Abeberesse et al. (2014), natuklasan ang pagpapatupad ng mga programa sa pagbasa, halimbawa ang pagbibigay ng mga materyal na angkop sa gulang ng mag-aaral ay isang mainam na paraan. Sinasanay nito ang mga guro sa pagbuo at paggamit, at sumusuporta sa mga inisyal na pagkilos upang pataasin ang literasi ng mga mag-aaral sa pagbasa. Sa ilalim ng programa, nakita ang makabuluhang pag-unlad ng mga mag-aaral na nagpatuloy hanggang sa unang tatlong buwan pagkatapos ng implementasyon ng programa. Ganoon pa man, ang positibong

pagtaas ng performans sa pagbasa ay nakitaan ng pagbaba pagkatapos nito dahil marahil sa hindi naipagpatuloy at nasubaybayan ng mga guro ang programa sa pagbasa. Ganoon pa man, Maganda ang nakitang epekto nito sa mga mag-aaral sapagkat sa pamamagitan nito ay nahihikayat ang mga mag-aaral na magbasa sa kani-kanilang tahanan.

Dagdag pa, sa isinagawang pag-aaral nina Tomas et al. (2021), hinggil sa kahirapang nararanasan sa pagbasa ng mga mag-aaral ng Dibisyon ng Aurora, napatunayang karamihan sa mga mag-aaral ay nasa *frustration level*. Samakatuwid, ang pangangailangan para sa pagpapabuti sa antas ng pagbasa ay dapat isaalang-alang sa pagbuo ng mga plano sa pagpapaunlad para sa mga mag-aaral. Gayundin, nakitang baryabol ang kawalan ng masteri ng mga mag-aaral sa mga elemento ng pagbasa, presensiya ng *learners-at-risk*, at kawalan ng kultura sa pagbabasa bilang mga salik na nakaaapekto sa mababang literasi sa pagbasa ng mga mag-aaral. Kaugnay nito, binigyang-diin rin nila ang mungkahing programa at gawain sa pagbasa bilang bahagi sa paglikha ng kontekstuwalisasyon ng kurikulum sa pagbasa at magamit bilang mga hakbangin sa literasi sa pagbabasa sa mga paaralan. Ang mga hakbangin na ito ay ikinategorya bilang *Literacy Program*, *Individualized Reading Recovery Program at Enrichment/Enhancement Program.* Ang mga hakbangin na ito ay maaaring isaalang-alang ng mga paaralan sa pagpapaunlad ng kakayahan sa pagbasa ng mga mag-aaral.

Batay sa mga nalikom na kaugnay na pag-aaral, malawak na naipakita ang kalagayan ng literasi sa pagbasa ng mga mag-aaral. Ito ay isang usaping akademiko na nakita na bago pa man ang transisyon ng modalidad ng pagtuturo sa panahon ng pandemya. Ang mga emperikal na datos na bunga ng masusing pananaliksik ay pagpapatibay sa pangangailangan ng pagpapalawak at pagdaragdag ng mga opsiyon sa pagpapatupad ng mga programang nauugnay sa pagbasa upang pataasin ang kakayahan ng mga mag-aaral sa mabungang pagbasa at maging kritikal sa pag-unawa sa mga babasahing materyal maging ito man ay para sa layuning akademiko o sa aktuwal na pakikibaka sa patuloy na umuunlad na ika-21 siglong lipunan. Ganoon din, malawak ang pagtalakay mula sa mga artikulo, pananaliksik at publikasyon hinggil sa pagsasaalang-alang sa mga pagunahing pangangailangan ng mga mag-aaral sa pagbasa sa pagbuo at pagdisenyo ng mga proyektong pampaaralan, programang pangklasrum na ang tuon ay sa paghubog sa mga mag-aaral na may sapat na kasanayan sa pagbasa. Sa huli, mahihinuhang ang suliraning ito ay hindi lamang dapat tingnan bilang pangangailangan sa pagpasa ng asignatura kung hindi bilang esensiyal na kasanayang dapat taglayin ng isang indibiduwal sa pagharap sa komplikadong lipunan.

METHODOLOGY (METODOLOHIYA)

Tinalakay sa bahaging ito ang ginamit na disenyo, ang lokal at mga kalahok ng pananaliksik, ang ginamit na instrumento, ang paraan ng pangangalap ng datos, at mga ginamit na tritment sa pagsusuri at pagpapakahulugan sa mga datos ng pag-aaral.

Research Design (Disenyo ng Pag-aaral)

Ang pag-aaral na ito ay isang *mixed method* na pananaliksik na gumamit ng *Explanatory Design: Participant Selection Model*. Ang ganitong disenyo ng pananaliksik ay naglalayong maglahad ng pangkalahatang paglalarawan at pagpapakahulugan sa suliranin ng pananaliksik sa pamamagitan ng mga kuwantitatibong datos na binibigyan ng mas malawak na pagsusuri gamit ang kuwalitatibong impormasyon mula sa mga naging kalahok ng pag-aaral (Subedi, 2016; Creswell & Clark, 2007). Sa konteksto ng kasalukuyang pananaliksik, ang disenyong ito ay angkop gamitin sapagkat nilayon ng mga mananaliksik na magkaroon ng mas malawak na pag-unawa sa suliranin ng mga mag-aaral partikular sa mababang literasi sa pag-unawa sa pagbasa ng Filipino. Ang pagtaya at pagsukat sa antas ng pag-unawa ng mga mag-aaral sa pamamagitan ng kuwantitatibong datos ay mas mainam na masuri upang maipakita ang mga kaugnay na salik na may makabuluhang epekto sa performans ng mga mag-aaral sa pagbasa. Sa ganoon, ang parehong kuwantitatibo at kuwalitatibong datos ay mainam na batayan sa pagbuo ng ano mang interbensiyon o programang pangklasrum na nauugnay sa pagsuporta, pagpapatibay at pagpapaunlad sa kakayahan sa pag-unawa sa pagbasa sa Filipino.

Research Local (Lokal ng Pag-aaral)

Ang pag-aaral na ito ay isinagawa sa isa sa mga Mababang Paaralan sa Dibisyon ng Tacloban, Lungsod Tacloban. Ang nasabing paaralan ay pinili ng mga mananaliksik sapagkat kapansin-pansin ang malaking bilang ng mga mag-aaral na nakararanas ng kahirapan sa pagbasa sa parehong Ingles at Filipino. Batay sa paunang pagtaya ng mananaliksik, nakita na isa ang Filipino sa mga lawak ng pag-aaral na kinakailangang bigyang-pansin upang mas maging mabunga ang pagkatuto ng mga mag-aaral hindi lamang sa nasabing asignatura kung hindi sa iba pa. Ang Filipino bilang asignatura ay nakikita bilang hamon sa mga mag-aaral partikular sa mababang kaalaman sa wika na isang makabuluhang salik sa pag-unawa sa mga babasahing Filipino.

Respondents and Participants (Respondente at Kalahok ng Pag-aaral)

Ang respondente ng pag-aaral na ito ang mga mag-aaral sa ikaanim (6) na baitang sa isa mga Mababang Paaralan sa Dibisyon ng Tacloban, Lungsod Tacloban. Ang paraan ng pangangalap ng datos sa pananaliksik na ito ay hinati sa dalawa. Dahil dito, mayroong dalawang paraan ng pagkuha sa mga respondente at kalahok ng pag-aaral. Sa unang bahagi ay isinagawa ng mananaliksik ang pagtaya sa antas ng pag-unawa ng mga mag-aaral sa pagbasa ng Filipino. *Take all* ang naging paraan ng pagkuha sa respondente na may kabuoang bilang na 190. Samantala, sa ikalawang bahagi naman ng pangangalap – ang kuwalitatibong datos, pinili ang 9 na kalahok sa pamamagitan ng *purposive sampling* na naging bahagi ng isinagawang pakikipanayam sa paraang *Focus Group Discussion* (FGD). Ang ganitong bilang ng kalahok (9) ayon kay Creswell (2013), ay ideyal na sukat depende sa punto sa isang pag-aaral kung saan paulit-ulit na lamang ang impormasyong nakakalap at wala nang bagong nadaragdag.

Research Instrument (Instrumento ng Pag-aaral)

Ang pananaliksik na ito ay gumamit ng dalawang instrumento. Para sa pagtugon sa unang layunin ng pananaliksik ay ginamit ng mga mananaliksik ang *adopted standardized tool* sa pagtaya sa kakayahan ng mga mag-aaral sa pagbasa – Ang *Philippine Informal Reading Inventory* (Phil-IRI) sa Filipino upang sukatin ang antas ng pag-unawa ng mga mag-aaral sa pagbasa ng Filipino. Sa konteksto ng pananaliksik, ang paggamit ng Phil-IRI ay isang mabisang *tool* lalo pa't ang kagamitang ito ay isang *institutionalized tool* na ginagamit ng DepEd sa pagtaya sa kasanayan sa pagbasa ng mga mag-aaral. Samantala, sa ikalawang bahagi naman ng pag-aaral ay ginamit ng mga mananaliksik ng *semi-structured questionnaire* sa paraang pakikipanayam upang tugunan ang ikalawang layunin ng pag-aaral. Ginamit ang talatanungang ito upang magkaroon ng pagkakataon at kalayaan na magbigay ng karagdagan tanong kung sakaling hindi pa matugunan ng kalahok ang pangangailangan ng panayam. Sa pagtiyak sa kalidad ng talatanungan sa ikalawang bahagi ng pangangalap, idinaan ito sa balidasyon ng tatlong eksperto sa larang ng pagtuturo at pagbasa upang masigurado na tumpak at kapani-paniwala ang ginamit na talatanungan at hindi magkamit ng ano mang paglabag sa etikal na pamantayan ng pagsasagawa ng pangangalap ng datos.

Data Gathering Procedure (Paraan ng Pangangalap ng Datos)

Dalawang yugto ang paraan ng pangangalap ng datos ng pananaliksik. Sa unang yugto, isinagawa ng mananaliksik ang pagtaya sa kasanayan ng 190 na mga mag-aaral sa pag-unawa sa Filipino sa pamamagitan paggamit ng *Philippine Informal Reading Inventory* (Phil-IRI). Pagkatapos ng pagtaya ay tinukoy ng mananaliksik ang mga mag-aaral na nakapagtala ng mababang marka o iyong mga nasa frustration na antas ang pag-unawa. Gamit ang *purposive sampling*, pinili ang 9 na kalahok para sa isang pakikipanayam na isinagawa sa pamamagitan ng *Focus Group Discussion* (FGD) upang malikom ang datos hinggil sa mga potensiyal na salik na nakaaapekto sa pag-unawa sa Filipino.

Treatment and Analysis (Tritment at Paraan ng Pagsusuri)

Para sa kuwantitatibong datos, ginamit ng mananaliksik ang istandard na pormula ng *Philippine Informal Reading Inventory* (Phil-IRI) upang kompyutin ang antas ng pag-unawa ng mga respondente sa pagbasa ng Filipino. Samantala, sa kuwalitatibong datos ng pag-aaral, ginamit ang pamamaraan na nakabatay sa *Braune at Clark's Thematic Analysis* (2006). Ang prosesong ito kinasasangkutan ng anim (6) na hakbang: (1) *Pagkilala sa datos*; (2) *Coding*; (3) *Pagbuo ng mga Tema; (4) Pagsusuri sa mga Tema; (5) Pagtukoy at Pagbibigay ng Pangalan sa mga Tema*; at (6) *Pagsulat.*

RESULTS (RESULTA)

1. Antas ng Pag-unawa ng mga Mag-aaral sa Pagbasa sa Filipino

Upang matugunan ang layunin ng pag-aaral, ginamit ng mananaliksik ang *Philippine Informal Reading Inventory* (Phil-IRI) na isang mapagkakatiwalaan at istandardisadong kagamitan sa pagsukat sa kasanayan sa pagbasa ng mga mag-aaral. Isinagawa ang pagtaya sa mga mag-aaral ng ika-6 na baitang na may kabuoang bilang na 190.

Talahanayan 1
Antas ng pag-unawa ng mga mag-aaral sa ika-6 na baitang

Pangkat	Antas ng Pag-unawa	Blg.	Bahagdan	*Average Score*	*Mean*	Antas ng Pag-unawa
A	Independent	7	18.41%	12.11	60.53	*Instructional*
	Instructional	17	44.73%			
	Frustration	14	36.84%			
	Kabuoan	**38**	**100%**			
B	Independent	0	0%	4.64	23.194	*Frustration*
	Instructional	0	0%			
	Frustration	36	100%			
	Kabuoan	**36**	**100%**			
C	Independent	5	13.15%	13	65	*Instructional*
	Instructional	30	78.95%			
	Frustration	3	7.89%			
	Kabuoan	**38**	**100%**			
D	Independent	5	12.5%	7.52	37.62	*Frustration*
	Instructional	3	7.5%			
	Frustration	32	80%			
	Kabuoan	**40**	**100%**			
E	Independent	0	0%	12.53	62.63	*Instructional*
	Instructional	36	94.74%			
	Frustration	2	5.26%			
	Kabuoan	**38**	**100%**			
				Weighted Mean	**49.80**	***Frustration***

Ipinakita ng Talahanayan 1 ang antas ng pag-unawa ng mga mag-aaral sa ika-6 na baitang sa pagbasa sa Filipino. Mula sa mga naitalang *mean* ng bawat pangkat (A-60.53; B-23.19; C-65; D-37.62; at E-62.63) ay nakakuha lamang ng *weighted mean* na 49.80 sa kabuoan na nangangahulugang nasa *frustration level* ang antas ng pag-unawa ng mga mag-aaral.

Batay sa mga nakalap na datos, natuklasan sa pananaliksik na ito na mula sa 190 respondente ay umabot sa 87 mag-aaral na katumbas ng 46% mula sa populasyon ang natukoy na nasa *frustration level* ang pag-unawa sa pagbasa sa Filipino. 45% naman o may katumbas na bilang na 86 sa mga respondente ang nasa *instructional level*,

samantalang nasa 8.94% o katumbas ng 17 na mag-aaral ang nasa *independent level* ang pag-unawa. Sa kabuoan ng datos mula sa mga nakuhang *mean* ng 5 pangkat na naging respondente ng pag-aaral, ay naitala ang kabuoang *mean* na 49.80 na nangangahulugang nasa *frustration* ang antas ng pag-unawa ng mga mag-aaral sa pagbasa sa Filipino.

2. Mga Salik na Nakaaapekto sa Pag-unawa ng mga mag-aaral sa Pagbasa

Talahanayan 2
Mga salik na nakaaapekto sap ag-unawa ng mga mag-aaral

Kategorya	Tema (Salik)
Panloob na Salik *(Internal Factor)*	1. Mababang Kaalaman sa Wika 2. Kawalan ng Interes sa Pagbasa. 3. Mababang Kasanayan sa Pagbasa (Poor fluency skills). 4. Kakulangan ng Interes at Eksposyur sa wika 5. Kawalan ng Tiyak na Estratehiya sa Pagkatuto *6.* Madalas na Pagliban sa Klase (Absenteeism).
Panlabas na Salik *(External Factor)*	1. Kawalan ng Gabay mula sa Guro at Magulang 2. Kakulangan ng mga Materyal sa Pagbasa 3. Di-angkop na Nilalaman ng mga Babasahing Materyal 4. Kawalan ng Oras sa Pagbasa sa Bahay

Ipinakita ng Talahanayan 2 ang resulta ng isinagawang pakikipanayam sa mga kalahok. Naging bahagi ng kasalukuyang pananaliksik ang pagtukoy sa mga salik na nakaaapekto sa kasanayan sa pag-unawa sa pagbasa sa Filipino. Layunin nitong mailarawan nang mas malalim at maunawaan ang parehong panloob (internal) at panlabas (external) na salik na maaaring mayroong direktang epekto kung bakit mababa o nasa *frustration* na antas ang kasanayan sa pag-unawa ng mga mag-aaral. Batay sa isinagawang pakikipanayam sa mga piling mag-aaral ay nakita bilang mga panloob na salik na nakaaapekto sa pag-unawa ng mga mag-aaral sa pagbasa sa Filipino ang mababang kaalaman sa wika, kawalan ng interes sa pagbasa, mababang kasanayan sa pagbasa (poor fluency skills), kakulangan ng interes at eksposyur sa wika, kawalan ng tiyak na estratehiya sa pagkatuto, at ang madalas na pagliban sa klase (absenteeism). Bilang karagdagan, natuklasan din sa pag-aaral na ito ang kolektibong salik panlabas (external factors) sa mababang kasanayan sa pag-unawa sa pagbasa ng mga mag-aaral kagaya ng kawalan ng gabay mula sa mga guro at magulang, kakulangan ng mga materyal sa pagbasa, hindi angkop na mga nilalaman sa mga babasahing materyal, at ang kawalan ng oras sa pagbabasa sa bahay. Kaya naman, ang mga natukoy na salik ay kailangang bigyang-pansin upang matugunan ang pangangailangan sa pgapapataas ng literasi sa pagbasa. Dapat na bigyang-diin ang mga ito upang magkaroon ng mabungang pagganap ang mga mag-aaral at higit sa lahat ay mabigyan ng angkop na interbensiyon ang nasabing suliranin.

DISCUSSION (PAGTALAKAY)

1. Antas ng Pag-unawa ng mga Mag-aaral sa Pagbasa sa Filipino

Ipinakita sa Talahanayan 1 ang naging resulta ng isinagawang pagsukat sa antas ng pag-unawa ng mga mag-aaral sa ika-6 na baitang hinggil sa pagbasa sa Filipino. Mahihinuha mula sa datos ng pag-aaral na sa pangkat A ng mga mag-aaral sa Baitang 6 ay mayroon lamang 7 o katumbas na 18.41% na mga mag-aaral ang nasa *independent* na antas ng pag-unawa. Samantala, mayroon namang 17 mag-aaral ang nasa *instructional* na antas na may katumbas na 44.73% habang 14 naman ang nasa *frustration level* na mga mag-aaral o katumbas ng 36.84% mula sa 38 na kabuoang bilang ng mga mag-aaral sa pangkat A. Sa kabuoan, nakuha ang nasabing pangkat ng *average score* na 12.11 na may *mean* na 60.53 na may pagpapakahulugang nasa *instructional level* ang antas ng pag-unawa ng mga mag-aaral sa pangkat A. Sa pangkat B, kapansin-pansin ang datos na nakuha mula sa isinagawang pagsusulit sapagkat lahat ng mga mag-aaral na katumbas ng 100% ay nasa *frustration level*. Ang kabuoang bilang na 36 sa nasabing pangkat ay mayroon lamang 4.64 na *average score* na may *mean* na 23.194 na mababa sa inaasahang antas ng pag-unawa sa pagbasa. Sa Pangkat C naman, nakapagtala ng 5 o may katumbas na 13.15% mula sa kabuoan ang nasa *independent level*, 30 naman ang nasa *instructional* na kumakatawan sa 78.95% ng kabuoang populasyon ng nasabing pangkat. Samantala mayroon ding 3 o katumbas ng 7.89% na mga mag-aaral na nasa *frustration level*.

Sa kabuoan, nakakuha ng *average score* na 13 ang pangkat na may *mean* na 65 at naihahanay sa *instructional* na antas sa pagbasa. Samantala, kapansin-pansin din ang datos mula sa pangkat D sapagkat umabot sa 80% na may katumbas na bilang na 32 mula sa 40 mag-aaral ang naitalang nasa *frustration level* ang pag-unawa. 5 o 12.5% naman ang *independent* at 3 o 7.5% ang nasa *instructional*. Ang nasabing pangkat ay mayroong *average score* na 7.52 na may *mean* na 37.62 na nangangahulugang nasa *frustration level* ang antas ng pagbasa ng pangkat D. Sa huli, nahati lamang ang datos ng pangkat E sa dalawang antas sapagkat walang naitala sa *independent level*. 36 o katumbas ng 94.74% ang nasa *instructional* habang 2 o 5.26% naman ang nasa *frustration*. Sa kabuoan mayroong 12.53 na *average score* ang pangkat na may *mean* na 62.63 na nangangahulugang nasa *frustration* ang antas ng pangkat E.

Sa pangkalahatan, ipinakita ng Talahanayan 1 ang antas ng pag-unawa ng mga mag-aaral sa ika-6 na baitang sa pagbasa sa Filipino. Mula sa mga naitalang *mean* ng bawat pangkat (A-60.53; B-23.19; C-65; D-37.62; at E-62.63) ay nakakuha lamang ng *weighted mean* na 49.80 sa kabuoan na nangangahulugang nasa *frustration level* ang antas ng pag-unawa ng mga mag-aaral.

Ang resulta ng pag-aaral ay makabuluhang naiuugnay sa natuklasan sa pananaliksik nina Caraig at Quimbo (2022), na nasa 7% lamang ng mga respondente ang nasa *mastery level* samantalang umabot ng 44% ang mga may *poor comprehension* sa pagbasa ng mga araling pang-agham. Dagdag pa, napatunayan sa pananaliksik nina Tomas et al. (2021), na karamihan sa mga mag-aaral sa kasalukuyan mula sa kanilang mga naging respondente mula baitang 1 hanggang 7 ay nasa *frustration level* ang pag-

unawa sa pagbasa. Kaya naman, mula sa natuklasan at mga binanggit na datos ng pag-aaral, hindi maikakaila ang pangangailangan sa pagsasagawa ng mga interbensiyon at programang tutugon sa nasabing suliranin upang pataasin ang literasi ng mga mag-aaral sa pagbasa.

2. Mga Salik na Nakaaapekto sa Pag-unawa ng mga Mag-aaral sa Pagbasa

2.1. Mga Panloob na Salik (Internal Factors)

Ang panloob na salik ay tumutukoy sa ano mang mga balakid o hadlang na nakaaapekto sa tagumpay ng isang pagkilos o gawain. Sa konteksto ng kasalukuyang pag-aaral, binigyang-diin nito ang mga salik panloob sa mga mag-aaral na nag-uugnay sa kanilang mga pansarili at personal na balakid. Batay sa isinagawang pagsusuri sa kasanayan sa pagbasa ng mga mag-aaral sa ika-6 na baitang, natuklasan ang sumusunod na mga panloob na salik na lubos na nakaaapekto sa komprehensiyon sa pagbasa sa Filipino.

Mababang Kaalaman sa Wika. Sa konteksto ng pananaliksik, natuklasan na isa sa mga salik na nakaaapekto sa pag-unawa ng mga mag-aaral sa pagbasa sa Filipino ay ang mababang bukabolaryo sa Filipino. Karaniwan sa mga kalahok ang kakulangan ng pag-unawa sa ilang mga salitang nakikita sa mga babasahing Filipino na nagiging sanhi upang hindi lubos na maunawaan ang kabuoan ng binabasang teksto. Ayon sa pagsasalaysay ng mga kalahok, may mga salita sa Filipino na masyadong malalim at di-pamilyar sa kanila. Naging karaniwang gawi ng mga kalahok na magtanong sa guro o ‘di naman kaya ay sumangguni sa diksiyonaryo, o mag-search sa internet ng mga kahulugan o katumbas na salita ng nasabing termino upang kahit papaano ay mailapit sa pinakaangkop na kahulugan ang salita. Ganoon pa man, natuklasan din na ang ganitong gawi ng mga mag-aaral ay hindi gaanong epektibo sapagkat karamihan sa mga salitang nakikita sa internet ay hindi rin kapani-paniwala at hindi sa lahat ng pagkakataon ay tama. Mainam lang din ang estilong ito para sa mga kalahok kung ang pagbasa ay isang gawaing pangklasrum lamang na maaaring magtanong sa guro. Sa mga pagsusulit, pansariling hamon ito sa mga kalahok sapagkat hindi pinahihintulutan ang pagtatanong na sa huli ay nagreresulta ng mababa o maling pag-unawa sa binabasa.

Ayon Kina Guinto at Carada (2023), ang pagpapalawak sa bokabularyo ay mahalaga upang lubos na mapaunlad ang pagkatuto ng mga mag-aaral sapagkat ang kakulangan sa kasanayan sa bokabularyo ay maaaring maging malaking hadlang sa pag-unawa sa pagbasa sa ano mang teksto o akdang pampanitikan. Sa kasalukuyan na mas lalo pang umuunlad ang wika lalo na sa paglawak ng talasalitan ng wikang Filipino dulot ng teknolohiya, mas lalong nagkakaroon ng malawak na balakid para lubos na makamit ang kahusayan ng mga mag-aaral sa paggamit ng Filipino at positibong naisasalin bilang wika ng pagbasa. Kaya naman, mahalagang palawakin din ng mga guro ng Filipino ang paggamit ng iba’t ibang paraan, estratehiya, at mga kagamitan upang maisabay sa mabilis na pag-unlad ng wika ang mga praktikang pedagohikal. Sa ganitong konteksto, napatunayan sa pananaliksik nina Guinto at Carada (2023), na ang paggamit ng mga

video lesson ay isang mainam na paraan para pataasin ang bokabularyo ng mga mag-aaral. Sa ganitong paraan, natutugunan ang salik na natuklasan ng pag-aaral na ito hinggil sa mababang kaalaman sa wika ng mga mag-aaral.

Kawalan ng Interes sa Pagbasa. Ang pagganyak sa pag-aaral ay isang mahalagang salik upang maging matagumpay ang pagkatuto, at sa huli ay makapagprodyus ng mga de-kalidad na gradweyt. Maaari itong makita at magmula mismo sa pansariling interes (intrinsic) o 'di naman kaya ay sa mga panlabas na hikayat (extrinsic) (Pranitasari, 2017). Sa pananaliksik na ito, natuklasan na isa sa mga salik na nakaaapekto sa pag-unawa ng mga mag-aaral ay ang kawalan ng interes sa pagbasa. Nakita mula sa mga salaysay ng mga kalahok na mababa ang kanilang pagganyak sa mga gawaing pagbasa, at hindi gaanong nabibigyan ng panahon ang akademikong gawain na ito. Ayon sa datos ng pag-aaral, ang pagbasa ay isang mabigat na gawain para sa mga mag-aaral. Mabilis na mabagot ang mga kalahok sa pagbasa lalo na sa mga akdang pampanitikan na hindi malinaw at hindi gaanong maunawaan ang mga nilalaman.

Ang pagbasa ay pundasyon ng mas malawak pang pagkatuto. Ang ano mang akademikong pagpaplano ay nagsasangkot ng mga akto ng pagbasa kung kayat marapat lamang na bigyang-pansin ng mga guro ang paglinang sa interes ng mga mag-aaral sa gawaing ito. Sa konteksto ng pag-aaral, ang natuklasan ay makabuluhang naiuugnay sa naging resulta ng pag-aaral nina Parado at Reduban (2020), na nagbigay-diin sa makabuluhang ugnayan ng interes sa pag-unawa sa pagbasa ng mga mag-aaral. Napatunayan sa kanilang pananaliksik na may malaking epekto ang interes sa pagbasa sa mga babasahing Filipino sa pagtataguyod ng mabungang pag-unawa ng mga mag-aaral. Dagdag pa, natuklasan din sa isinagawang pananaliksik nina Estremera, M. at Estremera, G. (2028), ang isa sa mga salik na nakaaapekto sa kasanayan sa pagbasa ng mga mag-aaral. Nakita sa *pupil factors* ang kawalan ng motibasyon ng mga mag-aaral sa pagbasa na nakakuha ng 89.06% na may kabuoang mean 83.75 bilang makabuluhang salik na nakaaapekto sa performans ng mga mag-aaral sa pagbasa. Ang mga nabanggit na datos mula sa mga naunang pananaliksik ay pagpapakita lamang na isang makabuluhang usapin ang paglinang sa interes ng mga mag-aaral sa mga gawaing pagbasa upang maitaas ang kalidad ng pagkatuto ng mga mag-aaral partikular sa pagbasa at pag-unawa.

Mababang Kasanayan sa Pagbasa (Poor fluency skills). Sa pananaliksik na ito, natuklasan na karaniwan sa mga kalahok na nasa *frustration level* ng pagbasa ay nahihirapan sa pinakapayak na proseso ng pagbasa. Nakita ang kahirapan at mababang kasanayan ng mga mag-aaral ang pagkilala sa mga salitang Filipino, pagkilala sa tunog at bigkas, at suliranin sa *fluency*. Sa isinagawang obserbasyon ng mga mananaliksik mula sa pagpapabasa ng isang maikling teksto, nakita na karaniwang suliranin ng mga kalahok ang pagbigkas sa mga mahahabang salita. Nakita rin ang suliranin sa tuloy-tuloy na pagbigkas sa mga ito na nakaaapekto sa estruktural at ponolohikal na katangian ng wika. Ang ganitong suliranin sa pagbasa ay isang seryosong usapin lalo pa't nasa ika-6 na baitang na ang mga kalahok na sanay inaasahang nagtataglay na mga batayang kasanayan (basic skills) sa pagbasa. Ang mga nakitang suliranin sa aspektong ito ay

hindi maikakailang mga makabuluhang salik na malinaw na naglalarawan sa usapin ng mababang komprehensiyon ng mga mag-aaral.

Sa isinagawang pag-aaral nina Roque et al. (2023) hinggil sa pagtaya sa abilidad ng mga mag-aaral sa pagbasa sa *post-pandemic* bilang batayan sa pagbuo ng *remediation program*, natuklasan na marami sa mga mag-aaral sa *post-pandemic* ang may mababang kasanayan sa pagbasa. Nakita na kung ibabatay sa *grade level* ng mga mag-aaral ang abilidad nito sa pagbasa, mababa ang kasanayan ng mga ito. Ang ganitong suliranin ay nakita ng kagawaran bilang resulta ng mabilisang paglilipat ng modalidad ng pagtuturo sa panahon ng pandemya dahil sa pagpapatupad ng *Distance Learning*. Natuklasan sa pananaliksik nina Gueta at Janer (2021), hinggil sa mga hamon sa *distance learning* gamit ang *Self-Learning Modules (SLM)*, na ang paggamit ng SLM sa taong panuruan 2021-2022 ay nakababahala sapagkat ang *literacy rate* ng mga mag-aaral ay mas mababa sa *average*, at naobserbahan na ang mga mag-aaral ay nakararanas ng kahirapan sa pag-unawa sa pagbasa. Ganoon pa man, ang mga resulta ng pagtataya sa kasanayan sa pagbasa ng mga mag-aaral ay bunga ng kolektibong salik at isa lamang ang paggamit ng SLM sa mga ito.

Kakulangan ng Interes at Eksposyur sa wika. Sa kasalukuyang panahon, ang modernisasyon ng wika ay nagdulot ng patuloy na suliranin sa estandardisasyon at intelektuwalisasyon ng wikang Filipino. Ang pag-usbong ng mga makabagong wika na hindi umaaayon sa kumbensiyonal at gramatikal na panuntunan ng wikang Filipino ay naging palasak sa siklo ng komunikasyon lalo na sa kabataan sa kasalukuyang henerasyon. Bagamat isang katotohanan at likas na katangian ng wika ang pagiging dinamiko nito, hindi rin maitatanggi ang pagdeklayn ng kamalayan ng kabataan sa tamang gamit ng wika sa kasalukuyan. Ang suliranin sa mababang literasi ng mga mag-aaral sa Filipino ay nakita mula sa mga isinagawang pag-aaral na nagbigay ng malinaw na lunsaran sa pangangailangan ng pagbibigay-tuon sa nasabing usapin. Sa pag-aaral ni Peñeda (2017), natuklasan na ang suliranin sa mababang kakayahang pangwika ng mga mag-aaral ay karaniwang nakatuon sa kamaliang nauugnay sa morpolohikal, sintaktikal at leksikal na aspekto ng Filipino dahil sa paggamit ng mga makabagong anyo ng wika. Sa kasalukuyan na umiiral ang wika ng kabataan ay mas lalong nakababahala ang suliraning ito. Ayon pa kay Zahid (2023), ang paggamit ng makabagong wika kagaya ng balbal sa kasalukuyan ay nagdudulot ng mababang kasanayan sa mga mag-aaral dahil sa ang karaniwang gamit at anyo nito ay lumilihis sa tamang gramar at bokabularyo. Sa ganitong konteksto, hindi maihihiwalay na ang penomenong ito ay lubos na nakaaapekto sa kasanayan ng mga mag-aaral sa pagbasa.

Sa pag**-**aaral na ito, natuklasan na mababa ang eksposyur ng mga kalahok sa Filipino. Bagay na tinitingnan bilang dagdag na salik sa mababang pagganap sa mga gawaing pagbasa. Ayon sa salaysay ng mga kalahok, ang wikang Filipino ay hindi gaanong nakikitaan ng lawak sa larang ng komersiyo at komunikasyon. Ayon sa mga kalahok, hindi nila gaanong binibigyan ng interes ang Filipino sapagkat halos sa lahat ng pagkakataon ay mas angat ang wikang Ingles. Karamihan sa kanilang mga nakikita mula sa iba't ibang *social media platforms* ay nasa wikang Ingles, ang mga nakapaskil na artikulo, balita, at iba pang pagpapahayag ay karaniwang nakasulat sa Ingles. Paliwanag

pa ng mga kalahok, sa konteksto ng kalakalan at transakiyon, mas gamitin ang wikang Ingles halimbawa sa mga *job interview*s, at iba pa. Sa kanilang mga asignatura sa klasrum, mas marami at mas karaniwan ang paggamit ng Ingles kumpara sa Filipino. Samantala, sa mga ordinaryong pakikipag-ugnayan, hindi rin gaanong binibigyan ng pansin ang mga gramatikal na panuntunan ng wika lalo pa at mas gamitin sa kasalukuyan ang mga makabagong wika ng mga Gen Z kagaya ng pinaiikli, binabaliktad, pinaghahalo, at mga bagong buong mga termino. Paliwanag ni Rulete (2018), ang ganitong sitwasyon sa mababang kaalaman sa Filipino ay mahihinuhang produkto ng pag-usbong ng mga makabagong wika sa kasalukuyan. Ayon sa kaniya, karaniwang nadadala sa mga akademikong gamit ang paraang ito na nagreresulta ng pagkakamali sa gamit ng Filipino bilang akademikong wika. Samakatuwid, ang kawalan ng interes at eksposyur ng mga mag-aaral sa Filipino ay isang makabuluhang salik na nakaaapekto sa pag-unawa sa mga babasahing Filipino.

Kawalan ng Tiyak na Estratehiya sa Pagkatuto. Natuklasan sa isinagawang pakikipanayam sa mga kalahok na isa sa mga nakikitang salik sa mababang pagganap sa mga gawaing pagbasa ay ang kawalan ng tiyak na estratehiya sa pagkatuto. Ang mga kalahok sa ika-6 na baitang na may mababang pag-unawa sa mga babasahing Filipino ay hindi malay sa mga potensiyal na estratehiya at teknik upang mapaunlad ang kasanayan sa pag-unawa sa pagbasa. Ayon sa paglalahad ng mga kalahok, umaasa lamang sila sa mga gawaing ibinibigay ng kanilang guro. Sa paraang ito, na panlahat ang lapit na ginagamit ng guro ay hindi nakikita ng mga kalahok ang mga tiyak na kahinaan at kalakasan upang bigyan ng solusyon ang kanilang mababang pagganap sa mga gawaing pagbasa. Sa paglalarawan, ang guro ay nagbibigay lamang ng mga babasahing materyal halimbawa maikling kuwento na babasahin sa isang tiyak at limitadong oras. Pagkatapos nito, ay magkakaroon ng pagtalakay sa mga gabay na tanong mula sa sangguniang aklat na sasagutin. Karaniwan din ang pagbibigay ng pagsusulit. Sa ganitong mga gawain, kung ano lamang ang naunawaan ng mga kalahok ay iyon lamang ang kanilang naibabahagi at naisasagot. Samakatuwid, ang mga tiyak na pangangailangan ay hindi gaanong natutugunan. Dagdag pa, ang mga angkop na estratehiya at paraan ayon sa kalakasan ng mga mag-aaral ay hindi nakikita at hindi naisasagawa.

Miuugnay ang resulta ng pag-aaral na ito sa natuklasan sa pananaliksik nina Estremera at Estremera (2018) na ang kawalan ng epektibong estratehiya sa pagkatuto ay isang makabuluhang salik na nakaaapekto sa kasanayan sa pagbasa ng mga mag-aaral. Sa katunayan, sa kanilang isinagawang pananaliksik, ang salik hinggil *poor study habit* ng mga mag-aaral ay nakakuha ng 100% na nagpakita bilang pinakamataas na salik sa mababang pag-unawa ng mga mag-aaral sa pagbasa. Ang mga datos na ito ng pag-aaral ay kinompirma mula sa isinagawang pananaliksik nina Sulaiman at Harpiansi (2022), na naghinuha na may makabuluhang ugnayan ang estratehiya sa pagkatuto sa pag-unlad ng kasanayan sa pagbasa ng isang mag-aaral. Kaya naman, isang pangangailangan na bigyang-diin ng mga guro ang paghikayat sa mga mag-aaral na tuklasin ang mga kakayahang pang-akademiko upang malinang ang mga kasanayan sa pagbasa.

Madalas na Pagliban sa Klase (Absenteeism). Ang pagdalo sa mga pisikal na pagkaklase ay isang mahalagang salik upang matiyak ang tagumpay ng isang mag-aaral sa isang tiyak na larang at lawak ng pagkatuto. Ang kaniyang presensiya sa loob ng klasrum ay isang pangangailangan upang makasabay sa mga gawaing itinatakda, at lubos na maunawaan ang mga lekturang ibinibigay ng guro. Subalit sa konteksto ng pag-aaral, nakita na karaniwan sa mga kalahok na nasa antas ng *frustration* ang kasanayan sa pag-unawa ay madalas na liban o wala sa klase. Natuklasan sa pananaliksik na ang mga kalahok ng pag-aaral ay iyong mga madalas na liban sa klase. Kaugnay nito, hindi lamang sa pagbasa kompromiso ang performans ng mga kalahok kung hindi maging iba pang aspekto ng pagkatuto at asignatura.

Ang ganitong usapin hinggil sa paksa ng pananaliksik ay nakitang resulta ng sosyo-ekomikong estado ng mga mag-aaral. Pinatunayan sa pag-aaral nina Roque et al. (2023), na may makabuluhang kaugnayan ang sosyo-demograpikong profayl ng mga mag-aaral kasama na ang sosyo-ekonomikong estado sa kanilang performans sa paaralan partikular sa pagbasa. Dagdag pa, kinompirma sa pananaliksik nina Tomas et al. (2021), na ang madalas na pagliban sa klase ng mga mag-aaral ay maiuugnay sa mababang katayuang sosyo-ekonomik ng mga magulang ng mga mag-aaral. Paliwanag nila, minsan ang mga mag-aaral ay tumutulong sa bahay sa pagpapatakbo ng mga gawain at pag-aalaga sa kanilang mga nakababatang kapatid. Subalit higit lalo, karaniwang pinipili ng ilang mag-aaral na lumiban sa mga klase dahil sa kanilang kawalan ng kakayahan sa pagbasa. Ang mababang kasanayan ay nagdudulot sa kanila ng pagkawala ng kumpiyansa sa sarili. Ipinaliwanag sa papel nina Guimba at Alico (2015), na ang mababang antas ng pag-unawa ng mga mag-aaral sa pagbasa ay makabuluhang nauugnay sa pandamdaming salik ng pagkabalisa (anxiety) ng mga mag-aaral. Kaya naman, mas pinipili na lamang nila ang lumiban sa klase na sa dulo ay nagreresulta ng seryosong akademikong suliranin lalo na sa literasi sa pagbasa.

Sa kabuoan, nakita bilang mga panloob na salik na nakaaapekto sa pag-unawa ng mga mag-aaral sa pagbasa ng Filipino ang mababang kaalaman sa wika, kawalan ng interes sa pagbasa, mababang kasanayan sa pagbasa (poor fluency skills), kakulangan ng interes at eksposyur sa wika, kawalan ng tiyak na estratehiya sa pagkatuto, at ang madalas na pagliban sa klase (absenteeism). Kaya naman, ang mga natukoy na salik ay kailangang bigyang-pansin upang matugunan ang pangangailangan sa pgapapataas ng literasi sa pagbasa. Dapat na bigyang-diin ang mga ito upang magkaroon ng mabungang pagganap ang mga mag-aaral at higit sa lahat ay mabigyan ng angkop na interbensiyon ang nasabing suliranin.

2.2. Mga Panlabas na Salik (External Factor)

Sa bahaging ito, natukoy ng mga mananaliksik ang mga potensiyal na panlabas na salik (external factor) na nakaaapekto sa pag-unawa sa pagbasa ng mga mag-aaral sa mga babasahing Filipino. Ang panlabas na salik ay tumutukoy sa mga aspektong wala o labas sa kontrol ng mga mag-aaral na maaaring makabuluhang kontribyutor na nagdudulot ng mababang pagganap sa mga gawaing pagbasa. Sa konteksto ng pananaliksik, nakita ang sumusunod na salik:

Kawalan ng Gabay mula sa Guro at Magulang. Lumabas mula sa pakikipanayam sa mga kalahok ang kakulangan ng suporta mula sa mga guro at magulang kaugnay sa pagtamo ng mga kasanayan sa pagbasa ng mga mag-aaral. Natuklasan na sa aspekto ng guro ay hindi gaanong nabibigyan ng sapat na oras ang paglinang sa mga gawaing pagbasa, at walang angkop na interbensiyon mula sa mga ito upang mailundo ang pagkamit sa mga inaasahang kompetensi sa pagbasa. Dagdag pa, nakita rin sa datos at pagsusuri sa mga nakalap na tugon mula sa mga kalahok na walang aktibong paglahok ang kanilang mga magulang sa mga gawaing pagbasa. Walang ibinibigay na mga suportang edukasyonal labas sa klasrum ang mga magulang sa kanilang mga anak. Walang mga itinatakdang oras ang kanilang mga magulang na gugugol sa mga gawaing pagbasa at walang interbensiyong inihahatid ang mga ito sa kabila ng kasalukuyang kalagayan ng mga mag-aaral sa kasanayan sa pagbasa.

Ang paglinang sa mga kasanayan sa pagbasa ay isang mahalagang pangangailangan lalo na sa kasalukuyan dahil ito ang simula ng kanilang pagtamo ng kamalayan hinggil sa lipunang kinabibilangan. Ayon pa nga kina Erkek (2022) at Krawits et al. (2022), ang pagbasa ay gumaganap ng mahalagang papel upang gabayan at tulungan ang isang indibiduwal na tingnan ang realidad ng mundo sapagakat ang pagmomodelo sa kalagayan at suliraning nararanasan sa loob o labas ng paaralan ay itinatanghal sa pamamagitan ng mga simbolong pangwika. Ang pag-unawa sa pagbasa ay nagbibigay-daan sa mambabasa na magkaroon ng bukas na pagtingin sa mga katotohanang umiiral dahil ito ang naglulundo sa paghubog ng mga kahulugan gamit ang wika. Samakatuwid, hindi maitatanggi na malaki ang responsibilidad ng kapaligirang sosyal ng mga mag-aaral upang tulungan silang matamo ang mga pangunahing kasanayan sa pagbasa.

Kakulangan ng mga Materyal sa Pagbasa. Sa konteksto ng sistemang pang-edukasyon sa Pilipinas, hindi maikakaila ang kakulangan ng mga kagamitang edukasyonal na magagamit sa pagkatuto ng mga mag-aaral. Sa Datos ng Department of Education (2019), nakita na ang ideyal at inaasahang 1:1 na *ratio* ng mga kagamitang pampagkatuto kagaya ng mga aklat-aralin ay hindi naipatutupad sa maraming pampublikong paaralan sa bansa. Isa sa mga nakitang dahilan nito ay ang kakulangan ng mapagkukunan at ang patuloy na paglobo ng populasyon sa mga paaralan. Sa konteksto ng asignaturang Filipino, nakita mula sa isinagawang ebalwasyon ng mga Education Program Supervisors (EPS) at Public Schools District Supervisors (PSDS) ng Dibisyon ng Leyte ang kakulangan at pangangailangan sa enhansment ng mga materyales lalong-lalo na sa sabjek na Filipino (DepEd, 2021).

Sa pag**-**aaral na ito, natuklasan mula sa pagsusuri sa mga salik na nakaaapekto sa kasanayan sa pagbasa ng mga mag-aaral ang suliraning binanggit partikular sa kawalan at kakulangan ng mga babasahing materyal sa Filipino. Sa paglalarawan ng mga kalahok, hindi sumasapat ang mga aklat na ibinibigay ng mga guro na pinagsasaluhan ng dalawa o higit pang mag-aaral. Ang kawalan ng mga babasahing madaling maakses ng mga mag-aaral sa klasrum ay wala o hindi rin sapat, walang mga babasahing materyal na umaaayon sa kanilang hilig at panlasa, at walang pagdaragdag o pagpapaunlad sa mga ito.

Nilalaman ng mga Babasahing Materyal. Natuklasan na isa sa mga salik na nakaaapekto sa performans ng mga mag-aaral sa pagbasa ang uri ng nilalaman mula sa mga binabasang materyal. Ang pagkawala ng kanilang interes at motibasyon ay dulot ng mga kagamitang hindi umaangkop sa kanilang panlasa at interes na humahantong sa hindi gaanong paglahok sa mga gawaing pagbasa sa klase. Paliwanag ng mga kalahok, isang malaking tulong para sa kanila kung bibigyan sila ng mga kagamitang umaayon sa kanilang interes upang sa unti-unti ay mas maging aktibo sila sa pagsangkot sa mga gawaing pagbasa.

Ang salik na natukoy sa pag-aaral na ito ay umaayon sa naging resulta ng pag-aaral nina Abeberese et al. (2014), na nagbigay-diin na ang pagpapatupad ng mga programa sa pagbasa, halimbawa ang pagbibigay ng mga materyal na angkop sa gulang at interes ng mag-aaral ay isang mainam na paraan. Sinasanay nito ang mga guro sa pagbuo at paggamit, at sumusuporta sa mga inisyal na pagkilos upang pataasin ang literasi ng mga mag-aaral sa pagbasa. Sa kanilang pananaliksik, nakita na ang pagpapatupad ng mga programang naaayon sa pangangailangan ng mga mag-aaral ay nakapagpakita ng makabuluhang pagtaas sa performans ng mga mag-aaral sa pagbasa. Sumang-ayon din sa ganitong konsepto ang naging resulta ng pananaliksik nina Guimba at Alico (2015), na isang mahalagang pagsasaalang-alang sa pagtuturo sa pagbasa ang pagbibigay-diin sa uri ng materyal na gagamitin at ang pagbibigay ng mga gawaing nagtataguyod ng pagpapataas sa interes at motibasyon ng mga mag-aaral.

Batay sa mga datos na ito, kapansin-pansin ang potensiyal na solusyon na maaaring lumutas sa matagal na at mas lalo pang lumalalang suliranin sa mababang literasi sa pagbasa. Kung bibigyang-pansin lamang ang mga angkop na pagpaplano at pagpapasya sa pagpapatupad ng mga programa sa pagbabasa ay natitiyak ang pag-akyat ng istadistika sa kasanayan sa pagbasa sa bansa.

Kawalan ng Oras sa Pagbasa sa Bahay. Natuklasan sa pag-aaral na walang itinatalagang oras ang mga kalahok para sa pagbabasa ng mga materyal na may layuning akademiko pagkatapos ng pagkaklase at kapag sila ay nasa kaniya-kaniyang tahanan na. Ayon sa salaysay ng mga kalahok, hindi nagiging regular na bahagi ng kanilang mga gawain ang magbasa ng iba’t ibang materyal maliban na lamang kung ito ay isang takdang-aralin. Marami ring pagkakataon na kahit na ang mga takdang-aralin ay hindi na napag-aaralan sa tahanan dahil sa pagkaubos ng oras sa pagbababad sa kanilang mga *gadgets* at walang humpay na pagsangkot sa birtuwal na espasyo. Dagdag na dahilan din ng mga kalahok ang mga inaatas na gawaing bahay ng mga magulang kung kayat ang panahon na dapat ay sa pagbabasa ay hindi na nagagawa.

Paliwanag nina Tomas et al. (2021), ang mababang kasanayan sa pagbasa ng mga mag-aaral ay nauugat sa kawalan ng kultura sa pagbabasa na tinitingnan bilang produkto ng kawalan ng pagkakataon para sa *independent reading*, kakulangan ng mga materyales sa pagbabasa, hindi pagbibigay ng sapat na patnubay sa mga mag-aaral, kawalan ng pakikipagtulungan ng mga magulang, guro at mga mag-aaral sa mga gawaing pagbasa, hindi tamang pagpapatupad ng mga programa sa pagbasa, at

kawalan ng sapat na pagsubaybay sa pag-unlad ng mag-aaral sa panahon ng interbensyon. Samakatuwid, ang mga kolektibong dahilan na naglundo sa natukoy na salik ay isang suliranin kayang matugunan kung maisasaalang-alang lamang ang mga ito. Mahalagang maisanib sa sitema at kultura ng mga mag-aaral ang pagbabasa upang sa kanilang mga personal na pagpapasya ay makapaglaan ng oras at prayoridad sa mga gawaing pagbasa.

Conclusions (Kongklusyon)

Batay sa mga nalikom na datos ng pag-aaral ay nabuo ang sumusunod na konklusyon na sumasagot sa mga naging pangunahing layunin ng pananaliksik: (1) Ang antas ng pag-unawa sa pagbasa ng mga mag-aaral sa ika-6 na baitang ay nasa *frustration level* na may katumbas na 49.80 na *mean*. 87 (46%) sa mga respondente ang nasa *frustration level*, 86 (45%) ang nasa *instructional level* habang 17 (9%) lamang ang nasa *independent level*; at (2) Parehong mayroong panloob (internal) at panlabas (external) na mga salik na nakaaapekto sa mababang kasanayan sa pag-unawa sa pagbabasa ng mga mag-aaral. Natuklasan sa pag-aaral na ang mga panloob na salik ay ang mababang kaalaman sa wika, kawalan ng interes sa pagbasa, mababang kasanayan sa pagbasa (poor fluency skills), kakulangan ng interes at eksposyur sa wika, kawalan ng tiyak na estratehiya sa pagkatuto, at ang madalas na pagliban sa klase (absenteeism). Samantala, ang mga panlabas na salik naman ay ang kawalan ng gabay mula sa mga guro at magulang, kakulangan ng mga materyal sa pagbasa, hindi angkop na mga nilalaman sa mga babasahing materyal, at ang kawalan ng oras sa pagbabasa sa bahay.

Recommendations (Rekomendasyon)

Mula sa mga natuklasan at nabuong kongklusyon ng pag-aaral, mariing iminumungkahi ng mananaliksik ang pagsagawa ng sistematikong pagsusuri sa kasanayan ng mga mag-aaral sa pag-unawa at pagbasa. Magpatupad ng mga interbensiyon sa pagbasa ayon sa pangangailangan ng mga mag-aaral kagaya ng mga *remediation* at *enrichment reading programs*. Ganoon din, tiyakin na mayroong maayos at sistematikong paraan ng pagsubaybay sa implementasyon at nagiging pag-unlad ng mga mag-aaral. Ganoon din, mainam na isanib at isaalang-alang sa instruksiyonal na pagpaplano ang mga salik na nakaaapekto sa antas ng pag-unawa ng mga mag-aaral sa pagbasa. Gumamit ng mga estratehiya at kagamitan na maghihikayat ng aktibong pagsangkot sa mga gawaing pagbasa, at magkaroon ng mga gawaing magsasangkot sa mga mag-aaral sa mas mabungang pag-unawa. Sa mga kagamitan, mainam na maisasaalang-alang ang interes at panlasa ng mga mag-aaral sa mga genreng binabasa. Ganoon din, mainam na maisangkot sa proseso ng paglinang sa kasanayan ng mga mag-aaral sa pag-unawa ang kapaligirang sosyal kagaya ng kanilang mga magulang.

Compliance with Ethical Standards

Ang etikal na konsiderasyon ay tumutukoy sa koleksiyon ng mga prinsipyo at pagpapahalaga na dapat sundin habang ginagawa ang pananaliksik. Ang mga pagsasaalang-alang sa etika ay nagtiyak na walang sino man ang kumilos sa paraang

nakakasama sa lipunan o isang indibiduwal (Bhasin, 2020). Sa ganitong paraan nililimitahan ang pagkilos ng mananaliksik na walang isinasaalang-alang na mga hangganan. Sa pag-aaral na ito, tiniyak ng mananaliksik ang etikal na pamantayan sa pagsasagawa ng pananaliksik lalo pa't tao ang mga kasangkot ng kasalakuyang pag-aaral. Tiniyak ng mananaliksik na ang ano mang pagkilos at proseso ay dumaan sa pagkuha ng permiso at konsent, ang paglahok sa pag-aaral ay boluntaryo at hindi sapilitan, pribado at kumpidensiyal ang pagkakakilanlan at ang mga personal na impormasyon ng lahat ng kasangkot sa pag-aaral bilang mahigpit na pagtalima sa RA 10173 o ang *Data Privacy Act* of 2012. Dagdag pa, malaya at ligtas ang espasyo ng kabuoang proseso ng pangangalap ng datos para sa mga respondente at kalahok. Sa usapin ng katapatan sa pagsusuri ng mga malilikom na datos, pinairal ng mananaliksik ang obhektibong pagtingin at paglalarawan, at tiniyak na hindi maimpluwensiyahan ng mga personal at kiling na pagtingin ang tritment sa mga makuhang datos ng pag-aaral.

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EMPLOYEE ENGAGEMENT TOWARDS ORGANIZATIONAL PERFORMANCE OF COMPANY M

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ABSTRACT

The level of employee engagement in work is an essential predictor of work performance. Sustaining it to a greater extent would help Company M to improve its organizational performance. This study determined 1) the level of organizational performance in terms of financial and non-financial dimensions; 2) the level of employee engagement according to leadership, communication, career opportunities, nature of job and compensation and benefits of Company M's business support functions; 3) the model that significantly impacted the organizational performance of Company M; and 4) the strategies formulated and to be implemented by Company M to increase employee engagement towards organizational performance. A mixed methods approach applying the sequential explanatory research design was used to support the objectives of the study. The data were gathered in quantitative and qualitative phases with 150 respondents and three participants from each employee level. The quantitative data were analyzed through frequencies, percentages, means, and stepwise regression while qualitative data were presented through summaries of thematic constructs and analysis. The findings of the study revealed that Company M's level of organizational performance in terms of overall financial and non-financial dimensions exhibited "neither good nor poor relative performance" and "good relative performance", respectively. Its level of employee engagement indicated that "employees were engaged" by almost all the engagement drivers except for compensation and benefits where "employees were neither engaged nor disengaged". Most of the models formulated revealed that "leadership" was the most significant and strongest predictor while "nature of job" was the least significant predictor. Few significant employee engagement variables affected organizational performance variables inversely due to certain factors as validated through the qualitative interviews. The researcher recommended that the formulated strategies be adopted by Company M;

a similar study be conducted by other companies to cover all employees and other employee engagement variables for more extensive findings.

Keywords: *Career Opportunities, Communication, Compensation and Benefits, Employee Engagement, Engagement Drivers, Leadership, Nature of Job, Organizational Performance*

INTRODUCTION

The local and global economies are becoming very dynamic. Industries worldwide are becoming more competitive to adapt to the fast-developing changes brought about by technology and several other factors. To cope with these inevitable changes, organizations must develop strategic plans to survive and remain in the loop of conducting their businesses. It is for this reason that organizations need people who are committed to the challenges of making things happen by making the right decisions at the right time. Employees who are engaged produce results more and fulfill customer's requirements better. Keeping them engaged in their jobs is an unceasing challenge. Company M has a workforce of more than 900 employees who contributed to the success of its business despite the pandemic. Investing on their engagement will drive the business back to its normal pace. Through the measurement and identification of the engagement drivers, the company can determine the extent of its impact and can install strategies to increase employee engagement and organizational performance.

Research Objectives

This study provided a clear insight into the impact of employee engagement on the organizational performance of Company M. The following were the specific objectives for the analysis in this study:

1. To measure the level of organizational performance of Company M in terms of: a) Financial dimensions and b) Non-Financial dimensions;
2. To determine the level of employee engagement of Company M according to the following drivers: a) Leadership, b) Communication, c) Career Opportunities, d) Nature of Job and e) Compensation and Benefits.
3. To formulate a model containing engagement drivers that significantly impact the organizational performance of Company M; and
4. To create strategies to be implemented by Company M to increase employee engagement towards organizational performance.

Research Framework

The theoretical framework that the researcher used as basis for the study was the Social Exchange Theory (SET) which originated from an American sociologist, George Homans, in 1958 when he published an article named "Social Behavior as Exchange"

(Tulane University, 2018). The SET theoretical basis substantiates the reasons why employees choose to engage in their work, either in a good or bad way, depending on the economic and socio-emotional resources gained from their institution, or even choose to remain in their institution (Dajani, 2015).

The study was guided by the flowchart shown in Figure 1 illustrating the measurement and analysis of the organizational performance and employee engagement of Company M. Then, a model was developed to depict the significant engagement drivers affecting the organizational performance of Company M and was used as basis to formulate specific strategies for enhancing employee engagement and organizational performance.

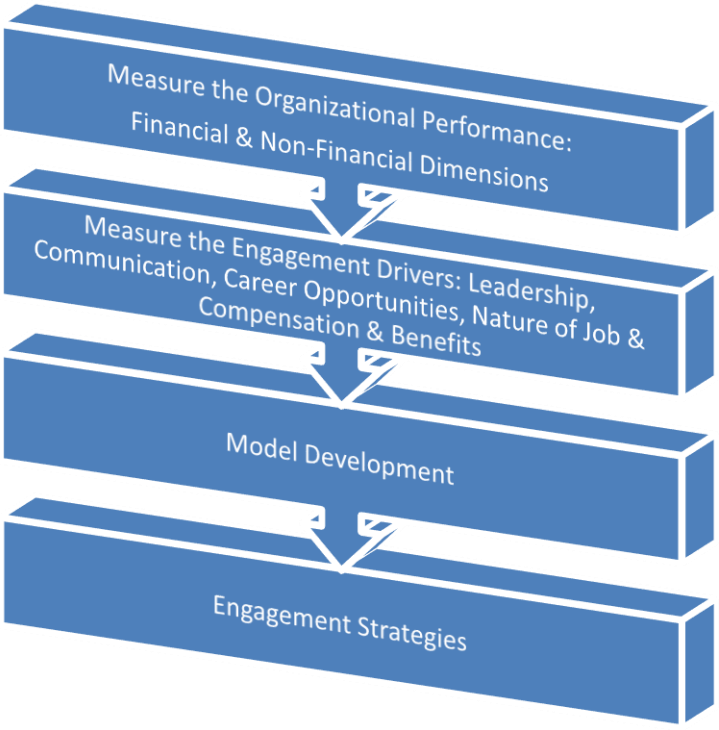


Figure 1. Conceptual framework of the study

Significance of the Study

Theory. This research tested the applicability of the Social Exchange Theory (SET) which explains why employees opt to remain in their work, according to the economic and socio-emotional benefits derived from the organization (Dajani, 2015). This study will guide other manufacturing industries in assessing their organizational performance and engagement.

Policy. This research will be useful to the management of Company M in creating and implementing policies and strategies that will increase organizational performance by identifying and improving the extent of employee engagement.

Practice. The knowledge that will be obtained from this research may help 1) the officers of Company M and other business leaders in evaluating the level of employee engagement in improving business' performance; 2) the employees in achieving job satisfaction and engagement and producing quality work; and 3) the researcher in applying the knowledge and skills in enhancing employee engagement towards organizational performance.

Social Action. This research may contribute to society by assisting business leaders and employees in other industries to set and sustain suitable policies and programs so that organizational performance will be achieved through employee engagement.

Scope and Limitations

The study was only limited to the perceptions of employees under business support functions of Company M at the time the survey was done as well as in the determination of the significant engagement contributors to organizational performance of Company M and establishment of strategies to enhance engagement.

Definition of Terms

Career opportunities. The professional development of employees.
Communication. The act of transferring information from one place, person or group to another. It involves one sender, a message and a recipient.
Compensation. The salaries received by the employee from an employer.
Employee or personal engagement. This refers to "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (Diogene, 2017).
Engagement drivers. The deep-down feelings and emotions that employees have about their position, management and organization which translates to employee needs, well-being and increased levels of energy, passion and action.
Leadership. The leaders or actions of leading in an organization.
Nature of job. The type of work that an employee does.
Organizational performance. The ability of organizations to meet the needs of stakeholders and its own needs for survival (Obeidat, 2016).

Review of Related Literature

Previous research on the topics of employee engagement, its drivers and organizational performance were objectively evaluated to give theoretical basis and to help the researcher determine the type of research to be adopted. The concept of employee engagement was developed by William A. Kahn in 1990 through his study involving summer camp and architecture employees to understand the psychological conditions- meaningfulness, safety and availability that lead to employee's engagement in the workplace (Diogene, 2017). In today's business world, it is vital to understand the specific drivers of employee engagement. Employee engagement was proven to contribute to the businesses' productivity and work performance. The most dominant

factor of employee engagement was leadership aside from work-life balance, communication, and pay and benefits (Othman, Rapi, Alias, Jahya, and Loon, 2019). Viloria (2018) revealed in his study that the significance of the job as perceived by the employee was the only internal engagement driver. Hoque, Awang, Siddiqui and Sabiu (2018) investigated the positive impact of compensation system on employee performance resulting to employee engagement. The study of Iddagoda and Gunawardana (2017) investigated the connection between employee engagement and perceived financial performance (i.e. profit growth, sales growth, and operating cost) of listed companies where the results showed that employee engagement had significant positive effect on perceived financial performance. A related study by Muller et al. (2018) concluded that employee engagement had a significantly positive impact on organizational performance when the latter was measured using the elements of balanced scorecard.

METHODOLOGY

Research Design

A mixed methods approach applying the sequential explanatory research design were used to support the set objectives of this study.

Research Locale

The study was performed in Company M, a Japanese manufacturing company engaged in the assembly and distribution of quality trucks, buses, and spare parts.

Population and Sampling Design

The identified population frame of the study was the list of Company M employees under the business support functions as of September 31, 2020 employing the Proportionate Stratified Sampling method with employee category as stratification variable. The sample was determined through the formula of the Philippine Social Science Council Survey.

Research Instrument

The researcher used a survey questionnaire of 35 items employing a 5-point Likert scale through Google forms. The said instrument was a combination of self-constructed statements from the literature review and valid items adapted from previous studies.

Data Gathering Procedure

The researcher secured permission from Company M to perform the research. Quantitative data were initially collected through the online questionnaire which was validated and tested using Cronbach's coefficient alpha before tabulation and analysis.

The qualitative phase consisted of interviews with three selected participants. The integrated quantitative and qualitative results answered the set objectives of the study.

Management and Treatment of Data

The data analysis developed for this research were as follows:

Table 1. Data Analysis Matrix

RESEARCH QUESTIONS	DATA	INSTRUMENT	ANALYSIS
1. What is the level of organizational performance of Company M in terms of: a) Financial and b) Non-Financial dimensions?	Quantitative → Qualitative	Survey → Questionnaire Interview	Descriptive Thematic Analysis
2. What is the level of employee engagement of Company M according to the following drivers? a) Leadership, b) Communication, c) Career Opportunities, d) Nature of Job, e) Compensation and Benefits	Quantitative → Qualitative	Survey → Questionnaire Interview	Descriptive Thematic Analysis
3. What model can be formulated containing engagement drivers that significantly impact the organizational performance of Company M?	Quantitative → Qualitative	Survey → Questionnaire Interview	Stepwise multiple regression Thematic Analysis
4. What are the strategies to be formulated and implemented by Company M to increase employee engagement towards organizational performance?	Results of the Study	Survey → Questionnaire Interview, Desk Research	Textual Analysis

RESULTS AND DISCUSSION

The quantitative and qualitative results are presented based on the data analysis discussed in the preceding section. The questionnaire's validity was checked while its reliability was measured using the Cronbach's coefficient alpha test of internal consistency where results showed that all Cronbach's alpha figures calculated were above the threshold- Organizational Performance: Financial Dimension (0.7734) and Non-Financial Dimension (0.8944); Employee Engagement: Leadership (0.8375), Communication (0.8679), Career Opportunities (0.9468), Nature of Job (0.7759), and Compensation and Benefits (0.9535).

I. Level of Organizational Performance

In Table 2, the resulting level of financial organizational performance (with total mean of 3.39) as perceived by the respondents was "neither good nor poor relative performance" which proved that on the average, high profit, positive sales growth and low operating cost of Company M cannot be assured at this time which might be due to the unfavorable financial situation caused by the instability of the economy in the pandemic. Emplify (2019) cited research conducted by Willis Towers Watson which reported that organizations with high employee engagement had up to three times higher operating margin than those with low employee engagement. This result will lead one to infer that Company M might have lower employee engagement because of the respondent's neutral perceptions on its organizational performance. The results also showed that the total mean of 3.65 for the total non-financial dimension translated that the company had a "Good relative performance" which also conformed to the highest percentage of

responses. These results substantiated the study of Muller et. al (2018) that employee engagement had significant influence on the organizational performance. Thus, it can be inferred that the employee engagement of Company M contributed to the good relative performance.

Table 2. Mean ratings and percentage of responses per rating on the level of organizational performance of Company M

DESCRIPTION	MEAN	VERBAL INTERPRETATION	PERCENTAGE OF RESPONSES PER RATING				
			1 - SD	2 - D	3 - N	4 - A	5 - SA
Total Financial Dimension	3.39	Neither good nor poor relative performance	1.57%	9.10%	44.00%	39.07%	6.27%
Total Non-Financial Dimension	3.65	Good relative performance	1.13%	6.00%	28.43%	55.30%	9.13%

Based on the interview with the participants, common themes that emerged for the financial and non-financial organizational performance are illustrated in Table 3.

Table 3. Thematic Analysis and Narratives for Research Question 1

DIMEN-SION	THEMES	NARRATIVES
Financial	Achieving Profit	*I believe that due to the pandemic we have, the sales went low but still we are striving because unlike any other companies, we are still open and operating. There is work meaning there are orders. Profit is not that high.*
	Outcomes of sales	*The sales team is made aware of the company direction and projection. Employee can align the strategy towards the direction/projection.*
	Effect of operating cost	*Instead of buying machinery our company is continuing to provide jobs to skilled workers especially on the production line. With that said, there is an operating cost that may be higher than other companies that rely on machineries.*
Non-Financial	Managing Customers	*This company is in its current state because its customers are treated like kings by having total customer support.*
	Managing Internal Processes	*The employee's productivity and product/service quality are ensured by monitoring performance of employees and compliance with ISO standards.*
	Continuous Quality Improvement	*We do not end with just selling our products, we offer after-sales services to our client to provide them quality services even after buying our products.*

II. Level of Employee Engagement

In Table 4, the mean ratings of the four engagement drivers indicated that "employees were engaged" and these results were aligned with the highest percentage of responses. These findings were consistent with the studies of Dajani (2015), Obeidat

(2016) and Viloria (2018) that revealed the leadership's predictive power of employee engagement, the reciprocal interconnection between management and employees and the need to stimulate jobs to support engagement, and that career growth opportunities were vital drivers of productivity and retention. Moreover, the "employees were neither engaged nor disengaged" by compensation and benefits since their perceptions were neutral on three out of its five indicators. With this result, one thing was definite that it is not enough to engage the employees. Company M can be guided by the study of Hoque et. al (2018) that indicated that compensation systems can alleviate employee's work performance towards engagement.

Table 4. Means and percentage responses on the level of employee engagement

DESCRIPTION	MEAN	VERBAL INTERPRETATION	PERCENTAGE OF RESPONSES PER RATING				
			1 – SD	2 – D	3 – N	4 – A	5-SA
Total Leadership	3.61	Employees were engaged.	2.00%	8.68%	29.18%	46.94%	13.20%
Total Communication	3.70	Employees were engaged.	1.33%	7.20%	28.33%	46.48%	16.68%
Total Career Opportunities	3.62	Employees were engaged.	3.00%	7.15%	30.00%	42.33%	17.53%
Total Nature of Job	3.91	Employees were engaged.	2.50%	2.35%	23.00%	47.65%	24.50%
Total Compensation and Benefits	3.39	Employees were neither engaged nor disengaged.	3.68%	9.68%	36.00%	39.15%	11.50%

The results of the interview with the participants led to emerging themes that showed why and how Company M ensured employee engagement in terms of the five engagement drivers. Table 5 shows the narratives for the themes derived.

Table 5. Thematic analysis and narratives for research question 2

THEMES	NARRATIVES
Leadership Outcomes	*To maintain employee engagement, the company must stay as a going concern company through succession planning, and training.*
Advantages of Communication	*This company maintains communication within the department and company-wide. This is done through information dissemination in the form of email/text blasts, campaign drives and online meetings.*
Motivating career advancement programs	*Career Opportunities provide challenges, and these vary in every line of work. Not all nature of work in our company has a high career ladder. Having programs for skills development encourage employees to advance their skills.*
Engaging Manner of Job Assignment	*For better performance of employees, employee's job should be clear through the orientation upon employment and regular feedback and suggestion from superiors.*
Advantages of Compensation and Benefits	*This serves as one of the motivating factors that keep me engaged in my work in exchange for my services in the company through the company's on-time and accurate delivery of fair pay and benefits to employees.*

III. Model formulated containing engagement drivers that significantly impact the organizational performance of Company M per combination of variables

The researcher analyzed the data gathered through the Stepwise Regression Method in SPSS which generated the list of key employee engagement predictors of the organizational performance of Company M. The regression determined the characteristics that had the greatest influence on the organizational performance. A final model is identified per scenario or combination of employee engagement and organizational performance variables (i.e. 18 combinations) to come up with detailed analysis and recommended strategies.

Figure 2 shows the resulting significant predictors where leadership consistently showed its strongest impact to total organizational performance, total financial (positive sales growth and lower operating cost) and non-financial dimensions (customer, internal process, learning and innovations performance). However, negative b-coefficient results for career opportunities, compensation and benefits, communication and nature of job variables caused decreasing impact to organizational performance variables. This information provided the researcher to devise strategies to help in turning the negative to positive impact of these engagement predictors to the identified organizational performance variables.

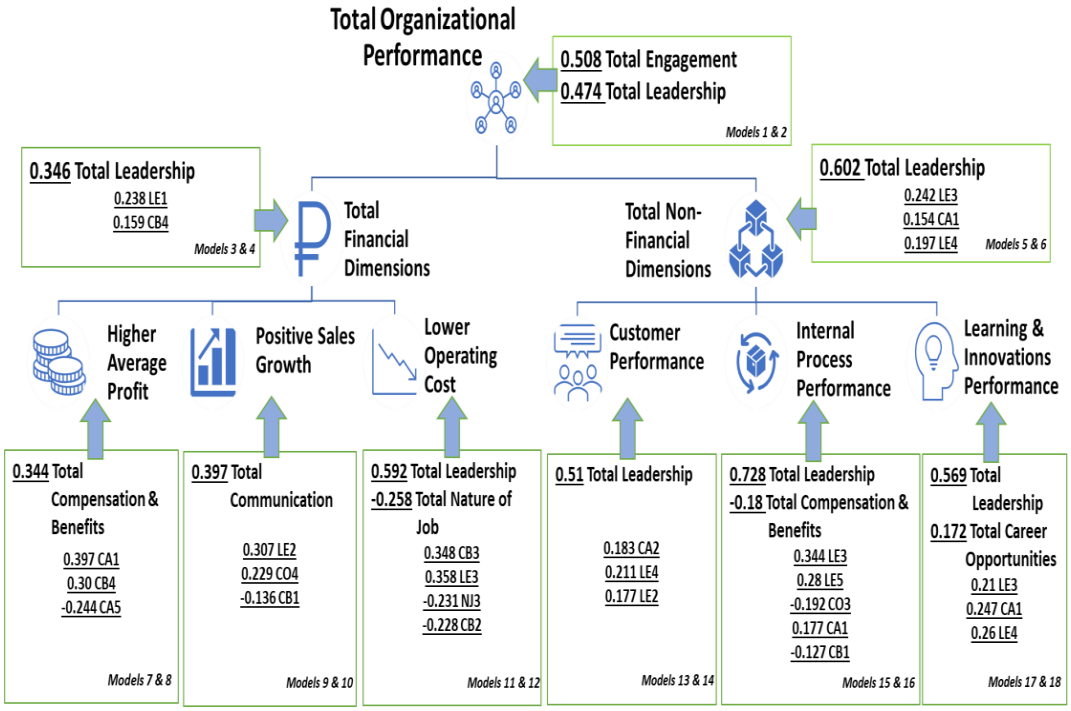


Figure 2. Significant predictors of organizational performance of Company M with unstandardized b coefficients

Common themes per model were derived through interviews as shown in Table 6.

Table 6. Thematic analysis and narratives for research question 3 (Models 1-18)

MODELS	THEMES	NARRATIVES
1	Engaging factors of total organizational performance	The company has existing programs that address the different employee engagement factors (example: training, compensation and benefits, company, kaizen activities) to improve overall organizational performance. These are done through the unified efforts of management and employees.
2	Positive Drivers of Overall Leadership	Leadership style affects company performance through the treatment of employees as partners. Harmonious relationship with employees may lead to company's success.
3 & 4	Drivers of Total Leadership	Many managers are involved in the decision making especially before funding or planning an activity or project, leading to many ideas before execution of plans. Routine meetings and conference to better understand the problem before releasing funds or jumping into the plan.
	Leader's capability	The leaders of Company M are capable to lead and contribute to the financial organizational performance through their skills, work experience and good working relationship with stakeholders.
	Outcome of Understanding Compensation and Benefits	Knowing the benefits offered by the company will help employees be motivated by explaining compensation and benefits upon appraisal.
5 & 6	Drivers of Total Leadership	Managers evaluate the needs of employees and provide benefits in accordance with the law through orientation and open communication at all levels.
	Effect of leader's communication	Communication of vision is the starting point of acting on achieving the company's targets by clear directions of leaders and cooperation among the employees.
	Leader's communication Venues	Employees need to know the status or issues of the company that may affect them by having general assemblies and information sharing.
	Professional advancement	I am interested to further widen my set skills by learning new things.
7 & 8	Contribution of fair pay to profit	The compensation and benefits of the employee make him satisfied and contribute to high profits. The employee works efficiently and effectively to maximize the resources of the company.
	Reasons for career advancement	I feel that my performance will improve if my career grows in the company, and this will contribute to the average profit by achieving my KPIs that would certainly contribute to profit goals.
	Knowledge of compensation and benefits	If an employee will understand his benefits, then he will not feel that he receives less package than other employees by explaining their compensation and benefits before they even start working.
	Outcomes of Motivation	Employee motivation results in proactiveness that maximizes company resources. However, the demand for product is down during the pandemic due to low financial capability.
9 & 10	Result of proper Communication	Overall communication was vital in contributing to the sales growth of the company. However, I can say that during pandemic, there is a big decrease in sales across all industries.
	Contributing factors of inter-department communication	If there is smooth communication between inter-departments, goals are achieved at a much smoother and faster rate. This is done by creating team building programs that involve various departments.
	Leadership factors contributing to sales growth	Employees execute the plans of the top management. Recognition and incentives are given to loyalty awardees.
	Compensation and benefits factors for achieving sales growth	Compensation is a factor of employee's engagement in work by having competitive compensation and benefits offered by management. Employees are paid more for their work during the pandemic. Even during the ECQ, the employees continued to receive their salaries and were allowed to use their leaves in advance even if they had not yet earned. There is a decrease in the sales growth because of the pandemic.
11 & 12	Basis for leadership	Hiring of qualified leader by micromanaging to minimize resources and maximize output.
	Contributions of Nature of Job	Job improvements help lower operating costs through Kaizen competition. New government regulations during pandemic increased operating cost of the company.
	Effect of proper job knowledge	Understanding of job reduces operating cost by minimizing errors.
	Outcomes for job security	Company is still thriving even in pandemic through employees' cooperation towards company goals.
	Contributors of profit	Employee's awareness that profit affects compensation and benefits by being cost conscious and participating in Kaizen activities.
	Effect of leader's communication	The company's vision helps employees understand their work clearly by its dissemination inside and outside the company.
13 & 14	Contribution of Leaders	Leaders are proven to lead employees by meeting customer needs and adapting new technology for better quality of services and products.
	Consideration of employees	Employees are the executor of programs for customer's total support by prioritizing their concerns.
	Leader's communication venues	Sharing information with employees for their awareness by suggesting ideas that may help resolve issues in the company.
	Outcome of developing skills	Opportunity to be multi-tasking by studying other areas for additional learnings.
15 & 16	Contribution of Leadership	Clear communication of leader's commitment to quality through established quality control and regular conduct of internal/external controls/audits.
	Effect of leader's communication	The company's vision reflects on product quality by understanding what the client needs along with the vision for better output.
	Leadership's regard for taking feedback	Having regular meetings to discuss current company issues and listen to employee concerns.
	Factors affecting internal process	Well-compensated employees are motivated to perform beyond expectations for the company by maximizing resources. The implementation of new government or company policies might affect or limit the productivity of employee.
	Factors for achieving internal process improvement	Being paid fairly can be a factor in a company's service quality through the motivation it brings in doing jobs. But if employee is complacent with his work performance, product/service quality will not improve.
	Reasons for improving internal process	By sharing ideas, employees see different aspects to perform their jobs through Kaizen activities.
	Reasons for improving internal process	Employee's growth with the company enables concern on the image and quality of the company by doing well in jobs.
17 & 18	Leadership Actions	Improvements in the process will enhance products and services offered which will also make transactions easier and attract new clients.
	Leadership communication goals	Leader's clear dissemination of goals to all employees through regular meetings and discussion of company issues.
	Purpose of Leader's communication	Employees are well-informed about issues and can anticipate the possible problems arising from the issues and be able to propose countermeasures through discussion in meetings.
	Factors affecting learning innovations	Being innovative can lead employees to develop new skills which is beneficial for new career opportunities in the company.
	Contribution of career growth	Company ensures professional growth by widenings skills of employees and offering challenging tasks as opportunities for new learnings and advancement.

IV. Strategies for Implementation of Company M to Increase Employee Engagement Towards Organizational Performance

The results of the quantitative analysis of this research shown in Figure 2 were used by the researcher in formulating the following strategies: 1) reinforcement of the leadership team by enhancing leadership skills and commitment, designing meaningful work, and providing resources and coaching employees, and having formal succession planning program; 2) development of career opportunities by creating a career path program, regular update of job descriptions, clarification of performance standards and integration of training and development; 3) improvement of compensation and benefits by making it competitive and having a formal salary structure, 4) intensification of communication through the formation of internal communications team and gaining employee's trust through transparency, 5) enhancement of nature of job by finalizing job evaluation program and giving employees variety of tasks where their skills can be stimulated, 6) focusing strategies for Models 5 and 6 with the highest adjusted R-squared and 7) creation of an organizational performance risk response team from the management team whose task is to formulate action plans to help lessen the impact of Covid-19 in Company M.

Conclusions

The following conclusions were arrived at: 1) The level of organizational performance of Company M would serve as basis to further enhance its engagement strategies towards maximizing its overall organizational performance especially on its financial dimensions and achieve "Very Good Relative Performance" level; 2) The resulting level of employee engagement suggested that Company M must make both tangible and intangible efforts to achieve a highly engaged workforce by putting more emphasis on its compensation and benefits indicators; 3) The resulting 18 models showed that leadership was the strongest significant predictor and that almost all the significant engagement predictors had positive effect while six models had negative effect to the organizational variables; and 4) Company M should emphasize the reinforcement of its leadership team as this factor proved to be the strongest predictor of organizational performance and focus on reversing the negative effect of significant employee engagement predictors. It is also equally important to consider enhancing the other significant employee engagement factors as these contributed significantly to organizational performance.

Recommendations

Based on the summary of significant findings and conclusions presented, the researcher derived the following recommendations:

1. That Company M adopt the strategies formulated in this research for the purpose of increasing employee engagement towards organizational performance.

2. That a similar research study be conducted by other researchers covering all employees to have holistic scope on the perceptions of the employees across the company.
3. That a related study be conducted by other researchers involving any other company or companies in similar industries with the same objective of improving employee engagement towards organizational performance. It would provide more rational and sound data that can be beneficial for the company or companies.
4. That a study be conducted by other researchers to further cover other employee engagement and organizational performance indicators. Through this, more comprehensive information on how to make more effective strategies will be arrived at on the grounds of more extensive and reliable findings.

Compliance with Ethical Standards

As this study involved human participants, the ethical concerns were considered during the design of research and were approved by the Letran Graduate School and Company M management before the data collection began. The ethical concerns of informed consent, risk of harm, confidentiality and anonymity and conflict of interests were considered. The researcher secured the necessary approvals from the Letran Graduate School before the research commenced. The name of the company was codified as Company M and there was no need to collect the names of the employees. A Letter of Intent was submitted to the Human Resources Management and Development Department of Company M to allow the employees to become the subjects of the study. Then, the informed consent of employees was secured before participation in the study. Any personal or other information gathered was treated with strict confidentiality in accordance with the Data Privacy Act of 2012. The data collection and processing and interpretation of results were done by the researcher. Bias in the results and conflict of interest were avoided and, at the same time, the participant was protected from potential harm and the validity and integrity of results were assured.

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EMPOWERING INDIGENOUS PEOPLE *(IP'S)* COMMUNITIES IN ALBAY, PHILIPPINES USING PURPLE SWEET POTATO PLUS FOOD PRODUCTS

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ABSTRACT

Purple sweet potato is foreseen as one of the root crops that provide colorful appearance in the family meal. The impact of this study illustrates a chain of technology transfer to Indigenous People who were noted of creativity and industry. This study "Empowering Indigenous People Communities in Albay Philippines Using Purple Sweet Potato Plus Food Products," was focused on developing and standardizing recipes using purple sweet potato (*Ipomoea batatas lam*.) variety. The recipes were a combination with other root crops giving higher value enhancing IP's life skills future entrepreneurial activity. The study on physico-chemical characteristics revealed purple sweet potato flour is nutritious having 72.06% MC, 3.34 %ww Ash, 86.265 Carbohydrates, 4.65% Protein and fat 1.015%ww. The raw purple sweet potato has Deep Lilac //Violet, RGB: (66, 63, 104), #8E61BA, HSV: (244^{o}, 39%, 41%), flour with Bouquet //Faded Violet: Pink, after 3 months of storage the color was Fine, pinkish brown powder with L*57.7, a* 10.3, b* 12.1 and h 46.7 using RM 200QC imaging. The 9-point Hedonic scale was used in evaluating the organoleptic and kinesthetic sensory characteristics of each product. Weighted mean aided the interpretation determining the best proportion for each kind. Rank Preference and Kramer's Rank-sum Test result indicated *Purple Sweet Potato Plus Buchipan* as the most preferred product. The IP's enhanced processing skills development got 4.4 weighted mean described as 'Strongly Agree." A Learning Materials was an output of the study used as a reference in developing processing skills of Indigenous Peoples' in Albay for economic sustainability and resiliency.

Keywords: *plus food products, color retention, standardized, organoleptic and kinesthetic*

INTRODUCTION

According to RA 8371 s. of 1997 Chapter VI, Section 36 on Sustainable Agro Technical Development (1997), the state shall recognize the right of ICCs/IPs to a sustainable agro-technological development and shall formulate and implement programs of action for each effective implementation. The state shall likewise promote bio-genetic and resource management systems among the ICCs/IPs and shall encourage cooperation among government agencies to ensure the successful sustainable development of ICCs/IPs. The university mandate is to conduct researches, provide specialized instruction for social transformation and development. This rationalizes the use of sweet potato and other native crops as an opportunity to explore and provide standardized recipes to help enhance the processing capabilities of “Indigenous People” in Albay. Developing processing skills and integrating the good and cleaner production can provide a support system in producing food products for entrepreneurial commodity. New processing techniques can be used as basis for starting a homebased small business enterprise that can augment family income for “*Indigenous People* ” community.

Studying purple sweet potato paved the idea of processing this root crop into flour and determine the color retention and nutrient in it. Processing sweet potatoes present an excellent opportunity for food waste reduction. This is true because most parts of the plant are edible, including leaves, peel, roots, and vines. Regional processors have reported that between 30 and 50% of production typically gets thrown away during processing, but using some creativity, this can be avoidable (DA, 2012). Purple sweet potato is a good source of energy that can supply material that help the body do the activities. Standardizing a recipe for the purple sweet potato can build a reference providing step by step procedures that can be followed to make a wholesome food product.

According to Types of Sweet Potatoes-Complete List and Guide (2022), Sweet potato is classified as a dicotyledonous plant or a vine species, sweet potatoes belong to the morning glory family Convolvulaceae with scientific name of *Ipomoea batatas lam*. Many recipes were developed from its roots, which are tube-like, starchy, sweet, having vibrant-colored root vegetable consumed and loved. Sweet potato is rich in fiber, vitamins, and minerals, having anti-oxidant properties. This type of vegetable root crop help in supporting healthy vision due to its vitamin A content, and Vitamin C boosting the immune system, and even fight off cancer-causing toxins (Turong, 2018). One of the impressive about colorful sweet potato is that they offer fantastic benefits like anthocyanins and rich in anti-oxidants.

Mohanraj and Sivansankar (2014), studied on giving a bird's-eye view of the nutritional value, health benefits, phytochemical composition, and medicinal properties of sweet potato. Specifically, this review outlines the biological activities of some of the sweet potato compounds that have been isolated, the pharmacological action of the sweet

potato extract, clinical studies, and plausible medicinal applications of sweet potato and demonstrates the potential of sweet potato as a medicinal food. The study gave a vision of studying the purple sweet potato physico-chemical characteristics to have a notably formation of nutritive content of the local harvest of purple sweet potato.

One of the studies conducted was the development of a process for producing sweet potato chips. “Sweet potato tubers sliced to 0.5 by 0.5 cm size were dehydrated at 70 degrees C for various times (0, 90, 105, 120, 135, 150, 165 minutes Baldwin, (2023). The determination of the moisture content of the dehydrated chips and sensory evaluation of the dehydrated and fried chips were carried out to establish optimum dehydration time and moisture which corresponded to optimum quality the same way as the chip’s recipe in the present study which differ in using the purple sweet potato variety, the time and style variates in different ways. The significance of this study with the present study showing the same intent but of different procedures and findings. Moreover, the present study, have developed different recipes and made a compilation of each into a learning material purposively providing a reference for household consumption or for entrepreneurial activity.

Pulverizing and retaining the purple color of sweet potato is a challenge that this research has to enfold. This variety is known for its sensitivity to processing. It has an enzyme that when not exposed to sun or dried after chopping, it easily gets spoiled. The cause for the demand of sweet potato starch in the Philippines is due to the extraction rate and the finished product is of good quality. The study reveals the drying time and the rasping machine plays a key role, and the most common starch grating machine on the market today is the RU series of super rasping machine (Olantunde et.al., 2016). The sun drying are method appropriated to IP’s conventional technology for milling while food processing steps are simple and can be followed. The purple color in sweet potato is retained even after series of sun drying and rigorous pulverizing processes.

In the study of De Los Santos, Maat and Ventura (2017), imparted the tuberous root of orange sweet potato variety into ketchup. The Raw orange sweet potato (OSP) and the developed ketchup were subjected to proximate, total dietary fiber, Vitamin A analysis, physicochemical and microbiological analysis. The proximate analysis of the ketchup showed that OSP ketchup is a poor source of protein (0.53g/100g) and fat (none-detected). However, the ash content increased (2.1g/100g) and there is a decrease of carbohydrate content (18.77g/100g) due to the process of boiling. The utilization of orange sweet potato motivated the researcher to use the purple sweet potato by creating six (6) different food products. The acceptability of the purple sweet potato plus food products was sought. The color retention and physico-chemical attributes described that local purple variety is a potential commodity producing quality colorful food products for entrepreneurial commodity.

According to Lirag (2019), a study on sweet potato has found its niche in the global market and is now outpacing other primary staple foods not only because of its desirability for human consumption but as an immediate source of income. The study examined the factors affecting the profitability of sweet potato production in Camarines Sur, Philippines.

The researcher used purposive sampling technique to select the 108 farmer-respondents. A structured questionnaire was used and focused group discussion were the main tools for gathering data. Cost and return analysis and return on investment were used to determine the profitability of sweet potato production. This study cited were considered related to the present study in determining the marketability of the different purple sweet potato plus food products.

This study used the purple variety of sweet potato giving full potential for possible entrepreneurial food products. The importance of purple color was considered to make a colorful food without using artificial coloring. Its natural purple color is known for rich in anti-oxidants, energy, and vitamin content. This study has an aspiration of increasing awareness on the beauty and nutritional benefits from sweet purple potato. Standardized food products will be taught to indigenous communities identified native local folks' communities. The importance of helping the indigenous people is a priority of this research. Indeed, enhancing the processing capability of IP's using purple sweet potato is a valued achievement of this study.

Research Questions

The general objectives of the study were focused on Empowering Indigenous People Communities in Albay Philippines Using Sweet Potato Plus Food Products. The study was focused on the development and standardization of purple sweet potato plus food products enhancing the processing capability of the Indigenous People in Albay teaching life-skills for sustainable economic development. Specifically, it sought the following: (1) determine the physico-chemical characteristics of the colored sweet potato as to: weight and dimension, %usable parts, %moisture content, % flour recovery, color retention, yeast & mold count and proximate analysis of the flour; (2) develop and standardize the correct proportions of ingredients and procedures of the colored Sweet Potato Plus Food Products; (3) Test the acceptability of the Sweet Potato Plus Food Product in terms of organoleptic and kinesthetic characteristics; (4) Determine the most preferred product and its fat content; (5) Identify the potential marketability of the colored sweet potato plus food products; (6) Create a Learning Materials on processing of sweet potato plus food product for enhance processing capability of the indigenous people in Albay, Philippines.

METHODOLOGY

Descriptive research is a process of describing the characteristics of the population or phenomenon studied. It focuses on the "what" and "why" of the research subject (McCombes, 2023). It was understood that descriptive research "describes" the subject without covering "why" it happens. This methodology was used to described the phenomena on the acceptability of the food products by the 20 IP respondents of the study. Trials were made in standardizing the different recipes of the purple sweet potato. These recipes were compiled in a learning material a reference used in the enhancing of processing capability of the indigenous people using sweet potato plus food products.

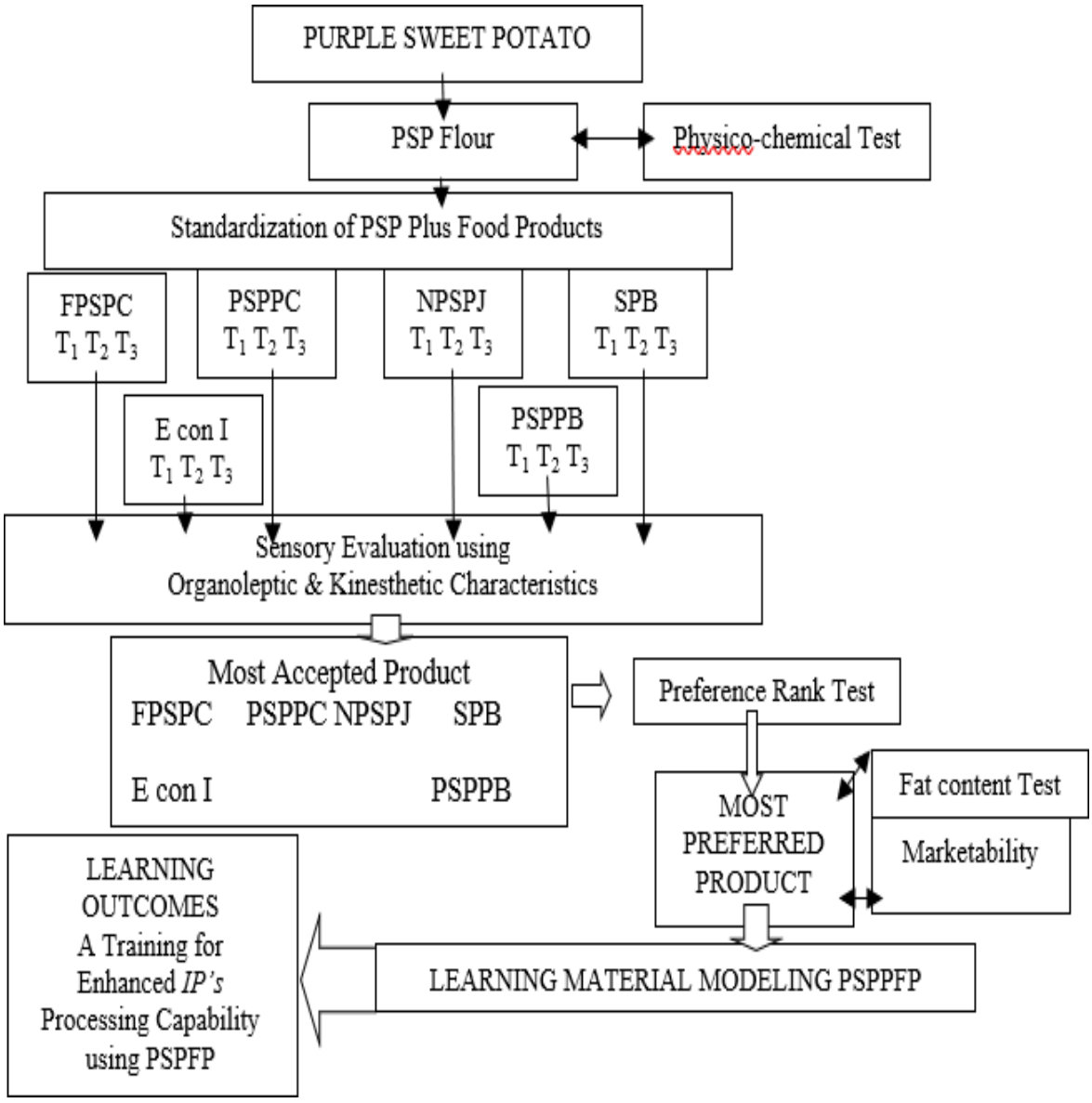


Figure 1. The Paradigm of Methodology of the Study

The product development and standardization of the recipes were lay on formulating a new product using trial method. Correct proportions of ingredients were tried until the acceptable color, aroma, taste and texture were achieved. It is very important to note that the market potential of sweet potato products are constantly increasing with 5.9% and 6.7% respectively (DA Guide, 2020). The taste the presentations of foods are important aspect to consider the salability of these produce. The technique of processing procedures considers the entire life journey of a product that an indigenous people can easily understood to follow. The acceptability of the finished food products used 9-point Hedonic scale in evaluating the organoleptic characteristics as to aroma, color, and taste,

while kinesthetic characteristics evaluate the mouthfeel and texture. The weighted mean was used in the interpretation on the “level of acceptability” of the food products. The Rank Preference Test was used in selecting the most preferred product. The Kramer’s Rank-sum Test aid in determining the “level of significance difference” among the products. At the end, the standardized accepted recipes were compiled in a Learning Material Modeling the Processing of Purple Sweet Potato Plus Food Products for Enhancing the Processing Capabilities of the IP’s was an output of the study.

RESULTS

The NSIC-SP 25 purple sweet potato variety was used in standardization of the food products. The purple variety is locally known as “inubi” (purple) . This is a special type of sweet potato having a distinct characteristic compared to other varieties. Rich purple color on food provides phytochemicals known as anthocyanins. According to studies, the best source of anthocyanins component is purple and blue color which is present in purple sweet potato. The “antioxidant effects have been linked to lower risk of myocardial infarction in young and middle-aged women.” These nutritional qualities are unnoticed, thus giving importance to the great nutrition benefits. The purpose of processing purple sweet potato into flour is to give a longer shelf-life and economic value of ready to use flour. This resonates in giving value on propagating and producing the sweet potato purple variety.

3.1. The Physico-Chemical Characteristics of Purple Sweet Potato

3.1.1 Weight and Dimension

The study used 10 samples of different sizes to get the average weight and dimension of purple sweet potato. An electronic vernier caliper was used to get the dimensions of the samples of raw potato. Table 1 showed different weight and dimension with an average, 12.5 centimeters, 18.05 centimeters circumference and length with 176 centimeters respectively. It is common to purple sweet potato to have medium size, not too big or small neither.

3.1.2. Percent (%) Usable Parts

The percent usable parts reveal data on how many parts of the purple sweet potato are removed and how many are used in producing flour from the samples. The 2,000 grams or 2 kilos of purple sweet potato used as sample for producing flour. From the sample, the waste part has 60.5 grams, minimal waste was observed because the peel was not removed and only trimmings are discarded from the sweet potato rhizomes. It can be noted that there were 96.95% (percent) usable parts or 1,934.5 grams of the purple sweet potato were used for flour production.

3.1.3. Percent (%) Moisture Content

For easy drying, the chipped purple sweet potato was thinly chopped using the thickness of 0.02 mm. The chips were dried under the heat of the sun for 8 days. The drying started at 8:00 o'clock in the morning until 4:00 o'clock in the afternoon to get the peak heat from the sunlight. It consumed 8 consecutive days or 64 hours to fully dry the raw chips.

Table 1. The % Moisture Content of the Dried Chips Purple Sweet Potato Using Sundried Method

Day	Weight (g)	% MC
0	1,935.5	-
1	1,740.6	10.06
2	1,533	20.79
3	1,222,87	36.81
4	998.5	48. 41
5	775.65	59.92
6	624.1	68
7	601.7	69
8	540.6	72.06

The final moisture content was very important in milling processes of the raw chips. The chips should have the hard crisp chips texture to get the fineness of a flour. The removed moisture of purple sweet potato was recorded with 72.06% removed moisture after 8 days from continued sun drying. The retained moisture content during the pulverizing of the purple sweet potato chips was 27. 94% which was higher than normal standard storage of wheat with 11% moisture.

3.1.4. Percent (%) Flour Recovery

The Purple Sweet Potato was milled using the rice milling technology. After milling there was 445.65 grams or 82.43% flour recovery.

Weight of the recovered flour after milling	-	445.65
Divide by the original weight of the sample	-	/540.6
Quotient obtained	-	.8243
Multiplied by 100	-	x100
% Flour recovery	-	82.43%

3.1.5. Color Retention of Purple Sweet Potato Flour

The raw purple sweet potato has a color of sweet purple with a little of white strands on its whole crop grain. This variety is recognized upon looking at the vine of rhizomes. The presence of deep violet color can be seen in stem of the leaf of purple sweet potato. For

scientific data, a colorimeter is used to determine what type of purple color found in this crop.

Using a Computer Information Engineering (CEI) standard illuminant D65 and standard observer (2^{o}), the raw purple sweet potato has a deep lilac color in in a colorimeter with a following:



Raw Chips



Flour

Plate 1. The Raw and the Processed Flour of Purple Sweet Potato

The color family of the purple sweet potato is “Deep Lilac” belonging to Violet #8E61BA, with Red 66, Green 63, and Blue 104 values, Hue Saturation Values of 244^{o}, 39%, 41% of the red, green and blue respectively, Registry Abstraction Layer (RAL) Code of 4011 as Pearl Violet or Violet.

The color of the powdered purple sweet potato was a real light purple or having a lavender hue. The texture of the flour when rubbed between fingers was a little grainy or rough. The aroma was nice and sweet. The color was naturally nude pale violet, Bouquet “Faded Violet: Pink” is likely the true color as revealed in the results. The cooked flour was been observed having a very dark color when processed purple sweet potato plus into food products. All of the three products from steamed, fried chips and even processed flour added with other ingredients, have noted with dark color of deep violet. The cooked produced becomes almost black color in the human naked eye showed a registry abstraction layer (RAL) has 4007/Purple violet or fall into #4F293A described as Dark Violet-Pink.

Table 2. Report of Analysis on the Color Retention of the Purple Sweet Potato Flour after 3 months of storage

Item No.	Sample & Lab Code	Sample Description	Parameter	Method Used	Result
			L*	TM-Ch-070 with reference to	57.7
	Purple Sweet	Fine pinkish	a*	RM200QC Imaging	10.3
1	Potato Flour	brown powder	b*	Spectrometer	12.1
	(CHE-0565)	in plastic	C*		15.9
		1x ~ 100g	h	(CIEL*a*b* and CIE	48.7
				L*C*h Color Space)	

3.1.6. The Yeast and Mold Count of the Purple Sweet Potato flour

Longer storage of a flour depends on the slowing of microbial growth of the yeast and molds in the purple sweet potato flour. The growth of yeast and mold in the flour can cause deterioration and may lead to early spoilage of a product. Occurrence of abnormal color, flavor and odor was an indicator that the flour is already infested by bacteria or yeast and molds that deter taste and palatability. A flour may seem to be as mold free but when subjected into microbial test it is already contaminated with bacteria after 3 months of storage. To assure its edibility the purple Sweet Potato flour was tested at DOST Region V for a laboratory examination on yeast and mold count.

The yeast and mold was aready present in three months of storage having 3.9×10^4 coliforming unit. This indicates that the flour was already infested with bacteria making it unfit for human conssumption. The presence of colony forming units in the flour was an indicator that it is no longer clean and safe. This is true to the stored purple sweet potato flour characterized by slight off odor, aflatoxins taste, caking texture and growth of weevils in the flour. According to standards, the allowable amount for human ingestions of yeast and mold will only have ≤10,000 CFU/g to avoid fatalities and complications. Therefore, the shelf-life of the purple sweet potato flour expires in 3 months of storage .

3.1.7. Proximate Analysis of Purple Sweet Potato Flour

The proximate analysis is a scientific method used to determine the approximate amounts of substances within purple sweet potato flour. The percentage of components within the food material in purple sweet potato flour can contribute to its nutritive value and flexibility when combined to other ingredients to make a delectable food product. The test was done to emphasize important nutrient that are present in the locally processed flour. The 250g of Purple Sweet Potato Flour contains the following: Moisture 5.14 %ww; Ash, 3.34 %ww; Protein 4.65 (Block Digestion -Kjeildahl); Fat, 1.01 %ww; Carbohydrate,

86.28 %ww. The essential source of anti-oxidant revealed the following: Fiber**:** 3.3 grams, Manganese**:** 6% of the Daily Value (DV), Copper: 21% of the DV, Iron: 2% of the DV, Potassium**:** 8% of the DV, Vitamin B6**:** 18% of the DV, Vitamin C**:**14% of the DV.

It can be noted that the purple sweet potatoes are a good source of beta-carotene. It is even richer source of anthocyanin pigments, characterized by its purple color. The antioxidants can help reduce inflammation and boost immune system. Purple sweet potatoes have about three times richer in anthocyanin content as signified by its deep purple color. The deeper purple color the richer the vitamin content it has.

3.2. The Standardized Recipes of Purple Sweet Potato Plus Food Products

Standardization of recipes pave an important set of instructions for making a food dish from various ingredients. The recipe provides the amounts and proportions of ingredients and methods of procedures that will consistently produce a high-quality food product. There are six Purple Sweet Potato Plus Food Products prepared by the study.

The recipes used two material processes, used the raw rhizomes for standardizing the following recipes: There were 4 products such as Flavored Purple Sweet Potato Chips, Purple Sweet Potato Plus Candy, Sweet Purple Banban and Nutri Purple Sweet Potato Jam uses raw purple variety, all others used the flour. The standardized recipes are having simple procedures, easy to prepare and follow.

3.2.1 Flavored Purple Sweet Potato Chips

Ingredients: 1 kilo Purple Sweet Potato, ½ Teaspoon salt, 2 Kilos Oil (for Frying) and 1 Pack Cheese of Barbeque Flavor.

Procedure:

Wash thoroughly camote rhizomes. Drain until dry. Cut into chips about 0.2 cm thick or as desired (using chipper). Drizzle with salt leave for 1 minute. Heat oil until hot. Deep fry the purple sweet potato raw chips. Cook by stirring to avoid burning of chips. When chippy texture is obtained, take it out off from the oil and immediately drain off the oil. Let it cool Put inside a plastic bag and pour in the cheese or barbeque flavor and shake a little to adhere the flavor onto the chips. Pack into individual packs. Label.

3.2.2. Purple Sweet Potato Plus Candy

Ingredients:1 cup cooked and mashed purple sweet potato, 2/3 cup white sugar,1 tablespoon butter, ½ cup powdered milk, ½ cup chopped Pilinuts.

Procedure; Wash the raw sweet potato and boil to cook. Removed the peel and mashed until obtained fine texture. Mix all ingredients. Put all mixed ingredients in a carajay. Cook mixture in a very low fire. Continue stirring to prevent from sticking

into the pan. Continue stirring until the mixture becomes soft hard but pliable. Remove from fire when mixture forms a ball while being stirred. Flatten the mixture in a prepared greased pan while hot. Divide the mixture into desired sizes. Let it cool. Wrap into a colored cellophane or desired wrapper. Pack and label.

3.2.3. Nutri-Purple Sweet Potato Plus Jam

Ingredients: 3 cups Raw Purple Sweet Potato, 1 cup white Taro, 2 cups sugar, 2 cans evaporated milk (big can), 2 Teaspoon vanilla..

Procedure: Peel both purple sweet potato and taro. Wash thoroughly to remove soil from the rhizomes. Grate the rhizomes into fine coarse texture. Set aside. Pour into carajay the following: Milk, sugar and mix together. Dissolve sugar thoroughly and add the taro and sweet purple potato. Cook in a low fire until thick like a jam. Cook until spreadable texture is obtained. Cool and pack in a sterilized jar. Pasteurized the product for about 30 minutes. Remove from water and pat dry. Put label. Seal.

3.2.4. Empanaditas Con Inube

Ingredients for the dough (crust): 3 cups All Purpose Flour, 1 1/2 bar butter, 1 tablespoon sugar,pinch of salt 10 tablespoon of cold water.

Procedure for the crust: Sift flour, sugar in a bowl. Add butter. Mix the butter, sugar and flour using a fork in cutting motion. Continue cutting butter into flour until pea size is obtained. Divide the mixture into small balls. Flatten the balls and put onto Empanaditas molder or cutter. Fill in with nutri-purple sweet potato jam. Close the edges using molder. Cut off excess mixture. See to it that the Empanaditas is fully close by putting a pressure onto the edge of dough. Heat oil. Deep fry until golden brown texture on the crust is achieve. Drain let it cool. Pack and label. Filling: Nutri-Purple Sweet Potato Plus Jam

3.2.5. The Food products from Purple Sweet Potato Flour

There were only two standardized food products developed using the purple sweet potato flour. These products use simple procedures and requires simple technology so that the indigenous people could follow the step-by-step procedures in preparing the food products.

3.2.6. Purple Sweet Potato Plus Buchipan

Ingredients: 1 ½ cup hot water, 2/3 cup white sugar, 3 cups sticky rice flour, ½ cup Purple Sweet Potato flour. Sesame seeds (for coating), Oil for frying.

Procedures: Combine hot water and sugar. Mix until it thoroughly dissolved. Pour in little by little the sticky rice and purple sweet potato flour. Mix thoroughly for 2 -3 minutes until well combined. Close mixture with cloth. Rest mixture for 15 minutes.

After 15 minutes, form mixture into rod and cut into desired weight. Form into a ball. Flatten the balls using the heel of the palm. Put in the filling (Nutri-Purple Sweet Potato Plus Jam). Seal and set aside until all are form into round ball. Roll onto sesame seeds, until well coated. Heat oil and deep fry. When Buchipan is already light brown, when balls are already floating on top of oil it is an indication that the Buchipan is cook. Get it from oil and drain. Let it cool. Pack and label.

3.2.7. Sweet Purple Banban

Ingredients: 2 cups Purple Sweet Potato Flour, 1 cup sticky rice flour, 1 cup shredded buko, 1 ½ cup sugar, 2 tablespoon vanilla, 2 cups evaporated milk (big can), Banana leaves (for wrapping of mixture)

Procedures: In a bowl mix purple sweet potato flour and sticky rice, sugar. Pour in milk and vanilla. Mix well until blended. Add Buko and blend well. Pour mixture in a banana leaf and close by folding both ends very well. Arrange all Banban into a kettle and steam for 30 minutes or until cook. Cool and serve with brown rice coffee.

3.3. The Acceptability Purple Sweet Potato Plus Products using Organoleptic and Kinesthetic Characteristics

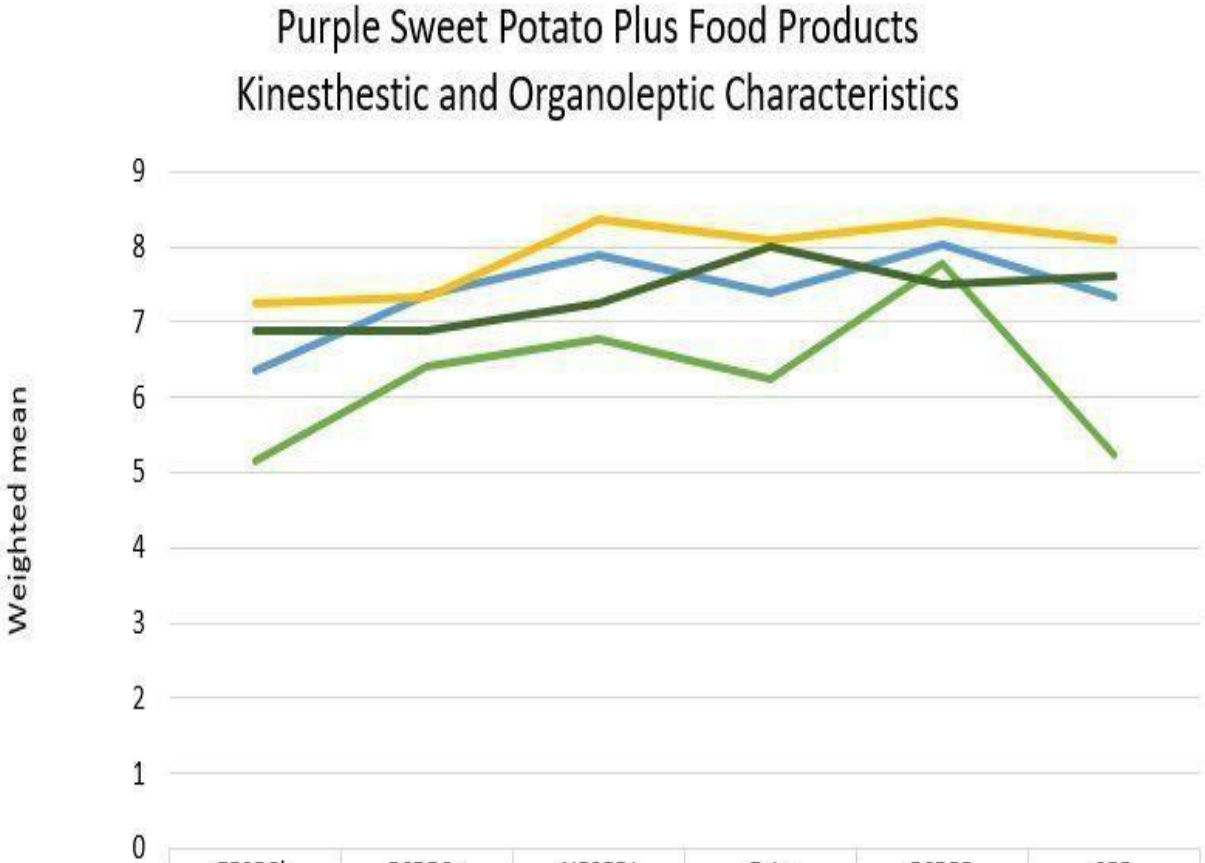
There were six (6) different purple sweet potato plus food product accepted by the respondents emphasizing the qualitative descriptive analysis and interpretations in the attributed likelihood of the product:

The flavored purple sweet potato chips are having a deep dark purple color. The chip's cracking texture was crispy noted with a good balance of taste of sweet potato and flavorings. The chips are a bit comparable having a texture like but a little harder than of the commercialized potato chips in the market. An observation showing smear was noted and the oil inside was visible but it doesn't affect the texture of the product. Indeed, the acceptability in taste showed the general weighted mean of 7.26 having a qualitative descriptive interpretation of 'Like Moderately.'

The purple sweet potato plus candy was made up of steamed purple sweet potato and Pilinuts added with other ingredients. The candy was cut into a bar and packed. The level of acceptability of the candy showed on aroma with weighted mean of 6.4 described as "Like Moderately." The aroma of gentle sweet mediated the receptors of taste buds having just enough sweet obtaining a weighed mean of 7.34 described as "Like Moderately" respectively.

The nutri-purple sweet potato plus jam obtained the weighted mean of 7.89 for color attributes with a qualitative description of "Likely Very Much." The combinations of ingredients showed strong likelihood of the product. The prominence of the sweet potato taste was noted with highest weighted mean of 8.36 interpreted as "Like Very Much."

The Empanaditas con Inube is delicious product from purple sweet potato. Hence, the soft crispy crust was a remarkable characteristic of Empanaditas. Emphasizing taste of sweetness and saltiness blend together producing a sumptuous food product. The taste and texture almost same to each other obtaining a weighted mean of 8.1 for taste and 8.0 for texture have a qualitative description of “Like Very Much” respectively.



	FPSPCh	PSPPCn	NPSPPJ	EcIn	PSPPB	SPB
Aroma	5.14	6.4	6.76	6.24	7.78	5.24
Color	6.36	7.36	7.89	7.38	8.02	7.32
Taste	7.26	7.34	8.36	8.1	8.34	8.08
Texture	6.88	6.88	7.24	8	7.5	7.62

Figure 2. The Acceptability of the Purple Sweet Potato Plus Food Products in Terms of Kinesthetic and Organoleptic Characteristics

The Purple Sweet Potato Plus Buchipan showed a remarkable likelihood among the flour by-products. It has a general weighted mean of 7.91 having a qualitative descriptive

interpretation of “Like Very Much.” The color and taste of the Buchanan was noted as the most accepted product with a weighted mean of 8.02 and 8.34, respectively. Among all the standardized product sweet purple Banban was known for native delicacy that are commonly prepared for snacks. These products can be prepared using either raw or flour. This Banban used the sweet potato flour together with other ingredients. The Banban uses milk instead of water which makes it more delicious and nutritious food product. It can be noted that the observation of having a good taste was supported by its level of acceptability on taste having a weighted mean of 8.08 with a qualitative descriptive interpretation of “Like Very Much.”

3.4. The Most Preferred Product

The rank preference test is commonly used in selecting the best products using the level of ranks from the value given or assigned as to which is the best product or the worst product as perceived by the respondents. Table 3 showed the results on best product preferences. This is the most appropriate statistical tool on determining food product preferences. The following steps were done to arrive at correct analysis for most preferred product.

Among the 20 respondents (n=20) who evaluated 6 different sample samples (R=6) using the 5% level of significance, the corresponding ranks in the Kramer’s Rank-sum test used the 52-88 range to test its level of significance. It showed that the H_o of the study stated that when sum of the samples falls in the range or within the range given all of the samples will no differ from each other. If the total sum of each type falls below or above the range given, it can be said the product that has a lower or higher value will be declared as the odd or different sample from the other sample. The “Purple Sweet Potato Plus Buchipan” obtained a lower rank sum of 41 describe as the odd sample, is the “Most Preferred Product.’

Table 3. The Ranking for Preference for Standardized Recipes of Purple Sweet Potato Plus Food Products

Panelists	Rank per Sample					
	N-PSPJ	PSPPCan	FPSPCh	EcI	PSPPB	SPB
1	6	5	2	3	1	4
2	5	1	3	6	2	4
3	2	3	1	4	5	6
4	1	4	5	6	2	3
5	2	5	4	3	1	6
6	1	5	6	3	2	4
1	2	5	6	3	2	4
8	2	5	6	3	1	4
9	3	5	6	4	2	1
10	6	5	4	3	1	2
11	2	5	6	3	1	4
12	6	1	3	2	4	5

13	1	5	4	2	3	6
14	6	3	4	2	1	5
15	3	6	4	1	2	5
16	6	3	4	2	5	1
17	6	3	4	1	2	5
18	2	6	4	3	1	5
19	2	6	4	3	1	5
20	1	6	5	4	2	3
Total Rank	65	87	85	61	**41**	82
Rank 1 = Best and Rank 6 = Worst						

The Fat content of the most preferred product.

Fat is needed for the properly absorption of fat-soluble vitamins in human body. It adds flavor to food products with distinct satiety. Human needs fat to help the brain cells function well, besides needing it in maintaining supple knees and glossy hair. Result of analysis provides for every 25g of Nutri-Purple Sweet Potato Plus Buchipan there were 133 calories, 8 g of fat, 0.7 g of protein, 15 g of carbohydrate and 2.3 g sugar.

3.5. Potential Marketability of Purple Sweet Potato Plus Food Products

There were 50 consumers responders were asked if they would buy Purple Sweet Potato Plus Food Products and these were their responses. It can be noted that Purple Sweet Potato Plus Buchipan (PSPPB) have 14 or 28% willingness of buying the product, ranks second is Empanaditas con Inube with indicated 10 or 20% willingness to buy. Meanwhile the Nutri-Purple Sweet Potato Jam got 8 or 16%, Purple Sweet Potato Candy got 7 or 14% while Sweet Purple Banban got 6 or 12% and Flavored Purple Sweet Potato Chips got 5 or 10% willingness to buy respectively.

The illustration on marketability goes to show that “Purple Sweet Potato Plus Buchipan” was the most preferred product that customers would like to buy followed by Empanaditas con “Inube (Purple).: The products are marketable and could be used as the homebased products for the *IP* community.

3.6 The Learning Materials on Processing Purple Sweet Potato Plus Food Products: Enhancing the Processing Capability of the Indigenous People in Selected Municipality in Albay, Philippines

3.6.1 Prologue

The learning materials on processing purple sweet potato into food products is a useful material that can be disseminated to households specifically the Indigenous People

community. This learning material will serve as a reference to facilitate the learning of the local folks.

The learning materials contain simple recipes that can be followed by the learners. All food products use raw materials that are available in the local market and in the farm of the community. Processing is simple and can be followed by anyone who got interest in processing local foods. Besides, the featured food product will not alter the culture of the *IP's* but rather will enhance their food processing skills integrating the cleaner good manufacturing standards for food safety.

Food products that are presented in this Learning Materials is modelling a simple but delicious and nutritious food product. This can be used as family business items that can be marketable in the community. The products draw demand because of its sumptuous taste that can fully provide energy when consumed. The products contain no preservatives added, natural color is coming from its natural purple pigment. The products are used as food, snacks and appetizers too. This product is rich in "*Flavonoids Vitamins"* an anti-oxidant with high nutritive content of carbohydrate and protein. (Note: the Learning Materials were written separately)

3.6.2. Results of the Initializing Training of the Indigenous People using the Learning Materials on Processing Purple Sweet Potato Plus, Food Products

The results on initializing training were taken from 16 respondents during the training conducted in June 27-28, 2022 at BUPC Dormstel participated by selected Indigenous People from Malabnig, Guinobatam; Danao, Polangui; and Joroan, Tiwi, Albay. This was an in-house live-in training. The trainees were given an training for 2 days to see if they could learn and can improve their processing skills using the purple sweet potato plus food products. The evaluation of the training has a 4.7 weighted mean which interpreted as 'Strongly Agree.' This means that the training proceedings were acceptable and believed to enhance the processing capability of the Indigenous People. On the other hand, on the item number 11, in the question "training time allotment was sufficient" got only 4.4 weighted mean which interpreted 'strongly agree.' The training time was sufficient to cover all the important skills to be developed during the training.

3.6.3 Enhanced Processing Capability of the Indigenous People Using Sweet Potato Plus Food Products

The training was intended to form and develop the processing capability of the indigenous people in selected municipality in Albay using purple sweet potato plus food products. A questionnaire was given to the 16 trainees who were actively participated in the initializing training for enhanced processing capability using purple sweet potato plus food products. During the training each were given a learning material to read. A lecture, demonstration and return demonstration were performed carrying out the actual application of food processing. Each of the trainees were given an opportunity to illustrate a capability on

processing the recipes shown in the learning materials for Purple Sweet Potato Plus Food recipes.

3.6.4 Results on Enhanced Processing Skills Capability of the Indigenous People

The data showed that the IP's can identify the ingredients that has been used in preparing the different recipes of the purple sweet potato plus food products showing a weighted mean of 4.8 and has the ability to present food product with a rating of 4.8 which was described as "Strongly Agree" respectively.

DISCUSSION

Physical characteristics of the sweet potato were as follows: the average weight and dimension of the 10 samples was 12.5cm length, circumference 18.05cm, and 176 gram. The Percent usable parts were 96.8% and got at moisture content of 72.06%, flour recovery of 82.43%.

Color retention for raw purple sweet potato is deep lilac violet with a Registry Abstraction Layer (RAL) of 4001 Pearl Violet. The color of the new processed purple sweet potato flour was Bouquet, Faded Violet with Registry Abstraction Layer of 4009 Pastel Violet. After 3 months of storage the color becomes fine pinkish brown. The color of the processed products of steamed potato four have a Registry Abstraction Layer of 4007 as purple violet and fall into #4F described as Dark Violet-Pink.

Yeast and mold count of the stored purple sweet potato was having 39x104 CFU*/g. The results on Proximate analysis for the flour using 250 grams sample, it has a moisture of 5.14%, ash of 3.34%, protein of 4.65% ant fat of 1.01% and carbohydrate content of 86.28%.

Standardized recipes were the following: Flavored Purple Sweet Potato, Purple Sweet Potato Plus Candy, Nutri-Purple Sweet Potato Jam, Empanaditas con Inube, Purple Sweet Potato Buchipan, Sweet Purple Banban.

The acceptability of the Purple Sweet Potato on organoleptic and kinesthetic characteristics reveals the following: Flavored Purple Sweet Potato Chips got a weighted mean of 7.16, Purple Sweet Potato Plus Candy with 7.25 described as "Like Moderately" respectively. The Empanaditas con Inube with 7.72 which have a qualitative description of 'Like Very Much,' meanwhile the highest weighted obtained among the sample products was Nutri-purple Sweet Potato Jam with 7.89 with qualitative descriptive analysis of 'Like Very Much.' Sweet Potato Flour Food Products showed Purple Sweet Potato Buchipan weighted mean of 7.82 described as Like Very Much, Sweet Purple Banban weighted mean of 7.57 interpreted as "Like Very Much." The most preferred product Purple Sweet Potato Plus Buchipan with a Total Rank of 41 as significance different sample among others.

There were 8 grams of fat per 250 grams sample of Purple Sweet Potato Plus Buchipan Food Product.

The potential marketability showed Purple Sweet Potato Plus Buchipan of 28% likeness, Empanaditas con Inube with 20%, Nutri-Purple Sweet Potato Jam have 16%, Purple Sweet Potato Candy 14%, Sweet Purple Banban 12%, Flavored-Purple Sweet Potato Chips got 10%.

Learning Material for Enhancing Processing Capability of Indigenous People in Selected Musicality in Albay was presented. The initializing training evaluation got 4.7 general weighted mean which describes as 'Strongly Agree,' and the enhance processing capability of the indigenous people got 4.4 general weighted mean which was described as "Strongly Agree' respectively.

Conclusions

In summary, physico-chemical characteristics of the purple sweet potato are of notable importance to assume that the local farm products are nutritious and can provide full energy consumptions to human needs. Color of purple sweet potato is retained even after processing and storing of the flour. Recipes on Purple Sweet Potato were standardized and can be a potential food merchandise in the market. Food products can be introduced to children to have new choice of snacks to offer in the school canteens.

The most preferred food product was Purple Sweet Potato Plus Buchipan. Production of these food products can be a potential entrepreneurial engagement of IP's, household, or gender as an additional income for the family. Learning Materials on Processing Purple Sweet Potato Plus Food Product was a tool in enhancing the processing capability of the indigenous People in Albay, Philippines. These learning materials can be a potential reference to teach simple recipes that are easy to follow and have it sold in the customers. Use of the Training Plan and Learning materials as the output of the study impliedly enhanced the processing capability of the indigenous people using sweet potato plus food products, can be continuously implemented in the extension program of the college.

Recommendations

The educational resources that have been produced are extremely valuable for university extension activities. It is possible to apply for utility model and copyright patent applications for additional recipes. A compilation book that contains standardized recipes and processes is currently being developed. It is highly recommended to actively promote the wide distribution of these educational resources to other educational institutions.

Additionally, it is encouraged to explore research opportunities for other agricultural products.

Compliance with Ethical Standards

This research complied with the Ethical Standards required by Bicol University Research and Development Management Office upon approval by the University President. Likewise, this research was approved by the Director of National Commission on Indigenous People Office Region V Iriga City, Camarines Sur. Hence, all activities were highly coordinated with the said offices, Indigenous People Chieftains, Municipal Mayors and Barangay Chairman of the respondents of the study. The output of the study were used to train the selected Indigenous People in Albay to improve their processing capability using the local root crops grown in the locality for sustainable economic development.

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ENHANCING LEADERSHIP THROUGH GOOGLE APPLICATION TOOLS IN SELECTED PUBLIC AND PRIVATE SCHOOLS

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ABSTRACT

The main goal of this study is to examine the integration of Google Application Tools with leadership effectiveness among school leaders in public and private schools of Tanauan and Sto.Tomas City Division, Batangas. The researcher aims to explore how such tools impact leadership practices, decision-making processes, communication, and organizational performance more broadly. Proponents utilized a quantitative approach that employs quantitative surveys. The investigation aims to deeply explore the phenomenon of leader perception and experience based on the use of Google Application Tools in their roles of leadership. The implication of this paper has discovered advantages in adopting Google Application Tools for enhancing leadership performance in their organization, hence providing recommendations to leaders, authorities and academics in dissemination of technology for leadership betterment and keeping track of the innovation in the contemporary world.

Keywords: *Google Application Tools, Web Video Conferencing, Electronic Learning*

INTRODUCTION

The leaders in an organization are one of the biggest parts for the management to be successful and for all the team members to be productive and perform well in their designated area. Leadership is significantly important to improve the environment for learning, the school conducts teacher growth and ensures student learning outcomes. As technology continues to evolve at a rapid pace, leaders are introduced to new tools and

new platforms to help them be more effective and efficient. The Google Application Tools, including, Google Drive, Google Classroom, Google Meet etc. provides a comprehensive set of functionalities designed to fulfill the varied requirements of educational leaders. This paper investigates the use of these tools in schools by principals of both the public and private sectors, in order to delineate their effects on leadership performance.

On the other hand, there are a range of studies that have explored the application of Google Apps in various fields. Andreeva (2019) highlights the use of Google Apps in e-learning, emphasizing its cost-effectiveness, accessibility, and versatility. Similarly, Pawar (2019) discusses the potential of Google Tools in library and information services, noting their ability to enhance user experience. Gonzales (2021) focuses on the use of Google Apps in teaching practice, reporting significant time savings and improved student performance. Alvim (2018) underscores the importance of simplicity and focus in collaborative work, drawing on the experience of Google Apps workshops. These studies collectively underscore the wide-ranging benefits of Google Apps in different professional and educational contexts. While Fu (2020) focuses on the use of Android raw Global Navigation Satellite System measurement datasets for precise positioning and Liang (2018) provides a broader perspective, reviewing the applications and impacts of Google Earth, particularly in Geographic Information Science, remote sensing, and geosciences. These studies collectively underscore the diverse and significant role of Google Application Tools in different domains.

As to Santos (2021), in the study "Google Classroom: Beyond the Traditional Setting" stated that school leaders utilize Google application tools to enhance their leadership performance. Through interviews and surveys with principals and administrators, the study explores the adoption, challenges, and benefits of using Google Application Tools such as Google Drive, Google Classroom, and Google Meet. Findings from the study indicate that school leaders in both public and private schools increasingly rely on Google application tools to streamline administrative tasks, improve communication with stakeholders, and foster collaboration among teachers and staff members. However, the study also identifies challenges such as limited access to technology, inadequate training, and privacy concerns that hinder the effective use of Google Application Tools.

The study of Torrato et al (2021), "Using Web Video Conferencing to Conduct a Program as a Proposed Model toward Teacher Leadership and Academic Vitality in the Philippines" demonstrated that the use of WVC had an overall positive outcome on participants' performance. Video conferencing has flourished with the development of various services on the Internet. Video conferencing, as a way of open and distance learning, provides education and training in a more flexible way than the regular teaching methods. Technology is an essential component of this training program. However, training quality relies on teaching, cognitive, and social presence, rather than on technology. Nonetheless, technology remains an important platform that supports professional development activities. The completion of this study reflected positively on the success of the use of WVC to conduct the Sustaining Teacher Leadership and

Academic Vitality through Research program. Thereby, affirming that with the halt of face-to-face learning, learning can be achieved.

According to Dutta (2018), about "Google Apps and Their Applications in eLearning: A Study " Technology has played an immense role in each and every sphere among which the educational sector is not an exception. The role of technology in the sphere of education is increasing at a phenomenal rate which has even revolutionized the traditional process of teaching-learning. Development of different types of technological tools catered these diverse backgrounds and demands of learners in the educational system. This is among the most important explosions propelled by the internet transformation. Education beyond face to face is no more simply an assemblage of words understandable only by a few but the present situation it has become a part and parcel of everybody's life. This process operates through various apps & tools. Google provides different apps & tools for these purposes. Google plays a role as a panacea for the e-Education system. This study mainly focuses on a few Google Application Tools such as Google Classroom, G-mail, Google Meet, Google Drive, and Google Forms. The main objective of the article is to highlight the role of Google apps and tools in imparting education beyond the traditional classroom. It further focuses on the various purposes of using the same, various problems faced in using such tools along with probable solutions. Also highlight the librarian's role to improve the application of Google apps and tools.

The study of Hussaini and Libata (2020), about the study entitled "Effectiveness of Google Classroom as a Digital Tool in Teaching and Learning: Students' Perceptions" indicated that Google Classroom is effective in improving Students access and attentiveness towards learning, knowledge and skills gained through Google Classroom makes Students to be active learners, as a Digital Tool, it provides meaningful feedback to both Students and Parents. However, Poor network hinders students from effective utilization of Google Classroom; thus, submitting their work late. Therefore, teachers should integrate the conventional teaching with Google Classroom to improve Students' Performance. Google Classroom should also be a form of assessing Students' Assessment through online Assignments and Quizzes; hence making Students to participate actively in Educational Technology Classes. The University should also provide a standard network to enable Students to join Google Classroom and submit their assignments on time.

Furthermore, the researchers aim to know if the use of Google Application Tools by leaders from public and private schools of Tanauan and Sto.Tomas City Division, Batangas helps in their leadership in their organization and if their work has become more smooth and if it has been easier for them to communicate with their team members due to the use of modern communication methods using Google Application Tools.

Research Questions

This study is an attempt to identify the enhancing leadership through Google Application Tools in selected public and private schools.

Specifically, this study would like to answer the following questions:

1. What is the profile of the selected public and private school leaders in terms of:
    1.1 Age
    1.2 Gender
    1.3 School Types
    1.4 Length of Leading Experience

2. What are the enhancement of using Google Application Tools by the leaders performance in selected public and private schools in terms of:
    2.1 Managerial Skills
    2.2 Career Innovation
    2.3 Time Management

3. What is the level of effectiveness of using Google Application Tools in enhancing selected public and private school leader's performance in terms of:
    3.1 Technological Advancement
    3.2 Job Performance
    3.3 Resolving Work Issues

4. Is there a significant difference between selected public and private school leader's performance in using Google Application Tools?

METHODOLOGY

This research adopts a quantitative approach in investigating the use of Google Application Tools by the school leaders. The results of this study will be used to design a quantitative survey of a purposive sample of primary, secondary and tertiary leaders and school district administrators from public and private schools of Tanauan and Sto.Tomas City Division, Batangas. Drawing on these experiences, the surveys will ask participants about the enhancement and effectiveness by using Google Application Tools. The findings will also be complemented with quantitative survey data that are collected from a larger sample, to be able to address whether Google Application Tools are widely employed and effective in education.

There are multiple factors used by the researchers to assess the enhancement of leaders' performance by utilizing Google Application Tools. These may include managerial skills, career innovation, time management, technological advancement, job performance, resolving work issues. However, the scope of this study will focus on enhancements and effectiveness of using Google Application Tools by the leader's performance. This study is limited to some selected public and private schools of Tanauan and Sto.Tomas City Division. It covers the teacher's profile which includes age, gender, school types, and length of leading experience that make this study manageable to various constraints of the enhancements and effectiveness of using Google Application Tools by the leader's performance.

The validity of the instrument used in gathering the data prepared by the researcher is presented to an external individual from the proponent workplace that has an expertise in the field of research. The draft of the questionnaire is analyzed considering its contents, structure and purpose. It is anticipated that there will be some revision on the different items based on the construction of the final draft of the instrument. The draft is also presented to the researcher instructor in Doctorate Degree, and other three experts in the field. To check the reliability of the questionnaire it is multiplied to one private and one public school to compare. It is understood that the leaders who were used in checking the reliability of the questionnaire will not be the same respondents of the study to be conducted; they may come from other public and private schools. This shows that the validity and reliability of the questionnaire that is being used to conduct the study ensures an accurate result from selected public and private schools by using Google Application Tools in enhancing leadership performance.

RESULTS

The results deal with the presentation, analysis and interpretation of the data gathered with regard to using Google Application Tools from selected public and private schools in enhancing leadership performance.

Specifically the purpose of this study is to find the answer in the following queries.

1. **On the Profile of the Respondents in terms of Age, Gender, School Types and Length of Leading Experience.**

Table 1.1
Profile of the Leaders in Terms of Age

Age	Frequency	Percentage
24 - 26	6	7.50%
27 - 29	19	23.75%
30 - 32	7	8.75%
33 - above	48	60%
Total	80	100%

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The table shows the distribution of the respondents according to their age. Majority of the leaders are age 33 - above with frequency count of 48 or 60 percent, followed by 27 - 29 years old with frequency count of 19 or 23.75 percent, then 30 - 32 years old with frequency count of 7 or 8.75 percent and lastly the leaders aging 24- 26 with frequency count of 6 or 7.50 percent.

From the findings it was revealed that the majority of the leaders of ages 33 - above are utilizing Google Application Tools in enhancing leadership. This implies that they keep up in technology learning advancement despite their age.

Table 1.2
Profile of the Leaders in Terms of Gender

Gender	Frequency	Percentage
Male	25	31.25%
Female	55	68.75%
Total	80	100%

The data in the table indicate the distribution of respondents according to their gender. Most of the leaders are female with frequency count of 55 or 68.75 percent, along with the male leaders with frequency count of 25 or 31.25 percent.

This implies that the majority of the leaders in the mentioned areas were female and sincerely engaged in using Google Application Tools in enhancing leadership.

Table 1.3
Profile of the Leaders in Terms of School Types

School Types	Frequency	Percentage
Public	40	50%
Private	40	50%
Total	80	100%

The table shows the distribution of the respondents according to school types. It uses public school leaders with frequency count of 40 or 50 percent and private school leaders with frequency count of 40 or 50 percent.

This implies that the respondents used in this study were equal to formally assess the accurate result in gathering the data in both selected public and private schools.

Table 1.4
Profile of the Leaders in Terms of Length of Leading Experience

Length of leading experience	Frequency	Percentage
1 - 5	28	35%
6 - 10	5	6.25%
11 - 15	12	15%

16 - 20	30	37.50%
21 - 25	2	2.50%
26 - above	3	3.75%
Total	80	100%

The table shows the distribution of the respondents according to length of leading experience. Majority of the leaders has 16 - 20 years of leading experience with frequency count of 30 or 37.50 percent, followed by 1 - 5 years of leading experience with frequency count of 28 or 35 percent, then 11 - 15 years of leading experience with frequency count of 12 or 15 percent, next is 6 - 10 years of leading experience with frequency count of 5 or 6.25 percent, another is 26 - above years of leading experience with frequency count of 3 or 3.27 percent, and lastly is 21 - 25 years of leading experience with frequency count of 2 or 2.50 percent.

This implies that leaders with 16 - 20 years of leading experience have the highest count and are indeed capable in utilizing Google Application Tools in enhancing leadership.

2. **The enhancement of using Google Application Tools by the leaders performance in selected public and private schools in terms of Managerial Skills, Career Innovation, and Time Management.**

Table 2.1
The enhancement of using Google Application Tools by the leader's performance in terms of Managerial Skills

Indicators	Public Leaders			Private Leaders			Total		
Managerial Skills	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**
2.1.1 Have you been more effective in conveying information clearly to your team through Google Application Tools?	4.48	Agree	1.25	4.40	Agree	4.5	4.44	Agree	3.5
2.1.2 Do you become more organized in managing your team using Google Application Tools?	4.48	Agree	1.25	4.40	Agree	4.5	4.44	Agree	3.5
2.1.3 Have you become more competent in using Google Application Tools to enhance the collaboration and productivity of your team's work?	3.95	Agree	5	4.48	Agree	3	4.22	Agree	5
2.1.4 Do you feel that it is easier for you to share tasks with your	4.48	Agree	1.25	4.50	Strongly Agree	2	4.49	Agree	2

team through Google Application Tools?									
2.1.5 Have you improved your team's work even when remote collaboration is happening using Google Application Tools?	4.48	Agree	1.25	4.60	Strongly Agree	1	4.54	Strongly Agree	1
Composite Mean	**4.37**	**Agree**		**4.48**	**Agree**		**4.43**	**Agree**	

The table shows the enhancement of using Google Application Tools by the leader's performance in terms of managerial skills. Public and private leaders perceived that they have improved their team work even when remote collaboration is happening using Google Application Tools which obtain the weighted mean of **4.54** with verbal interpretation of Strongly Agree on rank number **1**. This implies that it improves the collaboration of the team even with distance communication.

Moreover, leaders feel that it is easier for them to share tasks with their team through Google Application Tool which obtains the weighted mean score of **4.49** with Agree verbal interpretation on rank number **2**. This implies that leaders can easily interact with his team by sharing the tasks.

Furthermore, leaders have been more effective in conveying information clearly to their team through Google Application Tools which obtains the weighted mean score of **4.44** with verbal interpretation of Agree on rank number **3.5** and leaders become more organized in managing their team using Google Application Tools which also obtains the weighted mean score of **4.44** with verbal interpretation of Agree on rank number **3.5.** This implies that leaders can easily disseminate and manage information through their colleagues using Google Application Tools.

Leaders become more competent in using Google Application Tools to enhance the collaboration and productivity of their team's work which obtained the weighted mean score of **4.22** with verbal interpretation of Agree on rank number **5**. This implies that using Google Application Tools the team becomes more knowledgeable in their work.

The computed composite mean obtained a score of **4.43** with verbal interpretation of **Agree**. This implies that with Google Application Tools, leaders can more effectively organize their workload and promote team communication.

Table 2.2
The enhancement of using Google Application Tools by the leader's performance in terms of Career Innovation

Indicators	Public Leaders			Private Leaders			Total		
Career Innovation	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**

2.2.1 Has the use of Google Application Tools improved your performance at work?	4.00	Agree	4.5	3.98	Agree	1.5	3.99	Agree	4
2.2.2 Do you believe that employing Google Application Tools has made you a more successful leader?	4.00	Agree	4.5	3.90	Agree	3	3.95	Agree	5
2.2.3 How often do you feel encouraged to think creatively and propose innovative ideas related to your career and role using Google Application Tools?	4.48	Agree	1.33	3.88	Agree	4	4.18	Agree	2
2.2.4 Do you think using Google Application Tools helps you become more professional and keeps up with cutting-edge developments in your field of work?	4.48	Agree	1.33	3.98	Agree	1.5	4.23	Agree	1
2.2.5 Have you used Google Application Tools to generate innovative ideas for the betterment of your institution?	4.48	Agree	1.33	3.83	Agree	5	4.16	Agree	3
Composite Mean	**4.29**	**Agree**		**3.91**	**Agree**		**4.10**	**Agree**	

The table shows the enhancement of using Google Application Tools by the leader's performance in terms of career innovation. Public and private leaders perceived that they think using Google Application Tools helps them become more professional and keeps up with cutting-edge developments in their field of work which obtained the weighted mean of **4.23** with verbal interpretation of Agree on rank number **1**. This implies that leaders become more proficient and innovative in the nature of their works.

Moreover, leaders feel encouraged to think creatively and propose innovative ideas related to their career and role using Google Application Tools which obtains the weighted mean score of **4.18** with Agree verbal interpretation on rank number **2**. This implies that leaders have the sense to contemplate resourcefully and create new ideas for the betterment of his work.

Leaders used Google Application Tools to generate innovative ideas for the betterment of their institution which obtains the weighted mean score of **4.16** with Agree verbal interpretation on rank number **3**. This implies that leaders produce advanced concepts for the improvement of the organization using Google Application Tools.

Furthermore, leaders used Google Application Tools to improve their performances at work which obtains the weighted mean score of **3.99** with Agree verbal interpretation on rank number **4**. This implies that leader's work more smoothly using Google Application Tools.

Leaders believe that employing Google Application Tools has made them a more successful leader which obtains the weighted mean score of **3.95** with Agree verbal

interpretation on rank number **5**. This implies that leaders became better leaders in their organization due to the use of Google Application Tools.

The composite mean obtained a score of **4.10** with verbal interpretation of **Agree**. This implies that when it comes to career innovation with the use of Google Application Tools in leadership, leaders have become more resilient to change.

Table 2.3
The enhancement of using Google Application Tools by the leader's performance in terms of Time Management

Indicators	Public Leaders			Private Leaders			Total		
Time Management	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**
2.3.1 With Google Application Tools, has it been simpler for you to keep track and manage your deadlines?	3.95	Agree	4.5	4.30	Agree	5	4.13	Agree	5
2.3.2 Do you find that the integration of various Google Application Tools contributes to time efficiency in your daily work tasks?	4.48	Agree	1.33	4.63	Strongly Agree	1	4.56	Strongly Agree	1
2.3.3 When arranging meetings and activities with your team, can using Google Application Tools improve communication and efficiency in real time?	3.95	Agree	4.5	4.50	Strongly Agree	3	4.23	Agree	4
2.3.4 Do you think using Google Application Tools supports your time management even more because of working remotely or in a virtual environment?	4.48	Agree	1.33	4.60	Strongly Agree	2	4.54	Strongly Agree	2
2.3.5 Do you believe that using Google Application Tools improved your overall time efficiency in finishing team duties or projects?	4.48	Agree	1.33	4.45	Agree	4	4.47	Agree	3
Composite Mean	**4.27**	**Agree**		**4.50**	**Strongly Agree**		**4.39**	**Agree**	

The table shows the enhancement of using Google Application Tools by the leader's performance in terms of time management. Public and private leaders find that the integration of various Google Application Tools contributes to time efficiency in their daily work tasks which obtained the weighted mean of **4.56** with verbal interpretation of Agree on rank number **1**. This implies that leaders are more effective at managing their time to complete tasks and perform better.

Moreover, leaders think that using Google Application Tools supports their time management even more because of working remotely or in a virtual environment which obtains the weighted mean score of **4.54** with Strongly Agree verbal interpretation on rank number **2**. This implies that leaders can still operate more efficiently and are able to effectively manage their time despite the distance between them and their teammates.

Leaders believe that using Google Application Tools improved their overall time efficiency in finishing team duties or projects which obtains the weighted mean score of **4.47** with Agree verbal interpretation on rank number 3. This implies that leaders utilize Google Application Tools to do their jobs more quickly.

Furthermore, leaders arrange meetings and activities with their team, using Google Application Tools improve communication and efficiency in real time which obtains the weighted mean score of **4.23** with Agree verbal interpretation on rank number **4**. This implies that leaders can more easily set meetings onsite or even online due to the use of Google Application Tools.

Leaders perceived that with the used Google Application Tools, it has been simpler for them to keep track and manage their deadlines which obtains the weighted mean score of **4.13** with Agree verbal interpretation on rank number **5**. This implies that using Google Application Tools has made it easier for leaders to understand and monitor task deadlines.

The composite mean obtained a score of **4.39** with verbal interpretation of **Agree**. This implies that leaders find it easier to use Google Application Tools to manage their time at work, even completing things faster than usual and setting up meetings with their teammates despite the team members' distances from one another.

3. **The level of effectiveness of using Google Application Tools in enhancing selected public and private school leader's performance in terms of Technological Advancement, Job Performance, and Resolving Work Issues.**

Table 3.1
The level of effectiveness of using Google Application Tools in enhancing leader's performance in terms of Technological Advancement

Indicators	Public Leaders			Private Leaders			Total		
Technological Advancement	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**
3.1.1 Has the use of Google Application Tools enhanced your technological knowledge?	4.48	Agree	1.25	4.63	Strongly Agree	4	4.56	Strongly Agree	3
3.1.2 Do you think using Google Application Tools	4.48	Agree	1.25	4.68	Strongly Agree	1.5	4.58	Strongly Agree	1

would make it easier for you to learn about the next modern aspects of technology?									
3.1.3 Have Google Application Tools improved your computer literacy?	4.48	Agree	1.25	4.65	Strongly Agree	3	4.57	Strongly Agree	2
3.1.4 Do you think that, even with today's technological advancements, Google Application Tools are secure to protect the data from your work?	4.48	Agree	1.25	4.60	Strongly Agree	5	4.54	Strongly Agree	4
3.1.5 Have you gained confidence in your ability to use technology, especially Google Application Tools for work-related tasks?	3.95	Agree	5	4.68	Strongly Agree	1.5	4.32	Agree	5
Composite Mean	**4.37**	**Agree**		**4.65**	**Strongly Agree**		**4.51**	**Strongly Agree**	

The table shows the level of effectiveness of using Google Application Tools in enhancing leader performance in terms of Technological Advancement. Public and private leaders think that using Google Application Tools would make it easier for them to learn about the next modern aspects of technology which obtained the weighted mean of **4.58** with verbal interpretation of Strongly Agree on rank number **1**. This implies that leaders think they can stay up to date with emerging, trendy forms of technology.

Moreover, leaders believe that using Google Application Tools improved their computer literacy which obtains the weighted mean score of **4.57** with Strongly Agree verbal interpretation on rank number **2**. This implies that leaders feel that by utilizing Google Application Tools, they can use computers more effectively.

Leaders perceived that by the use of Google Application Tools it enhanced their technological knowledge which obtains the weighted mean score of **4.56** with Strongly Agree verbal interpretation on rank number **3**. This implies that leaders believe that through the use of Google Application Tools, they have improved their technological skills.

Furthermore, leaders think that, even with today's technological advancements, Google Application Tools are secure to protect the data from your work which obtains the weighted mean score of **4.54** with Strongly Agree verbal interpretation on rank number **4**. This implies that leaders think that by using Google Application Tools, their data is safe even with the wide range of technologies in use.

Leaders gained confidence in their ability to use technology, especially Google Application Tools for work-related tasks which obtains the weighted mean score of **4.32** with Agree verbal interpretation on rank number **5**. This implies that leaders believe that

they are now more capable in using modern technologies through the use of Google Application Tools.

The composite mean obtained a score of **4.51** with verbal interpretation of **Strongly Agree**. This implies that leaders think that by utilizing Google Application Tools, they have improved their computer skills and are able to keep up with emerging technologies.

Table 3.2
The level of effectiveness of using Google Application Tools in enhancing leader's performance in terms of Job Performance

Indicators	Public Leaders			Private Leaders			Total		
Job Performance	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**
3.2.1 To what extent do you think Google Application Tools help you complete tasks and work more efficiently?	4.48	Agree	1.33	4.40	Agree	5	4.44	Agree	3
3.2.2 Has utilizing Google Application Tools for task delegation and team collaboration enhanced your performance at work?	4.48	Agree	1.33	4.48	Agree	4	4.48	Agree	2
3.2.3 Do you think that using Google Application Tools has made your work easier?	3.95	Agree	4.5	4.55	Strongly Agree	1.5	4.25	Agree	4
3.2.4 Has using Google Application Tools made you more productive at work?	3.95	Agree	4.5	4.53	Strongly Agree	3	4.24	Agree	5
3.2.5 In light of Google Application Tools' assistance, how satisfied are you with the work you've done?	4.48	Agree	1.33	4.55	Strongly Agree	1.5	4.52	Strongly Agree	1
Composite Mean	**4.27**	**Agree**		**4.50**	**Strongly Agree**		**4.39**	**Agree**	

The table shows the level of effectiveness of using Google Application Tools in enhancing leader performance in terms of Technological Advancement. Public and private leaders perceived that In light of Google Application Tools' assistance, they are satisfied with the work they've done which obtained the weighted mean of **4.52** with verbal interpretation of Strongly Agree on rank number **1**. This implies that leaders believe that they are able to perform their tasks better by utilizing Google Application Tools.

Moreover, leaders utilizing Google Application Tools for task delegation and team collaboration enhance their performance at work which obtains the weighted mean score of **4.48** with Agree verbal interpretation on rank number **2**. This implies that the usage of

Google Application Tools made it simpler for leaders to distribute work to their team members.

Leaders think that Google Application Tools help them complete tasks and work more efficiently which obtains the weighted mean score of **4.44** with Agree verbal interpretation on rank number **3**. This implies that leaders think using Google Application Tools will enable them to complete their work more quickly.

Furthermore, leaders think that using Google Application Tools has made their work easier which obtains the weighted mean score of **4.25** with Agree verbal interpretation on rank number **4**. This implies that leaders think using Google Application Tools will make it easier for them to complete their work.

Leaders perceived that using Google Application Tools made them more productive at work which obtains the weighted mean score of **4.24** with Agree verbal interpretation on rank number **5**. This implies that leaders became more prolific at work by using Google Application Tools.

The composite mean obtained a score of **4.39** with verbal interpretation of **Agree**. This implies that using Google Application Tools has helped leaders work more efficiently, communicate with colleagues more effectively, and complete tasks more quickly.

Table 3.3
The level of effectiveness of using Google Application Tools in enhancing leader's performance in terms of Resolving Work Issues

Indicators	Public Leaders			Private Leaders			Total		
Resolving Work Issues	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**	**WM**	**V.I**	**Rank**
3.3.1 Are you satisfied with how Google Application Tools is helping you with your work?	4.48	Agree	1.33	4.63	Strongly Agree	2	4.56	Strongly Agree	1
3.3.2 Has making use of Google Application Tools made it simpler for you to communicate with others?	4.48	Agree	1.33	4.10	Agree	5	4.29	Agree	4
3.3.3 Does using Google Application Tools make attending meetings and seminars simpler for you?	3.95	Agree	4.5	4.78	Strongly Agree	1	4.37	Agree	3
3.3.4 Have you solved your lack of knowledge when it comes to technology using Google Application Tools?	3.95	Agree	4.5	4.30	Strongly Agree	4	4.13	Agree	5

3.3.5 Has the use of Google Application Tools improved the effectiveness of your work?	4.48	Agree	1.33	4.60	Agree	3	4.54	Strongly Agree	2
Composite Mean	**4.27**	**Agree**		**4.48**	**Agree**		**4.38**	**Agree**	

This table shows the level of effectiveness of using Google Application Tools in enhancing leader performance in terms of Technological Advancement. Public and private leaders are satisfied with how Google Application Tools is helping them with their work which obtained the weighted mean of **4.56** with verbal interpretation of Strongly Agree on rank number **1**. This implies that leaders think Google Application Tools are beneficial to them in their work.

Moreover, with the use of Google Application Tools leaders improved the effectiveness of their work which obtains the weighted mean score of **4.54** with Strongly Agree verbal interpretation on rank number **2**. This implies that leaders think Google Application Tools has helped them become more productive at work.

Leaders believed that using Google Application Tools make attending meetings and seminars simpler for them which obtain the weighted mean score of **4.37** with Agree verbal interpretation on rank number **3**. This implies that the adoption of Google Application Tools has made it simpler for leaders to attend meetings and seminars both in person and virtually.

Furthermore, with the use of Google Application Tools leaders made it simpler to communicate with others which obtain the weighted mean score of **4.29** with Agree verbal interpretation on rank number **4**. This implies that it has become easier for leaders to contact their team members due to the use of Google Application Tools.

Leaders perceived that by using Google Application Tools solved their lack of knowledge when it comes to technology which obtains the weighted mean score of **4.13** with Agree verbal interpretation on rank number **5**. This implies that leaders have become better when it comes to using technology because of Google Application Tools.

The composite mean obtained a score of **4.38** with verbal interpretation of **Agree**. This implies that using Google Application Tools helps leaders handle issues more rapidly when they are at work.

4. **Is there a significant difference between selected public and private school leader's performance in using Google Application Tools?**

Table 4.1
The enhancement of using Google Application Tools by the leader's performance in selected public and private schools in terms of Managerial Skills, Career Innovation, and Time Management

Independent Samples T-Test

Independent Samples T-Test

		Statistic	df	p	Mean difference	SE difference
B	Student's t	0.0681 [a]	4.00	0.949	0.0133	0.196
	Mann-Whitney U	3.00		0.700	−0.130	

Note. H_a $\mu_{Public} \neq \mu_{Private}$

[a] Levene's test is significant ($p < .05$), suggesting a violation of the assumption of equal variances

Assumptions

Homogeneity of Variances Test (Levene's)

	F	df	df2	p
B	11.0	1	4	0.030

Note. A low p-value suggests a violation of the assumption of equal variances

P-Value = 0.951646 is greater than the Significant level of 0.05, this indicates that the result is not statistically significant. It fails to reject the null hypothesis. In simpler terms, there isn't enough evidence to conclude that there's a significant difference between the two variables.

Table 4.2
The level of effectiveness of using Google Application Tools in enhancing selected public and private school leader's performance in terms of Technological Advancement, Job Performance, and Resolving Work Issues

Independent Samples T-Test

Independent Samples T-Test

							95% Confidence Interval	
		Statistic	df	p	Mean difference	SE difference	Lower	Upper
B	Student's t	−3.80	4.00	0.019	−0.240	0.0632	−0.415	−0.0646
	Welch's t	−3.80	3.34	0.026	−0.240	0.0632	−0.430	−0.0502
	Mann-Whitney U	0.00		0.077	−0.230		−0.380	−0.110

Note. H_a $\mu_{Public} \neq \mu_{Private}$

Assumptions

Homogeneity of Variances Test (Levene's)

	F	df	df2	p
B	1.50	1	4	0.287

Note. A low p-value suggests a violation of the assumption of equal variances

P-value of 0.02642 < alpha (0.05): This indicates that the result is statistically significant. It rejects the null hypothesis in favor of the alternative hypothesis. Therefore, it concludes that there is a significant difference between the two variables that are being compared.

DISCUSSION

The researcher conducted this study to know the leadership performance between the public and private schools leaders in accordance with the fact that two types of organizations may have different strategies in managing their team. The proponent found out that leaders from public and private schools can keep up with the use of modern technologies and they both know how to use Google Application Tools regardless of their age, gender, school types, and their length of leading experiences. Leaders know how to communicate well with their teammates with the use of modern technologies and utilize the features of Google Application Tools well. Perhaps with the development of technology, the Department of Education is able to stay up to date with the latest technology trends and make sure that the quality of education will be better as technology also develops. As said by Santos, J., school leaders utilize Google application tools to

enhance their leadership performance and explore the adoption, challenges, and benefits of using Google Application Tools such as Google Drive, Google Classroom, and Google Meet. The study indicates that school leaders in both public and private schools increasingly rely on Google application tools to streamline administrative tasks, improve communication with stakeholders, and foster collaboration among teachers and staff members.

Conclusions

With reference to the data collected, the following conclusions were drawn by the researcher:

1. The researcher concluded that age, gender, school types, and leading experiences are not the basis for keeping up with modern technologies when it comes to leading an organization. Leaders can easily keep up with new trends in technology to make their work easier and to be more efficient in leading their team members.

2. The public and private leaders perceived that they improved their leadership by using Google Application Tools. It has become easier for them to be more effectively organized in their workload and promote team communication, become more resilient to change, and find it easier to use Google Application Tools to manage their time at work, even completing things faster than usual and setting up meetings with their teammates despite the team members' distances from one another.

3. The public and private leaders agreed with the effectiveness of using Google Application Tools they think that by utilizing Google Application Tools, they have improved their computer skills and are able to keep up with emerging technologies, helping them work more efficiently and communicate with colleagues more effectively, and complete tasks more quickly and help leaders handle issues more rapidly when they are at work.

4. Given the performance of two groups of respondents with regards to the cited variables related to enhancing leadership through Google Application Tools are generally showing no significant difference, it could be concluded that the public and private leaders possess common and similar capabilities in adapting to new technology trends that resulted in a better way of leading.

Recommendations

The data obtained, led in the formulation of the following recommendations and suggestions.

1. Conduct a similar study and use public and private leaders from other districts or divisions.
2. It could also be recommended that the specific division may conduct an evaluation of the leader's performance to assess if there are things that should be improved and if there are new technology trends that should be known.

3. The proponents also recommended using other variables in identifying other factors or effects in utilizing the Google Application Tools by the leaders.
4. It could also be suggested to conduct a study like this and use other respondents such as teachers and students.
5. The leaders should always be ready for technological change for them to quickly adopt when there is a new technology platform that is needed to apply in the organization.
6. Leaders should attend programs or seminars associated with new trends of technology to nurture their technological skills.
7. The researchers recommended to the future researchers to use references from national libraries to grasp more resources about enhancing leadership through Google Application Tools.
8. Future researchers must provide more useful information about the study by using other types of methodology in data gathering procedure.
9. Future researchers must also conduct the study in other regions to have at least different areas of knowledge and open up to different opinions and new ideas to the respondents.
10. The researcher recommended to the future researchers to widen the respondents to gather more ideas, opinions, perceptions and insights for the betterment of the study.

Compliance with Ethical Standards

All procedures performed by the researcher in this study were formally informed and asked the permission of the school leaders. The proponents also ensure that the respondents are willingly participating in gathering the data and the respondents had given the right to withdraw their participation at any time. The respondents' participation in the study and responses to the questions are confidential. Data used in reports will be presented in a manner that prevents identifications of individuals and protects the respondent's individual identity. The references used in this study were provided by the researchers to prevent plagiarism, and the study's findings were only utilized for research.

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ENHANCING RETENTION OF BIOLOGY CONCEPT THROUGH VISUAL-BASED PEDAGOGY

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ABSTRACT

This action research focuses on enhancing learner retention in biology through visual-based pedagogy, particularly focusing on Grade 10 students at Musuan Integrated School (MIS) during the 2023-2024 school year. The rationale stems from the uncertainties post-pandemic and the need for improved teaching methodologies in biological education. The study aligns with Philippine Education Program goals and research insights emphasizing contextualized instructional materials and the efficacy of visuals in promoting learning. The research utilized a Two-shot Post-test design with mixed methods, integrating quantitative data from a 40-item multiple-choice test and qualitative data from semi-structured interviews. The study aimed to assess if significant differences existed in pre-test and post-test scores after implementing visual-based pedagogy. Results revealed a substantive increase in post-intervention assessment scores, indicating statistically significant improvements in conceptual mastery and retention. Students' perceptions highlighted the positive impact of visual-based pedagogy on learning environments, collaborative learning, and effective outcomes. These findings underscore the efficacy of visual aids and interactive activities in fostering deep comprehension and knowledge retention, aligning with previous research findings. Recommendations include incorporating visual-based pedagogy and technology with diverse visuals such flowcharts, diagrams, pictures, computer simulations, video presentations. This can lead to fostering positive learning environments, emphasizing

hands-on activities, and continuous support for sustained effectiveness. Further research and professional development are encouraged to explore and implement innovative strategies in visual-based instruction for enhanced learning outcomes.

Keywords: *Visual-Based Pedagogy, Retention, Perception, Pre-Test, Immediate Post-Test, Delayed Post.*

INTRODUCTION

The pandemic profound modification and the current status of the learners in this post-pandemic setting are currently indefinite and do not show the right succession of clear improvement of the teaching-learning process especially in the field of biological education and its multidisciplinary concept. Biology is the most visually appealing of all sciences. However, many teaching aids can be employed extensively in the teaching of biology to bring the subject to life in the students' minds by developing animated mental images (T. Demissie et al., 2016). The Philippine Education Program has strengthened academic foundations with local and accessible resources, aligning with the RA 10533 (Enhanced Basic Education Act of 2016) requirements for a contextualized and global curriculum. In the insights of (LPT, 2020) & (Garin et al. 2017). Utilizing contextualized instructional materials unlocks students' maximum learning potential, leading to improved academic performance. Furthermore, poor teaching strategies and inadequate resources result in less engagement in lessons and using visual aids, audio-visual tools, and tangible materials enhances students' understanding capabilities, leading to impressive learning outcomes (Rivera & Sanchez, 2020) and (Kaminski & Sloutsky, 2020).

According to Cuban (2014), it suggests that 83% of what we learn is through sight, making it a dominant factor. Additionally, people tend to remember 30% of what they see, emphasizing the effectiveness of visuals. Therefore, it is morally right to engage students in the teaching and learning process by stimulating them or keeping them engaged. Moreover, Visual Based Pedagogy can be a number of different types of educational resources that be also views as beneficial instructional and learning visual aids, including like motion pictures, video games, television shows, and synchronized audio-slide projectors, PCs, computer-assisted instructions, and more equipment that multimedia promotes quicker communication in foreign languages (Ahmad, 2016). However, the majority of educators in Musuan Integrated School (MIS) use less sufficient visual aids as part of their teaching strategies. This has a direct impact on learning outcomes and could create obstacles for the teaching and learning process.

In the study of Adebisi et al. (2021). It's highlighted that the idea of utilizing science learning materials to teach biology concepts has a notable impact on enhancing students' ability to retain information and ultimately boosts the academic performance of senior high school students. According to Jamal Raiyn (2016), visual-based pedagogy represents an impactful classroom learning strategy that places a strong emphasis on conveying information through visual mediums, including images, diagrams, flowcharts, and

interactive simulations. The teacher's role involves overseeing the learning process and determining the most effective means to enhance higher-order thinking (HOT) skills. Employing this approach can significantly aid students in memorizing key biological concepts and comprehending complex biological processes (Sumarmin R., 2018).

Analyzing the differences in retention results achieved through visual-based pedagogy can be instrumental in shaping action plans and fostering educational innovation. By comparing the performance of students with higher and lower retention rates, educators can pinpoint effective strategies used by high-retention students and share these practices more widely. Furthermore, Shabiralyani et al. (2015) emphasize that visual aids play a crucial role in encouraging students during the learning process, ensuring better understanding of lessons, generating interest in the subject matter, aiding in the permanent retention of learned materials, enhancing students' vocabulary, and providing direct experiences for the students.

The results of this research have value for learners, teachers, and school administrators as they shed light on the crucial role of the learning environment in nurturing students' knowledge and skills. The purpose of this study is to enhance the retention of biology concepts through visual-based pedagogy. Identify if there is a significant difference in the 1st and 2nd post-test scores of students following the implementation.

Research Questions

The study investigated the effects of using Visual-Based Pedagogy on Enhancing Retention of Biology Concept on the Grade 10 learners of Musuan Integrated School, in the third quarter of the School Year 2023-2024.

Specifically, it sought to answer the following questions:

1. What is the level of students’ retention of biology concepts when expose to Visual-Based Pedagogy in terms of:
    a. Pre-test?
    b. Immediate Post-test?
    c. Delayed Post-test?
2. Is there a significant difference on students’ retention in Biology when exposed to Visual-Based Pedagogy in terms of:
    a. Pre-test compared to Immediate post-test scores.
    b. Pre-test compared to Delayed post-test scores.

METHODOLOGY

The study employed a Two-shot Post-test design to gauge the participants' retention of the subject matter. Before the intervention, a pre-test was administered, followed by a post-test. After that, a second shot post-test was administered after a two-week interval.

A. Participants and/or Other Sources of Information and Data

Research Design

The study employed a mixed method research design utilizing both quantitative and qualitative data gathering procedures. This study utilized a Two-shot post-test and focused on the systematic collection, analysis, and interpretation of numerical data to address research questions or test hypotheses. Meanwhile, qualitative data on the perceptions of learners with the use of this approach was also explored. It utilizes thematic analysis where themes and core ideas were sought from a semi-structured interview questionnaire given to the learners.

In gathering information, the researchers utilized forty (40) item multiple choice tests focusing on the concept of biology specifically the Endocrine System for Grade 10 students during the first semester of the school year 2023-2024.

Locale of the Study



Figure 1. *Map of MIS, showing the research locale.*

The Community-Based Action Research (CBAR) that was conducted took place at Musuan Integrated School (MIS), located in Musuan, Maramag, Bukidnon, Philippines. MIS administered a comprehensive educational program, encompassing kindergarten through junior high school, and operated under the auspices of the Department of Education. Renowned for its exemplary track record in both academic and non-academic pursuits, MIS stood as a beacon of educational excellence in the region.

Participants of the Study

The participants of the study were the Grade 10 students under the Enhanced K–12 Basic Education Curriculum of Musuan Integrated School (MIS) for the school year 2023–2024. The researchers only chose the subtopics of Endocrine System prior to focusing on biology concepts in the implementation of a visual-based pedagogy intervention. The study only covered the final term of the second semester.

Instrumentation

The researcher designed and constructed a forty (40) item multiple-choice test to measure the level of retention of the learners. A two-way table of specification (TOS) was prepared prior to the making of the test items. The test was subjected to content validation by an expert in biology to determine if the constructed test items would be appropriate to test the learners' retention.

The retention of students in statistics and probability was analyzed and interpreted using the table below. The DepEd Order No.8 series of 2015 grading scale with the corresponding descriptor was modified in interpreting the retention level of the students.

Percent Scale	Descriptive Rating	Qualitative Description
90%-100%	Outstanding	Very High Retention
85%-89%	Very Satisfying	High Retention
80%-84%	Satisfying	Moderate
75%-79%	Fairly Satisfying	Low Retention
Below 75%	Did Not Meet Expectation	Very Low Retention

B. Data Gathering Methods

The following steps were taken to gather the needed data from identified participants: (1) Approval was sought from IERC for the conduct of the study. (2) Permission was obtained from the school head in order to conduct the action research. (3) Then the researchers oriented the students on how the visual-based pedagogy would be implemented.

Before implementing the intervention, a pre-test was administered to the intact Grade 10 students. Subsequently, a visual-based pedagogy intervention was employed to enhance retention of complex biology concepts. Following the intervention, the students underwent a post-test after a two-week interval the delayed post-test then followed.

A semi-structured interview questionnaire was also given to the learners to determine their perception on the use of visual based pedagogy.

Data Analysis

Descriptive statistics were employed to assess the level of retention among learners both before and after the intervention. To ascertain if a significant difference existed in the retention of learners before and after the intervention, a paired t-test was utilized.

(Ping & Renandya, 2020) explain that the t-test is utilized to compare two sets of scores, determining whether the average score (referred to as the mean score) of the first set differs significantly from that of the second set. Descriptive statistics is used in this research because it best describes and summarizes the data by providing an overview of the important characteristics of the sample (George, 2023).

For the qualitative data, a thematic analysis from the students' responses was utilized to determine the student's perception on the use of Visual Based Pedagogy in Biology instruction.

RESULTS

This section presented the analysis and interpretation from the data gathered in determining the retention of the students using the visual-based pedagogy on the Grade 10 learners of Musuan Integrated School for the School Year 2023-2024. The groups of data presented in this section were based on the order of action research questions posed in this study.

For Quantitative Result:

Level of Student's Retention Before and After the Intervention

Table 1 presents the students' prior knowledge and retention before and after the intervention.

Table 1. Students Retention Before and After the Intervention.

Percent Scale	Pre-Test		Immediate post-test		Delayed post-test		Qualitative Description
	N	%	N	%	N	%	
90%-100%	0	0	1	2	2	3	Very High Retention
85%-89%	0	0	1	2	7	12	High Retention
80%-84%	0	0	8	13	12	20	Moderate
75%-79%	0	0	16	27	10	17	Low Retention
74%- Below	60	100	34	57	29	48	Very Low Retention
Mean	11.97		27.65		29.07		
SD	3.46		4.26		4.36		

Difference on Learner's pre-test, Immediate Post-test and Delayed Post-test

Table 2. Difference of the Learners pre-test, Immediate Post-test and Delayed post-test.

Pair	Mean	SD	t	Sig (2-tailed)
pre-test- Immediate Post-Test	-15.68	5.31	-22.88	.000
pre-test- Delayed Post-Test	-17.10	5.33	-24.86	.000

**Significant at P< 0.05*

Difference on Learner's Immediate Post-test and Delayed Post-test

Table 3. Presents the difference of Immediate Post-test and Delayed Post-test.

Pair	Mean	Std. Deviation	t	df	Sig (2-tailed)
post-test_1 -post-test_2	-1.41667	1.63947	-6.693	59	.000

Significant at P< 0.05

For Qualitative Result:

Student's perception on the Use of Visual Based Pedagogy

Table 4. Major Themes and Core Ideas of the Student's Perception on the Use of Visual Based Pedagogy.

Major Themes	Sub Theme	Core Ideas
Effective Learning Outcome	Positive Learning Environment	• Learning is fun and interesting • Group collaboration
	Improve Retention Level	• Better understanding through Contextualize content • Lessons made easier to remember

DISCUSSION

Quantitative Discussion

As shown in table 1, all of the student's pre-test score was below 74% indicating a qualitative interpretation of Very Low Retention with an overall mean score of 11.97 (SD=3.469). This might be attributed to student's little information and less prior knowledge on the lessons before receiving a formal instruction using the strategic Visual Based Pedagogy. This result conforms to the report of Guskey and McTighe (2016), that pre-assessment is teachers' way of determining students' prior knowledge before the instruction is given.

The tabulated data presents compelling evidence of a substantive upsurge in

learners' post-intervention assessment scores. Notably, a mean score of 27.65 (SD=4.26) indicates a statistically significant enhancement in conceptual mastery following the implementation of visual-based pedagogy. Furthermore, the persistence of elevated scores in the delayed post-test, averaging at 29.07 (SD=4.36) even after a two-week interval, underscores the durability of the observed learning gains. These findings resonate with the efficacy of visual-based instructional strategies in fostering deep comprehension and knowledge retention. The outcomes not only underscore the immediate impact of the intervention but also provide empirical validation for its sustained effectiveness in promoting enduring conceptual understanding among learners.

The study's outcomes suggest that utilizing visual-based teaching methods is highly effective in improving information retention, especially for understanding complex biology topics. The comparison between immediate and delayed post-test scores highlights a notable improvement, indicating a high level of retention among students following the intervention. These findings are in line with research by Vanichvasin P (2021), which revealed that students exposed to visual-based learning demonstrate enhanced attention spans, comprehension abilities, and retention skills. Two weeks following the immediate post-test, a delayed post-test was administered, yielding positive results. Additionally, visual-based approaches contribute to memory enhancement by aiding in the recall, retention, and retrieval of course material. It's worth noting that such methods also stimulate greater student motivation, interest, and satisfaction, ultimately resulting in improved memorization and overall academic performance.

As reflected in the table 2, the negative mean difference indicated that the mean score of learners is higher in the post-test compared to the pre-test scores of learners. This means that the use of visual based strategies has been beneficial to the learners. In addition, it can be noted that the difference between the pre-test and post-test scores of learners resulted in a p-value of 0.000 which is significant at $p<0.05$. The result shows that there is a significant difference in the scores of the learners before and after the intervention is employed so therefore the null hypothesis is rejected.

This result is congruent to the study of Pem K (2019) states those engaged in visual-based learning methods show significant advancements in higher-order cognitive abilities, critical thinking prowess, and retention of knowledge especially in the field of biology.

As reflected in the table 3, the negative mean difference indicates that the mean scores of the Delayed Post-test compared to the immediate post-test are higher. This indicates that the students have retained the information in the given 40 item test.

In addition, it can be noted that the difference between the immediate post-test scores and the delayed post-test scores have resulted in a p value of 0.000 which is significant at $p<0.05$. This means that there is a significant difference between the scores of the learners after a two-week interval.

This result can be due to the fact that the researchers did not alter a change in the

test questionnaire in the delayed post-test which contributed to the student's retention rate. In Federer's (2014) study, an intriguing finding emerged in which the familiarity of questions, especially those enriched with visual elements, significantly shaped students' responses. This implies that the order of questions might not wield as much influence on scores as factors like question familiarity and the presence of visual aids do. Consequently, the study's outcomes shed light on the efficacy of visual-based pedagogy in student learning. The observed improvement in students' overall scores across pre-test, immediate post-test, and delayed post-test underscores the profound impact of such interventions.

Qualitative Discussion

Positive Learning Environment

Visual-based pedagogy made the lesson captivating for learners. It also encouraged active participation in discussions, especially given the visually appealing nature of the endocrine system topic. Students found video simulations in the discussion to be both motivating and effective. Additionally, they enjoyed engaging in hands-on activities such as "Label me, complete me," which served to assess their prior knowledge. An unlabeled illustration of the endocrine system was provided for identification purposes. Furthermore, a group activity involved creating posters depicting potential problems resulting from endocrine system dysfunction, which were then presented to the class.

The researcher's interest was piqued by the participants' responses in the questionnaire. Their answers indicated that the activities made the subject interesting and not boring. Similarly, another student recalled, *"As a student, the experience of identifying and labeling the anatomy of the endocrine system and its functions was enjoyable. Our biology class is fun because of group activities where we can share knowledge with each other."*

This result is similar to the findings of Bulunuz (2011) who revealed that student's involvement through activities were found exciting, fun and interesting and that students who found the lessons fun and interesting are highly motivated as it creates a positive learning environment thus enhances their participation and engagement of learners in the class (Fallon, Walsh and Prendergast, 2013). This agrees with the work of Gillani (2009) who discovered that when instructional technology is applied as a supplementary approach in teaching of Biology; the students of the experimental group were more attentive because the use of instructional technology stimulated interest and enhanced the motivational level of students. Therefore, the students found learning enjoyable as they collaborated with their peers or group mates, fostering engagement and active participation in group activities. This collaborative approach likely enhanced their understanding of the material through shared insights and perspectives, contributing to a more comprehensive learning experience.

Improve Retention Level

An integral discovery from this study underscores the effectiveness of employing visual-based pedagogy as an intervention in the learning process. Utilizing modern visual aids and leveraging technology to deliver instructional materials not only encourages active student participation but also significantly enhances retention of key concepts. Visual stimuli have been shown to capture students' attention more effectively than traditional teaching methods, leading to increased retention of key concepts. Additionally, the use of visuals can help make complex information more understandable and memorable for students. Overall, incorporating visual-based pedagogy can greatly enhance the learning experience and improve students' ability to grasp and retain important information.

This concept is related to the statement of three students who similarly cited that, "*By implementing visual based pedagogy, there are many lessons that I figured out clearly".* "*The activities conducted in this subject helped me a lot in my studies, because it helped me understand the topics very well".* "*Nakatabang jud siya, kay masabtan man og maayo ang mga functions sa kada organs responsible for secreting hormones especially kay naay pictures and video presentations".*

This agrees with the work of Shabiralyani et al. (2015) emphasizes that visual based play a crucial role in encouraging students during the learning process, ensuring better understanding of lessons, generating interest in the subject matter, aiding in the higher retention of learned materials, enhancing students' vocabulary, and providing direct experiences for the students. Additionally, Cope (2014) stated that active participation during instruction increases learning and retention. Students learn more efficiently by participating in instruction. To further support this idea, Iji, (2002) and Chianson (2014), stated that retention in biology is not acquired by mere rote learning but through appropriate instructional delivery approach. In conclusion, utilizing visual-based pedagogy with the integration of visual aids such as videos, images, diagrams, and interactive multimedia presentations to convey information and concepts to students. When combined with technology, such as interactive whiteboards, educational software, and online resources, these visual tools can offer dynamic significant benefits in terms of student learning and retention.

Conclusions

Based on the gathered results from the study, the researchers concluded the following:

The results highlight the effectiveness of visual-based pedagogy in improving students' retention. The findings support the use of visual aids and interactive activities to enhance learning outcomes. Students' positive perception of the approach underscores the importance of creating an engaging learning environment. The study aligns with previous research, emphasizing the benefits of visual-based learning in attention span, comprehension, retention, and memory.

Recommendations

Based on the results and discussion, the following recommendations are made:

1. Educators should incorporate visual-based pedagogy by using visual aids like charts, diagrams, simulation, and video presentation to enhance learning outcomes.
2. Creating a positive learning environment through collaboration and interactive discussions can further enhance students' engagement and participation.
3. Emphasize the use of hands-on activities to facilitate better understanding and retention of the content.
4. Provide continuous support and reinforcement to sustain the effectiveness of visual-based pedagogy.
5. Further research and professional development should be pursued to explore more effective strategies and stay updated with advancements in visual-based instruction.

Compliance with Ethical Standards

1. We, CHRISCENTE JOSE CABUNGCAL, CARLA MARIE CAPUYAN, MA. THERESA ISABEL DECHOSA, DARAH FAYE SABIO, CATHERINE SALDUA, the researchers of the study entitled **"ENHANCING RETENTION OF BIOLOGY CONCEPT THROUGH VISUAL-BASED PEDAGOGY"**. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether or not to take part. This study is being conducted by the researchers in Musuan Integrated School, Musuan, Maramag, Bukidnon. Any information you provide will be kept anonymous. The researchers will not use your personal information for any purposes outside of this research study. Also, the researchers will not include your name or anything that could identify you in the study reports. Pieces of information provided by the participants will be treated with utmost care and held confidentiality.
2. The participation of the participants is completely voluntary and may withdraw from the study at any time. The study is completely anonymous; therefore, it does not require them to provide their name or any other identity information. Furthermore, the research data will be collected is ensured to be for academic purposes only and will remain confidential.
3. We hereby declare that we do not have any personal conflict of interest that may arise from our application and submission of our research proposal. We understand that our research proposal may be returned to us if found out that there is conflict of interest during the initial screening as per (insert RMG provision). Further, in case any form of conflict of interest (possible or actual) which may inadvertently emerge during the conduct of our research, we will duly report it to the research committee for immediate action. We understand that we may be held accountable by the Department of Education and (insert grant mechanism) for any conflict of interest which we have intentionally concealed.

4. Plagiarism was strictly avoided by ensuring that all sources and references were properly cited and original contributions were clearly distinguished. Furthermore, there was no bias in the interpretation of the findings. The data was analyzed impartially, and conclusions were drawn based solely on the evidence collected. Finally, the results of the study were used purely for research purposes, contributing to the academic and scientific understanding of the subject matter, with no intention for commercial exploitation.

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EVALUATING PROFIT DISPARITIES IN SELLING VEGETABLES: ROLLING STORE VS MARKET STALL

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ABSTRACT

In examining profit disparities between rolling stores and market stalls in the vegetable retail sector, several factors emerge as pivotal. The rolling store, characterized by mobility and flexibility, offers convenience to customers by reaching them directly in their neighborhoods. Conversely, market stalls operate within fixed locations, providing stability but potentially limiting customer accessibility. Profit differentials stem from operational costs, market dynamics, and consumer behavior. Rolling stores incur lower overhead costs, primarily due to reduced infrastructure and operational expenses compared to market stalls. However, this advantage may be offset by higher transportation costs associated with frequent mobility. Market stalls benefit from a consistent customer base and established foot traffic, fostering predictability in sales volume. Nonetheless, they face competition from neighboring stalls and must contend with seasonal fluctuations. Consumer preferences play a crucial role in shaping profit differentials. While rolling stores offer convenience and proximity, market stalls often boast a wider variety of produce and the opportunity for interpersonal engagement. Consumer demographics and socioeconomic factors influence purchasing decisions, with convenience-oriented shoppers favoring rolling stores and those valuing variety and interaction gravitating towards market stalls. Furthermore, market competition and pricing strategies impact profit differentials. Rolling stores may leverage their mobility to target underserved areas or adjust prices based on demand elasticity. Market stalls, conversely, engage in price competition within a fixed location, necessitating differentiation through product quality or service.

Keywords: *profit disparities, rolling stores, market stalls, interpersonal engagement*

INTRODUCTION

There can be variations in terms of selling vegetables, which are rolling vegetable stores and market stalls (Manucdoc, 2019). In this study, the researchers are identifying which is more efficient in terms of sales. And, to know how rolling stores can be effective to entrepreneurs in selling their products. These issues can make it hard for entrepreneurs to make sales. Rolling stores can be a difficult method because sometimes, the products are not purchased by people, it is also more hassle because they are the ones that are finding their customers (Kennedy et a., 2009). On the other hand, a market stall can also be a hassle, because it only stays in one place. People struggle because they even need to go to their store to buy their products. Rolling Store might struggle to find more customers, so they should find a place that will attract people to buy their products and loyal customers. Also, to be earlier for the customers that are trying to find more viand for breakfast and lunch. On the other hand, market stalls can also be a hassle, market stall owners should find a more crowded area to gain more consumers that will buy their product. In the dynamic landscape of entrepreneurial ventures, the competition between various business models has always been a topic of significant interest and importance. One such intriguing juxtaposition is the comparison between "Rolling Stores" and "Market Stalls" in the context of profit disparities.

These two business models represent distinct approaches to retail and commerce, each with its own set of advantages and challenges. The "Rolling Store" concept entails mobile retail operations, often utilizing vehicles to bring products directly to consumers' doorsteps, providing convenience and accessibility. On the other hand, "Market Stalls" are stationary, often open-air setups in local markets, offering a more traditional shopping experience (Tulukan et al., 2024). This quantitative research seeks to delve into this comparative analysis, aiming to discover on the factors influencing the financial success of rolling stores in contrast to market stalls. By systematically assessing and interpreting the data, the researchers aim to provide valuable insights for entrepreneurs, and stakeholders in the retail industry, making a better understanding of the dynamic retail landscape in today's market-driven economy.

A market stall can be challenging because it only stays in one place, People struggle because they even need to go their store to buy their products (Yu and Pan, 2020). Rolling Store might struggle to find more customers, so they should find a place that will attract people to buy their products and loyal customers. Also, to be earlier for the customers that are trying to find more viand for breakfast and lunch. On the other hand, market stalls can also be a hassle, market stall owners should find a more crowded area to gain more consumers that will buy their product. The contribution of this study is to identify which one people would choose more, and which is more efficient between rolling store and market stalls. And, which the two of them gains more sales and profit. And to discover which of the two is more efficient if you're going to start a business. A rolling store or a market stall. Many past and present projects have aimed to increase children’s vegetable consumption by increasing children’s exposure to vegetables. For instance, gardening, distribution of free vegetable baskets to classrooms, and parental

initiative to consume fruits and vegetables improved the younger generation's preference (Holloway et al., 2023).

METHODOLOGY

The information about the research and sampling procedures utilized by the researcher is provided in this chapter. The research design employed, the data gathering techniques and the discussion of data analysis are shown in this chapter.

Research Design

This study used the explanatory-sequential method. This is a two-phased method of gathering data. The first phase involved collecting quantitative data, followed by the collection of qualitative data. Qualitative data was used to support and explain quantitative results.

Quantitative data collection was conducted using online survey questionnaires. Through this survey, the difficulties, challenges, lessons and how they handled different consumers were obtained and measured based on the responses of the vegetable marketers. The survey questionnaire also had interview questions which were open-ended. They were used to support quantitative data. The data collected were organized and interpreted.

Data Gathering Techniques

To gather the data needed, permission to conduct the study was sought first. A letter was sent to the authority requesting permission to conduct surveys using survey questionnaires to the respondents. After the permission was given, the researcher discussed personally with the school principal how the survey would be performed. The researchers will conduct their research by doing a Likert scale interview questions and accepting study protocols before the interview. To get material from a specific source, researchers must get permission first from the Curriculum chairman and School Principal. The collection of data involved two phases with each phase using a different set of tools. The first phase focused on the collection of quantitative data through survey questionnaires. The survey questionnaire was intended for vegetable marketers was composed of two parts. The first part is about determining the monthly profit of both stores, while the second part is determining how they overcome difficulties in terms of decrease in sales.

The second phase of the study focused on the gathering of qualitative data. Interview question forms were given to selected vegetable marketers. The interview questions aimed to discover the monthly profit of a rolling store and a market stall.

Sampling Procedures

In choosing the respondents of the study, Purposive Sampling will be used, because of a certain criterion that all respondents should be a vegetable store owner only. Likert scale method is to be conducted. There is 1 vegetable store owner-respondent each for rolling store and market stall in this study.

Data Analysis Scheme

Survey questionnaires were collected, tabulated, tallied, and analyzed. T-test was used to describe the Profit disparities of vegetable stores.

T-Test is to be used to determine the statistical significance of results, The researcher will employ the following statistical tools to summarize and interpret the numerical data of the study.

T-test. This statistic was used to describe the quantitative data and used the Paired Samples t-test to Compare means of two groups called Rolling Store and Market Stall.

Research Instrument

A carefully structured questionnaire was implemented to elicit the necessary information about the evaluation of the differences in the profit of a rolling vegetable store and market stall will be designed by the researchers to gather the data for this study.

RESULTS AND DISCUSSION

This chapter deals with the presentation, analysis and interpretation of the data collected and the results of the statistical treatment employed in the study with the purpose of describing the profit differences between a Rolling Vegetable Store and a Market Vegetable Stall.

Vegetables are an important part of the human diet and a major source of biologically active substances such as vitamins, dietary fiber, antioxidants, and cholesterol-lowering compounds. Despite a large amount of information on this topic, the nutritional quality of vegetables has not been defined. Historically, the value of many plant nutrients and health-promoting compounds was discovered by trial and error (Hounsome et al, 2008).

Vegetable crops show variable responses to stressful conditions with physiological, biochemical, metabolic and morphological changes that occasionally lead to changes in chemical composition and visual appearance of the final products. Eustressors are various biological, physical or chemical stressful factors that trigger the *signaling pathways* leading to a higher bioactive compounds content and quality

attributes of vegetable products. Therefore, its application could be a useful tool in modern horticulture towards fulfilling the agro-food industry and consumers' demands for high quality and functional vegetable products (Paul et al, 2018). Vegetables are horticultural crops that have a high market absorption. Modern market that is considered to have many advantages does not necessarily reduce consumers' shopping interest at traditional markets. Traditional markets appear to have different characteristics and visitor segments from modern markets. This is to determine the level of consumers' satisfaction of vegetables towards the marketing mix in the traditional markets (Yaqin et al, 2023). Farmers' markets are predominantly fresh food markets that operate regularly within a community where farmers and often retailers, sell produce and associated products directly to consumers. The variables affecting the determination of the sale price of vegetable which is constant over time in a supermarket. It focuses on the non-organic vegetables with a fixed selling price over time such as spinach, beet, and parsley (Miranda, 2017). To investigate and control quality, one must be able to measure quality-related attributes. Quality of produce encompasses sensory attributes, nutritive values, chemical constituents, mechanical properties, functional properties and defects. Instrumental measurements are often preferred to sensory evaluations in research and commercial situations because they reduce variations in judgment among individuals and can provide a common language among researchers, industry and consumers.

Presentation, Analysis and Interpretation of Data

This chapter deals with the presentation, analysis, and interpretation of the data collected and the results of the statistical treatment employed in the study to determine the monthly profit between the rolling vegetable store and market stall.

Table 1. Comparison of a rolling store and a market stall on attributes of their store and products.

Attributes of a Rolling Store and a Market stall	Rolling Store N = 1			Market Stall N = 1		
		SD	VD		SD	VD
A. Quality						
1. The vegetables in your store are consistently fresh.	3.00	0	A	3.00	0	A
2. The color of your vegetables positively influences customer purchasing decisions.	3.00	0	A	3.00	0	A
3. The texture of your vegetables distinguishes your store from competitors.	3.00	0	A	3.00	0	A
4. . The size options available in your store are enough for customers.	3.00	0	A	3.00	0	A
5. The size of your vegetables influences customer purchasing decisions.	3.00	0	A	3.00	0	A

Overall Mean	15	0	A	15	0	A
B. Price						
1. The pricing of vegetables in your store is perceived as fair by customers	4.00	0	SA	4.00	0	SA
2. The pricing aligns well with the economic preferences of your target customers.	3.00	0	A	4.00	0	SA
3. Customers feel they get value for money with the prices in your store.	3.00	0	A	4.00	0	SA
4. Your pricing strategy contributes positively to customer loyalty.	3.00	0	A	4.00	0	SA
5. Your store effectively suits the value of vegetables in relation to their prices.	3.00	0	A	4.00	0	SA
Overall Mean	16	0	A	20	0	A
C. Availability						
1. Your store maintains a consistent supply of a wide variety of vegetables.	3.00	0	A	3.00	0	A
2. Your store effectively manages and restocks inventory to minimize shortages.	3.00	0	A	3.00	0	A
3. Your store adapts well to seasonal changes in vegetable availability.	3.00	0	A	3.00	0	A
4. Your store communicates effectively with suppliers to ensure a steady source of vegetables.	3.00	0	A	3.00	0	A
5. Your store consistently has popular and in-demand vegetables in stock.	3.00	0	A	3.00	0	A
Overall Mean	15	0	A	15	0	A
D. Customer Satisfaction						
1. You are satisfied with the overall level of customer satisfaction achieved by your store.	4.00	0	SA	4.00	0	SA
2. Your store meets or exceeds customer expectations in terms of service and interaction.	3.00	0	A	3.00	0	A
3. Your store has built a loyal customer base over time.	3.00	0	A	4.00	0	SA
4. Your store effectively addresses and resolves customer concerns or issues in a timely manner.	3.00	0	A	3.00	0	A
5. Your store utilizes customer feedback to make improvements and enhance the overall shopping experience.	4.00	0	SA	3.00	0	A
Overall Mean	17	0	A	17	0	A

Legend:

Scale (VD)	Verbal Description (VD)	Scale	Verbal Description
3.26 – 4.00	Strongly Agree (SA)	1.76 – 2.50	Disagree (D)
2.51 – 3.25 (SD)	Agree (A)	1.00 – 1.75	Strongly Disagree

Table 1 compares the profit of rolling store and a market stall on Attributes of a Rolling Store and a Market stall in terms of quality, price, availability, and customer satisfaction accordingly, to determine the profit of both rolling store and market stall. On Quality, both stores rated item #1-5 with the mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0 and $\bar{x}$MarketStall = 3.00; SD = 0) such that they 'agree' that the quality of their products regarding the profit of their store is good when it comes to their consumers.

In addition, with the attribute of their vegetable's Price, both rolling store and market stall rated item #1 with the mean of (i.e., $\bar{x}$RollingStore = 4.00; SD = 0 and $\bar{x}$Teachers = 4.00; SD = 0) such that they 'strongly agree' that the price of their products is moderate and average for their consumers regarding their profit to be average for the day, however, the rolling store differed in

item #2-5, the owner only chose 'agree' with the mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0), such that they 'agree' and 'strongly agree' that the rolling store one just agreed that the store effectively suits the value of vegetables in relation to their prices. With the availability of their vegetables, both rolling store and market stall both rated item #1-5 with the mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0 and $\bar{x}$MarketStall = 3.00; SD = 0) such that they 'agree' that their store maintains a consistent supply of a wide variety of vegetables. Lastly, both rolling store owner and market stall rated item #1 in the fourth sub-variable which was customer satisfaction had almost the same answers with the mean of (i.e., $\bar{x}$RollingStore = 4.00; SD = 0 and $\bar{x}$MarketStall = 4.00; SD = 0) such that they 'strongly agree' that their products always pleases and values their consumers. On item #2, both store owners only chose 'agree' with mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0 and $\bar{x}$MarketStall = 3.00; SD = 0). In addition, in item #3, only the rolling store owner chose 'agree' with the mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0 and $\bar{x}$MarketStall = 4.00; SD = 0). On item #4, both store owners have the save extent of agreement, they chose 'agree' with the mean of (i.e., $\bar{x}$RollingStore = 3.00; SD = 0 and $\bar{x}$MarketStall = 3.00; SD = 0). Lastly, in item #5, the market vegetable stall owner was the one who only chose 'agree', while the rolling store owner chose 'strongly agree' with the mean of (i.e., $\bar{x}$RollingStore = 4.00; SD = 0 and $\bar{x}$MarketStall = 3.00; SD = 0).

Overall, to note that for all of the item statements on quality, price, availability and customer satisfaction, both groups had responded 'agree' to 'strongly agree' only. (i.e., $2.51 \leq \bar{x} \leq 3.25$ and $3.26 \leq \bar{x} \leq 4.00$, respectively). Generally, the results imply that the rolling store and market stall had similar to strongly agreed on perceptions on the attributes of their vegetable products, expressed in terms of Quality (i.e., $\bar{x}$RollingStore = 15; SD = 0 and $\bar{x}$MarketStall = 15; SD = 0); Price (i.e., $\bar{x}$RollingStore = 16; SD = 0 and $\bar{x}$MarketStall = 20; SD = 0); and, Availability (i.e., $\bar{x}$RollingStore = 15; SD = 0 and

$\bar{x}$MarketStall = 15; SD = 0); Customer Satisfaction (i.e., $\bar{x}$RollingStore = 17; SD = 0 and $\bar{x}$MarketStall = 17; SD = 0).

Table 2. Difference between Rolling Vegetable Store and Market Stall in terms of its attributes that influence profitability

Variable	Rolling Vegetable Store N=1		Market Vegetable Stall N=1		t-value	CV	p-value
	Mean	SD	Mean	SD			
Attributes of vegetable stores that influence profitability of Rolling Vegetable Store and Market Vegetable Stall							
A. Quality	5	0	5	0	0	0	0
B. Price	3.6	1.6733200507	5	0	-1.8708281	2.77645105	0.04965
C. Availability	5	0	5	0	0	0	0
D.Customer Satisfaction	5	0	5	0	0	0	0

In Table 2, the researchers realized that in both method of selling their vegetable products, the quality, availability, and customer satisfaction matters in the profitability of their stores. The price matters, but it is average pricing anyway, so it doesn't affect much in their sales, as long as anybody is buying their products, except when they increase their amount of price, because when price increases, the demand decreases. Unlike market stalls, rolling stores may find it very hard and easy at the same time to find consumers, in terms of geographical limit, they have a very wide range of geographical range because they can go from place to another place, but it is a hassle at the same time, because of their vehicle repairs, gasoline for their vehicle, time management, and more. According to Syverson (2004), better markets does not actually lead to productivity. The finding implies that investment in markets access and infrastructure provides less advancement in agricultural productivity, whereas programs targeted on enhancements

in farm structure and capital have the potential to increase both productivity and market participation. the factors affecting the productivity and profitability of vegetable production. The study showed that access to credit, selling price, fertilizer quantity and gender were significant and positively related to the productivity of the vegetable farmers while distance to market was negatively related to productivity.

Conclusions

Using the procedures described in the preceding chapter, the answers to the problem raised in the study were ascertained and summarized as follows.

For all the statements on quality, price, availability, and customer satisfaction. both groups had responded ‘agree’ to ‘strongly agree’. The results imply that the rolling store and market stall had positively perceived on attributes of the vegetables. This study employed the sequential-explanatory research design under mixed-methodology. It utilized standardized questionnaires in determining the monthly profit of Rolling Store and a Market Stall. It also made use of interview questions, which are open-ended, in the form of structured interview. The responses in terms of using qualitative data of these interview questions were used to corroborate the quantitative data gathered thru the use of standardized questionnaires. The respondents of the study were the rolling vegetable store owner and market vegetable stall owner.

Based on the findings of the study, the following conclusions were drawn:

- There is a significant difference in the perceptions of the rolling vegetable store owner and market vegetable stall owner on the attributes of vegetables, expressed in terms of quality, price, availability, and customer satisfaction.
- There is a significant difference in the challenges they face every day between the rolling vegetable store owner and market vegetable stall owner
- There is a significant difference on their method of selling their vegetable products between a rolling store and market stall to their consumers.
- There is a significant difference between the profit of rolling store and a market stall on selling vegetables expressed in terms of quality, price, availability, and customer satisfaction.
- There is a significant difference between a rolling store and a market stall by their geographic range, area control, loyal consumers, and their method of selling vegetables.
- There is a significant difference between the lessons they gain from each other with their methods of selling their products.
- There is a significant difference between the rolling vegetable store and the market vegetable store on how they handle different consumers.

Recommendations

Considering the findings and conclusions of the study, the following recommendations were presented.

- The rolling stores and market stalls may offer diverse vegetable products than usual to increase more profit and attract more customers.
- The rolling stores and market stalls may set competitive prices for their vegetables. They may consider bundling options or discounts for larger purchases to encourage customers to buy more.
- Both stores could use signboards for anybody to know that they're selling vegetables and to attract more customers to buy their products.
- Both stores could use megaphones, to attract more consumers to buy their products.
- Both stores must keep the products to be always fresh.
- Both stores should handle their customers with active listening, empathy, problem-solving, and maintaining professionalism.

Compliance with Ethical Standards

The author declares that there is no conflict of interest. Informed consent was obtained from all individual participants involved in the study. No specific funding was received from any public, commercial, or not-for-profit sectors to support this research. The data generated and analyzed during the study are available from the corresponding author upon reasonable request.

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EXPERIENCES OF TEACHERS IN TEACHING MATHEMATICS USING MOTHER TONGUE-BASED MULTILINGUAL INSTRUCTION ACROSS SOUTH LUZON

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ABSTRACT

The study aims to determine teachers' experiences in teaching Mathematics using Mother Tongue-Based instruction. The Philippine curriculum for Kindergarten to Grade 3 emphasizes using the mother tongue in teaching and learning Mathematics. The study used qualitative research design to gain data on the experiences, challenges, and strategies of teachers in South Luzon. The study revealed that Mother Tongue-Based Multilingual Education significantly improves instructional practices and student learning outcomes in Mathematics. MTB-MLE enhances engagement, comprehension, and problem-solving, fostering confidence and active class participation. However, despite its benefits, MTB-MLE presents challenges for teachers, including language barriers and resource limitations. Translation difficulties and inadequate instructional materials hinder student comprehension and engagement in Mathematics learning. Moreover, the results suggest that teachers' training programs focusing on MTB-MLE implementation strategies should be conducted and provide ongoing support and resources for educators. There should be enough support to teachers in implementing MTB-MLE effectively by providing leadership, resources, and professional development opportunities.

Keywords: *MTB-MLE, Mathematics, Experiences of Teachers, Positive Experiences, Negative Experiences, Challenges of Teacher, Parental Involvement,*

INTRODUCTION

Learning in one's mother tongue (MT), commonly referred to as the native language, is gaining increasing popularity both locally and globally, with organizations such as UNESCO and UNICEF endorsing this approach (Burton, 2013; Jacob, 2016). Governments in countries like Bangladesh, India, Nepal, and Papua New Guinea have shown growing interest in incorporating mother tongue instruction to advance MT education. Since the inception of the Mother Tongue-Based Multilingual Education (MTB-MLE) initiative in 2009, there have been expanded scholarship opportunities in the Philippines for learning in one's mother tongue. typically, during their critical developmental period, or it can be the first language learned, the one they are most proficient in, use the most frequently, and strongly identify with (Kosonen & Young, 2009).), advocating for bilingual and multilingual education across all schooling levels and promoting learners' right to receive education in their language to foster inclusivity and preserve linguistic diversity.

Language plays an important role in understanding Mathematical concepts. Familiarity or lack of it may determine the failures and success. Human beings since in the history used language to communicate, resolve conflicts, and solve numerical problems. It is one attribute that sets humans apart from all other creatures and binds humans together across all geographic barriers. Language serves as the bridge to understanding. Thus, even learning Mathematics requires linguistic skills. In recent years, there has been a growing recognition of the importance of embracing learners' mother tongues as a foundation for learning. The Mother Tongue-Based Multilingual Education (MTB-MLE) policy has been at the forefront of educational reform efforts in the Philippines, emphasizing the use of native languages as a medium of instruction in the early years of schooling. This approach aims to improve comprehension, enhance critical thinking, and foster a deeper understanding of subjects, including Mathematics.

In the Philippines, one of the latest developments in the educational system is the Mother Tongue – Based Multilingual Education (MTB-MLE). MTB-MLE refers to the use of learners' mother tongue and two or more additional languages as Languages of Instruction (LoI) in school. In other contexts, the term is used to describe bilingual education across multiple language communities—each community using its mother tongue aside from the official school language of instruction. In South Asia multilingual education usually follows the first definition, learning and using multiple languages in school.

As South Luzon's educational landscape adapts to the MTB-MLE framework, it is crucial to understand the experiences of teachers on the frontlines of this transformative shift. This research is the rich tapestry of educators' experiences in teaching Mathematics using mother tongue-based multilingual education in South Luzon.

This introductory exploration, will outline the context and significance of this study, highlight the objectives, and provide a glimpse into the methods employed to capture the perspectives of these dedicated educators. Through the voices of South Luzon's teachers, it aims to unravel the challenges, successes, and lessons learned in implementing MTB-MLE in Mathematics instruction, shedding light on the path toward a more inclusive and effective education system.

In addition to adding to the expanding corpus of knowledge on multilingual education, this study provides insightful information that can guide curriculum design, policy decisions, and pedagogical approaches in South Luzon and elsewhere. Gaining insight into the experiences of educators can help create a mathematics education system that is more egalitarian and culturally sensitive, eventually promoting the holistic development of the students in the area.

Research Questions

1. What are the positive and negative experiences of teachers in teaching Mathematics in primary using Mother Tongue Based Multilingual Instruction?
   1.1 Tagalog
   1.2 Bicol
2. What are the challenges towards the use of MTB-MLE as a medium of instruction in Mathematics encountered by the teachers?
   2.1 Tagalog
   2.2 Bicol
3. What coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue –Multilingual Instruction?
   3.1 Tagalog
   3.2 Bicol
4. What program can be made to enhance the sustainability and effectiveness of using Mother Tongue in Teaching Mathematics?

METHODOLOGY

Research Design

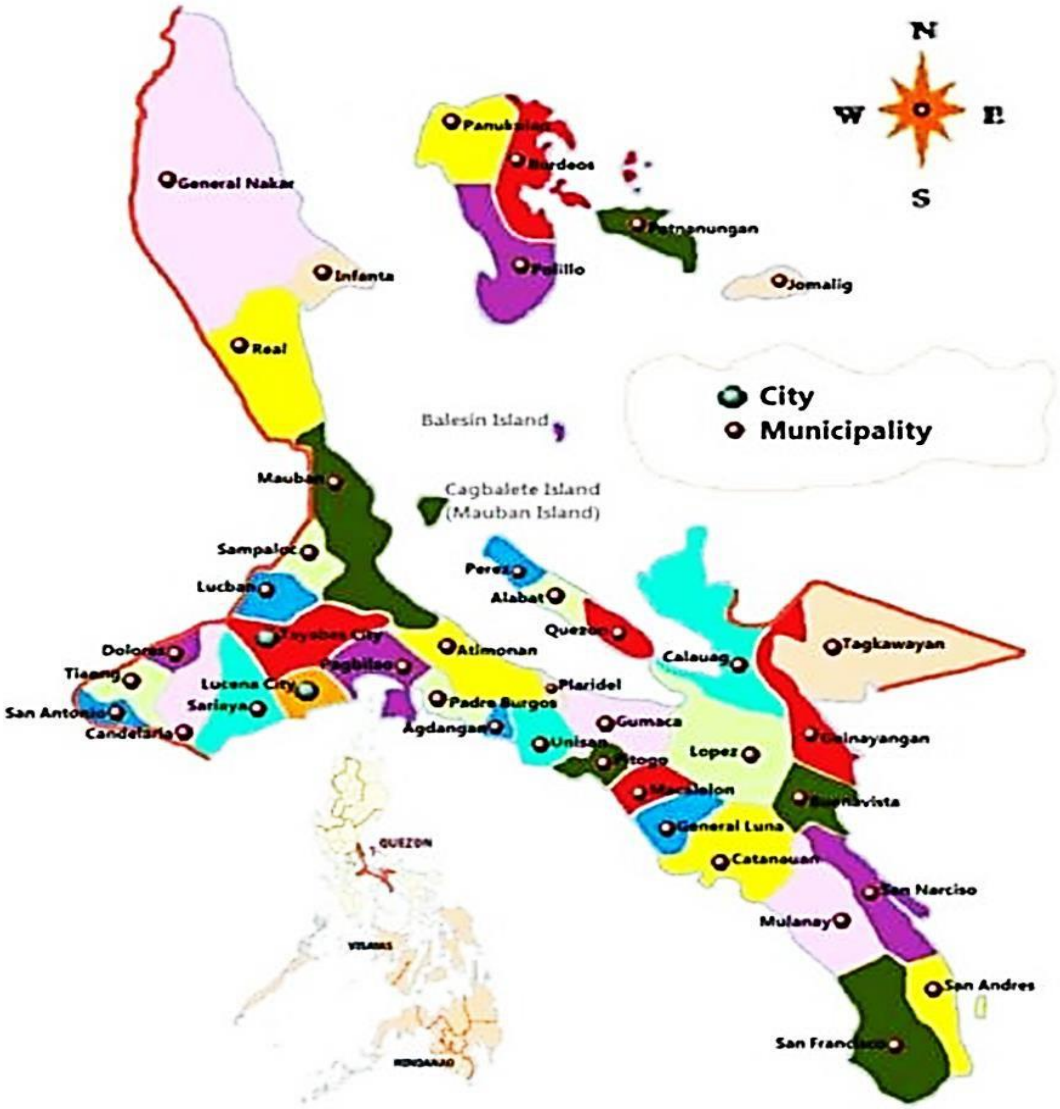
The research used a qualitative research design to gain in-depth insights into the experiences, challenges, and strategies of teachers in South Luzon. Qualitative research is well-suited for exploring complex phenomena and understanding the lived experiences of participants. This design allows for a nuanced exploration of the multifaceted aspects of MTB-MLE in Mathematics instruction.

Research Locale

Luzon sits at the northern end of the Philippines and is the country's largest and most populous island. It's known for its mountains. Bender of Southern beyond Quezon is the Bicol region, which encompasses the remainder of Southern Luzon and includes the mainland provinces of Camarines Norte. Camarines Sur, Albay, and Sorsogon, and the islands of Catanduanes and Masbate. Quezon is officially the Province in the Philippines located in the Calabarzon region of Luzon. Kalilayan was the first known name of the province upon its creation in 1591. The study is to be conducted across selected elementary schools in Quezon and Bicol Region. The researcher chose the school in Quezon respondents namely, Pedro Cabangon Elementary School Located at Brgy. Mascariña, Quezon, Quezon and Del Pilar Elementary School Located at Brgy. Del Pilar Quezon, Quezon. While across the Bicol Region, Dygico Elementary School Sta Elena Camarines Norte and San Pedro Elementary School San Pedro, Camarines Norte. The participants were composed of 6 teachers in Quezon District who are actively teaching MTB-MLE and teachers from Grades 1-3 in Dygico Elementary School and San Pedro Elementary School.

The choice of South Luzon is based on its linguistic diversity and the significant implementation of MTB-MLE in the region.





Research Population and Sample

The research population for this study encompasses educators based in South Luzon actively engaged in instructing Mathematics through the Mother Tongue-Based Multilingual Education (MTB-MLE) framework. This diverse group of teachers represents various linguistic backgrounds and spans different educational levels. To ensure a comprehensive and representative sample, a purposive sampling technique was utilized. near the researcher These chosen schools were specifically identified for their implementation of MTB-MLE in Tagalog, and Bicol languages, aligning with the study's focus on multilingual instructional contexts.

Table 1. *Respondents of the study*

District/Division	School	Mother Tongue	Number of Respondents
District of Quezon, Division of Quezon	Pedro Cabangon Elementary School	Tagalog	3
	Del Pilar Elementary School	Tagalog	3
Sta. Elena District Division of Camarines Norte	Dygico Elementary School	Bicol	3
San Pedro District Division of Camarines Norte	San Pedro Elementary School	Bicol	3
Total			12

RESULTS

Part 1. The Positive and Negative Experiences of Teachers in Teaching Mathematics in Primary Using Mother Tongue-Based Multilingual Instruction

Table 2
The Positive Experiences of Teachers in Teaching Mathematics in Primary Using Mother Tongue-Based Multilingual Instruction in Tagalog

Theme	Sub-theme	Experiences
Positive Experiences	Learners Engagement	Ang paggamit ng Mother tongue sa pagtuturo ng math ay may positibong resulta dahil mas naiintihan nila ang aralin nasasagot nila ng mas Madali ang mga suliranin o problem solving dahil mas Madali nilang maunawaan ang mga katanungan. Malaki ang naitutulong MTB In teaching -learning Mathematics, dahil nakakaresponse agad sila sa mga tanong ng guro. My learners understand the lesson clearly they are not ashamed in participating the activities dahil nga sa sila ay nakakapagsalita ng ating native dialect na mother tongue which is tagalog. Based on experiences learners easily understand the activities gamit ang mother tongue

		Mas madali intindihin mula isa hanggang sampu ok naman ang paggamit ng MTB Ok naman kasi nga yong panuto tagalog. Sa Mathematics kapag mother tongue mas nauunawaan nila.
	Conceptual Clarity	Sa mathematical concept kagaya ng sinabi ko kapag may mga problem solving mas Madali na nilang maunawan ito ex four fundamentals pagdadagdag mas Madali nila itong maunawaan Sa problem solving mas Madali lng nilang ma analyze ang mga situation kapag Mother tongue ang gamit. Dahil nga sa mother tongue ang gamit nila mas malinaw na sa kanila mga instruction mas Madali na nilang nasasagutan ang mga lesson at exam sa Mathematics. With the used of MTB as a medium instruction mas nauunawan nila ang lesson pagpapaliwanag ng mga procedure mas Madali nilang maintindihan. Learners answer and cooperate easily in most activities when they easily understand the task given to them. Sa akin po pinapababaw ko pa po ung mga salita para mas maunawaan
	Teaching Effectiveness	Napansin ko na mas mataas ang result ng mps nila unlike dati na mababa Lahat ng mga learners ay nagpaparticipate sa mga activies at nasasagot nila ng tama ang mga problem kaya alam ko na mas effective ang aking pagtuturo sa kanila. Sometimes some mathematical terminilogy are hindi madaling mtranslate sa tagalog pero dahil nga sa mother tongue mas nagging effective naman ung teaching ko.

		Mas madali sa min bilang guro magprepare ng materials mas Madali mag isip ng concept kasi ng MTB. For me as a teacher, I easily find the effectiveness of my teaching strategies and how I use them to help learners continue to the next lesson. Active po silang sumagot kapag mother tongue ang gamit dahil mas nauunawaan nila ang lesson

Table 2 presents the positive experiences of teachers utilizing Mother Tongue Based Multilingual Education (MTB-MLE) in teaching Mathematics in primary education, particularly in Tagalog, three main themes emerge from the data: Learners Engagement, Conceptual Clarity, and Teaching Effectiveness, each highlighting specific advantages observed by the teachers.

In terms of learners' Engagement, teachers report that learners understand lessons better and can answer questions more readily when taught in their mother tongue. This improved comprehension leads to more active participation and immediate responses to teacher inquiries. Furthermore, using Tagalog reduces learners' fear or shame, encouraging them to participate more willingly in classroom activities. The cultural relevance of commands and instructions in Tagalog resonates more deeply with learners, fostering a sense of connection and comfort in the learning environment.

When it comes to Conceptual Clarity, the use of the mother tongue simplifies problem-solving for learners. Mathematical concepts and problems explained in Tagalog are easier for learners to grasp and analyze. Teachers also find that instructions given in the mother tongue are clearer, helping learners to understand and complete their lessons and exams more effectively. This clarity leads to improved cooperation among learners as they can better comprehend and follow the tasks assigned to them.

Regarding Teaching Effectiveness, teachers observe that learners' mean percentage scores have improved, indicating better academic performance. The use of Tagalog encourages all learners to participate in activities and solve problems correctly, demonstrating the effectiveness of this teaching approach. Additionally, teachers find it easier to prepare materials and conceptualize teaching strategies when using Tagalog, which enhances their overall teaching effectiveness. Despite some challenges in translating technical mathematical terms, the overall benefits of using the mother tongue outweigh these difficulties, resulting in more effective teaching.

It implies that the positive experiences of teachers in using Tagalog as MTB-MLE in teaching Mathematics underscore its potential to enhance learning outcomes and promote learners' engagement. By addressing challenges and leveraging the benefits of MTB-MLE, educators can create a more effective and inclusive learning environment that caters to the diverse linguistic needs of learners in primary education.

Table 3

The Negative Experiences of Teachers in Teaching Mathematics in Primary Using Mother Tongue-Based Multilingual Instruction in Tagalog

Theme	Sub-theme	Experiences
Negative Experiences	*Language Barriers*	*May naexperience na ako about jan yong bata ay galing sa ibang lugar medyo nahirapan ang bata dahil used na used siya sa mother tongue niya medyo mahirap sa part naming dagdag trabaho dahil kailangan mo talaga gumawa paraan para makaunawa ung bata.* *In teaching Mathematics may mga termenologies sa MTB na mahirap maunawaan ng learners like grade one, mas Madali sa kanila ung greater than kaysa sa labis ng isa.Sa fraction naman yong ¼ ay mas madalas nilangg maunawaan kaysa sangkapat, at sa counting or reading.* *Yong ibang tagalog words ay nahihirapan silang unawain* *May Mga case ako dati na yong bata ay from other regions like bicol na kung saan yon ung nakasanayan nila kaya kailangan ko pang mag search ng translation ng dialect nila.* *For me, some terminologies used in Mathematics were complicated to translate in the mother tongue and they are also complicated to understand.*
	Learners Reception	*Kagaya ng sinabi ko ung bata ay galing sa ibang lugar yong bata ay nagkaroon ng struggle.* *When teaching Mathematics in Elementary grade there are some challenges encountered one of them is mas mahirap silang maunawaan ang ibang mga salita na isinalin sa tagalog* *Nahihirapan lalo na pag yong mga words ay bago sa pandinig nila.*

		Mahirap po kasi meron used sa english nahihirapan talaga sila. *Yes! there were instances when learners were confused and did not understand it easily* *Challenging talaga siya sa part ko lalo na at nasanay sila sa English kaya need humanap ng paraan na mas mapadali nila mainitindihan yong mga instruction.*
	Resource Limitations	*Kulang tayo sa mga materials kaya sana maglabas pa sila ng maraming books na nakasalin sa Mother Tongue.* *Kulang at pilit kang gagawa ng mga instructional materials par mas maunawaan ng mga learners ang lesson na nakaka consume pa ng maraming oras para lng maunawaan nila.* *Minsan nakakaapekto ito sa mga mag-aaral lalo na at di sapat ang resources* *Medyo po kasi kulang yong mga materials books but nagagawan ng paraan.* *Teachers had a hard time executing the lesson because of limited resources and also the lack of training and takes time for me and I think other teachers to go to the next lesson* *The teacher had a hard time to execute the lesson because of limited resources and the lack of training and takes time for me and I think to another teacher to go to the next lesson*

Table 3 presents the negative experiences of teachers in teaching Mathematics in primary using Tagalog as a mother tongue-based multilingual education.

Teachers face significant challenges in teaching Mathematics using Mother Tongue Multilingual Education (MTB), particularly due to language barriers. learners, especially those from different linguistic backgrounds, struggle to grasp mathematical

concepts presented in Tagalog, even though they are more accustomed to their mother tongue. This leads to difficulties in communication and comprehension, hindering effective teaching and learning. To address language barriers, educators need to adopt diverse instructional strategies that cater to the linguistic diversity of learners. This may include providing bilingual or multilingual resources, offering language support programs, and fostering a culturally responsive learning environment. Additionally, teacher training programs should focus on equipping educators with the necessary skills and tools to effectively teach Mathematics in multilingual settings, thereby improving learner engagement.

The reception of Mother Tongue Based Multilingual Education (MTB) in Mathematics varies among learners, influenced by factors such as language background and instructional support. Some learners may struggle to understand mathematical concepts presented in Tagalog, leading to confusion and frustration. However, with adequate support and encouragement, learners demonstrate resilience and willingness to learn, highlighting the importance of fostering a supportive learning environment. Educators must prioritize creating inclusive learning environments where learners feel supported and valued, regardless of their language background. This involves providing individualized support to learners who may struggle with language comprehension, implementing collaborative learning activities that promote peer interaction and support, and celebrating linguistic and cultural diversity in the classroom. By addressing learners' diverse needs and fostering a positive learning environment, educators can enhance learners' reception of MTB in Mathematics and promote equitable access to education for all learners.

Resource limitations pose significant challenges to the implementation of Mother tongue-based Multilingual Education (MTB) in Mathematics, impacting the quality of instruction and learning outcomes. Teachers often lack sufficient instructional materials and training opportunities, forcing them to create local materials and adapt teaching strategies to address resource gaps. This not only consumes valuable time and effort but also affects the effectiveness of teaching and learning. Addressing resource limitations requires a multi-faceted approach that involves both policy-level interventions and localized strategies. Governments and educational authorities should prioritize investment in education infrastructure, including the provision of adequate instructional materials, training opportunities for teachers, and support for curriculum development in local languages. Additionally, educators can leverage existing resources more efficiently through collaborative networks, sharing best practices, and tapping into community resources. By addressing resource limitations comprehensively, educators can enhance the implementation of MTB in Mathematics and improve Learners' learning outcomes.

Furthermore, a balance between mastery of the facts of higher-order thinking skills translated into the native dialect must be forged by the teachers in their choice of a teaching strategy, selecting an appropriate teaching strategy suited for the level of the learner, and mastery of the prerequisite knowledge or concept as translated in the native dialect (Ball, 2010) as cited by Tortola (2021)

Table 4

The Positive Experiences of Teachers in Teaching Mathematics in Primary Using Mother Tongue-Based Multilingual Instruction in Bicol

Theme	Sub-theme	Experiences
Positive Experiences	*Learners Engagement*	*.* *Actually, ang case naming ay tagalog speaking nagkaton lamang ay karamihan ng mga estudyante ay Bicolano. Base sa experience namin sa mtb-mle, mas productive nilang gamitin sapagkat nauunawaan nila dahil nita-translate namin ito sa tagalog o sa bicol para mas maintindihan nila pero siyempre may mga mathematical term na hindi naman talaga maitra-translate.* *Mas Maganda mas naiintindihan nila lalo na sa mga problem situation unlike before na English ang gamit mas Maganda naiintidihan nila ung mga problem* *Pag kase mtb-mle, nung mag training ng k-12 mas maiintindihan nila sa tagalog pero yung mga terminology ay nagiiba na, nagiging mahirap. Kaya ang ginawa ko Nagtagalog ako ng sampuan, isahan, nagreklamo ang mga bata* *May enhacement yong kanilang learning ung mga bata ay nag increase ang confidence dahil mas naiintindihan nila yong lesson.* *Based po sa aking experience learners will easily understand using MTB-MLE as a medium of instruction* *Mas ok yong sa ngayon kasi nga mother tongue so mas naipapaliwanag ng maayos*
	Conceptual Clarity	*Malinaw na sa kanila ang lenggwahe kaya nagiging mas madali para sa estudyante na maintindihan ang mga konsepto o terms ng matematika.* *Naeexpress din nila mas naiintidihanan nila mas mganda yong interaction naiintidihan nila lalo na sa mga problem solving.* *Pag mother tongue mas Madali nilang maunawaan pag sinabi mong magdadagdag nasasagot agad nila ung tanong*

		Using mother tongue in mathematical concept mas malinaw na sa kanila yong mga instruction dahil naiintihan na nga nila ito. *Tama yon mam lalo na sa problem solving naiintidihan na agad nila yong panuto kasi mother tongue ang gamit dati kailangan mo pang itranslate para maunawaan.* *Learners answer and cooperate Easily when an easy task is given to them*
	Teaching Effectiveness	*In teaching effectiveness, mas Madali nilang nauunawaan dahil araw-araw na naitututuro, ang problema lang na kapag sa higher grade ay English so nagkakaron sila ng after shocked sila pero epektibo talaga siya.* *Di ba sabi ko kanina mayron kaming batang ang gamit sa bahay ay dos bente pero sinasabi ko sa kaniya na iyon ay Spanish word tapos tintranslate ko na lng na yong dos ay dalawa mas Maganda ang tagalog kaya lng mas sanay sila sa ingles dahil ang tinuturo sa bahay ay one two three* *Gumagamit ng mga mateials para mas maging effective yong pagtuturo ko* *Ang teacher ay dapat na maging effective sa pagtuturo para mas lumawak ang understanding at pagkatuto ng bata.* *Effective po lalo na sa exam mabilis nilang maunawaan mabilis nilang masasagutan yong mga exam.* *Effective po kase mother tongue.*

Table 4 presents the positive experiences of teachers employing Bicol as their Mother Tongue Based Multilingual Education (MTB-MLE) in teaching Mathematics in the Bicol region focusing on learners' engagement, conceptual clarity, and teaching effectiveness.

Teachers observe that using MTB-MLE significantly enhances engagement, especially when lessons are translated into Tagalog or Bicol. Most learners are Bicolano,

and they respond better to instruction in their native language, leading to more productive lessons. This approach helps learners comprehend better and participate more actively. Teachers note that learners understand problem situations better in their mother tongue compared to English, which was previously used. Although there are challenges with terminology differences, especially when transitioning between Tagalog and Bicol, the overall engagement and confidence of learners have increased. This boost in confidence is attributed to their improved understanding of the lessons, facilitated by the use of their mother tongue.

Using the mother tongue in teaching mathematical concepts enhances learners' understanding and clarity. Teachers find that instructions are clearer, and learners grasp mathematical terms and concepts more effectively. When learners speak and learn in their mother tongue, they can express themselves better and engage more meaningfully in problem-solving activities. This clarity extends to specific instructions, making it easier for learners to follow along and respond accurately. Teachers report that ‘earners immediately understand and apply instructions when taught in their mother tongue, reducing the need for repeated explanations. This immediate comprehension leads to smoother classroom interactions and better academic performance in Mathematics.

Teachers experience improved teaching effectiveness with the use of Bicol as MTB-MLE. Daily instruction in the mother tongue helps learners understand lessons more easily, leading to better academic outcomes. Although there is a noted challenge when learners transition to higher grades where English is the primary medium of instruction, the foundational understanding built through MTB-MLE remains beneficial. Teachers find that using materials in the mother tongue makes lessons more effective and helps learners quickly grasp and retain mathematical concepts. This effectiveness is particularly evident in exams, where learners demonstrate quicker understanding and accurate responses. Teachers emphasize that being effective in their instruction is crucial for expanding learners learning and understanding. Overall, the use of the mother tongue proves to be an effective strategy in enhancing the teaching and learning process in primary Mathematics education.

The positive experiences with MTB-MLE in Bicol highlight the need for educational policies that support multilingual education, especially in regions with diverse linguistic backgrounds. Developing comprehensive bilingual or multilingual resources can help standardize terminology and improve understanding. Providing continuous professional development and training for teachers in MTB-MLE methodologies is essential to equip them with effective strategies for engaging learners and enhancing conceptual clarity. Allocating adequate resources, including textbooks and teaching aids in both Tagalog and regional dialects, is crucial to support MTB-MLE. Additionally, involving parents and the community in the educational process can reinforce classroom learning and provide additional support for learners. Regular assessment and feedback mechanisms can help identify best practices and areas for improvement, ensuring the sustained success of MTB-MLE programs. By addressing these implications, the effectiveness of teaching Mathematics in primary education using MTB-MLE in Bicol can be further enhanced, leading to better academic outcomes and Learners’ engagement.

According to Englis, & Boholano (2021), the use of mother-tongue in teaching Mathematics is effective in acquiring Mathematical knowledge. The teachers are well-prepared in terms of content and instructional material preparation. Moreover, the contextualized and innovative model in teaching Mathematics using mother-tongue helps in acquiring basic skills in Mathematics hence, to help Mathematics teachers making use of this model, this finding would be a great help to the primary teachers in Mathematics as well as the institution the value of contextualization and innovation as core functions in teaching strategies where the school administrators will continually support the teachers development plan and provide the tools and equipment needed on teaching.

Table 5
The Negative Experiences of Teachers in Teaching Mathematics in Primary Using Mother Tongue-Based Multilingual Instruction in Bicol

Theme	Sub-theme	Bicol
Negative Experiences	*Language Barriers*	*Sabi nga diba every individual is a unique. Sa case ko ngayon, hati-hati ay, may mga hirap sa tagalog so kailangan ko itranslate sa bicol pero nahihirapan pa rin sila ,pero may ibang estudyante na mas naiintindihan sa English. So kapag hindi nila nauunawan sa mtb-mle ay ginagamitan na ng English. May ibang estudyante na magtatanong talaga ng "ma'am ano po yung hatiin sa ganun" ay diba divide yun kaya kailangan pa itranslate. Pero kase may mga malalalim na salita na hindi naman matratranslate sa mtb-mle.* *Minsan cguro kulang din ang experience ng bata sa mga vocabulary, hindi nila masyadong maintindihan dahil may mas malalim na terms katulad sa problem solving (Ano ang itinatanong?tagalog na un di pa rin nila maintindihan)* *Hindi ako nagbibicol pero nakakaintindi ako ng Bicol dahit taga Lopez ako kaya ng magkaroon ako ng learner na taga bicol medyo nahirapan ako kaya nagresearch ako ng salita ng bicol para maunawaan niya ako siyempre kinakausap ko siya ng bicol dahil hindi niya maintindihan ang salita ng tagalog.* *Marami tayong naeencounter na mga words lalo na pagmay transfer galing sa ibang lugar bukod sa nahihirapan ang bata ganun din si*

		teacher kasi pareho nilang hindi alam yong mother tongue nila. *Katulad ko mam may Bicol akong eskwela ang sinasabi hala sige imikin mo at translate ko nag bibicol ako kapag may mga studyante akong bicol sa place value hirap sila sa mother tongue kase mas sanay sila sa English* *may mga bata kasi na sanay sa English lalo na sa numbers may mga case kami na nagsasabi na mam translate mo nga sa ng English*.
	Learners Reception	*Ay kadakol baga, o dakalunod o ibig-sabihin ay madami rin. Kase hindi naman lahat ng bata ay mas nauunawaan nila ang matematika base sa pag-aaral nila. Sabi nila pag mother tongue ay effective ni waray pero sa aming sitwasyon baga, effective kung lahat ng bata ay matutukan pero katulad dito na kapag nasa loob ng bahay ay babalik yung bata tapos sasabihin nila ay di raw naintindihan ng mga magulang nung bata at magtatanong ulit. Yan ang problema, mother tounge nga ay di makasagot su magura wara na, nganga baga.* *Ang mga bata hindi pare pareho ang ability may mga bata na magaling sa math meron namang slow so pag ginagamit natin ang mtb dahil pareho kami ng language naiintihan naman niya* *Mayron nag struggle na bata sabi ko nga lalo na kapag yong bata ay galing ng ibang lugar na iba ang mother tongue halimbawa galing bicol marunong ako magbicol kasi galing ako ng Cam Sur kaya Madali sa akin dahil kaya kung magbicol katulad ng saro, duwa,tulo, binibicol ko siya siyempre pero at the same time titranslate ko din in tagalog.* *Ay meron di ba English ang gamit nila sa day Care kaya pagdating sa Grade I may mga nahihirapan dahil sanay sila sa tagalog bukod*

		don mahaba ang tagalog kapag isinulat kaya umaayaw sila magsulat.
	Resource Limitations	*So, Resource limitations Diba ngayon ay digital na, ay gapos na lang ang resources kada method mi tanghali maka og-tug di an ki maray ng makautol ng makaupod baga, pulpugol tayo makaugod lalo na mang ganiyan tayo ay uginat IM na o numeracy. Kung ang tanong dun Ay English ay mother tounge, ay patay baga. So lahat ng resources, kailangan mo i-provide yun para maintidihan ma pa real objects, pudpud na ba yung deped diyan na mga indigenous materials. Walang limitasyon, kung hanggang kaya ipasok para maunawaan ay ipapasok.* *Kulang kami ng mga books lalo ma last year merong mga hindi nagsuli lalo nat may mga books kaming ang gamit na ay sampuan na words. Pero meron naman nakukuhaan lalo na ngayon.* *Yong mga books ng mag K-12 kaunti lng nabigay samin kaya nag share ang bata tapos sulat na lng sa board.* *Ang ating teaching materials ay limitado lng pero may mga internet access naman kaso dito samin medyo mahina.* Kanya kanyang provide at may mga teachers guide naman

Table 5 presents the negative experiences of teachers in teaching Mathematics in primary using Mother Tongue Based Multilingual Instruction in Bicol

The experience of language barriers in Mother Tongue Multilingual Education (MTB-MLE) in Bicol underscores the complexity of linguistic diversity in educational settings. Teachers face challenges in translating mathematical concepts from Tagalog to Bicol, as some terms may not have direct equivalents. Additionally, learners may struggle with deeper concepts like problem-solving due to language limitations, impacting their comprehension and learning experiences. Despite efforts to bridge the language gap,

such as using English for clarification, challenges persist for both learners and teachers, particularly when learners come from different linguistic backgrounds.

The reception of MTB-MLE in Mathematics among learners in Bicol varies based on individual abilities, linguistic backgrounds, and previous experiences with Mathematics instruction. While MTB-MLE may be effective for some learners, others may struggle, particularly if they come from different linguistic backgrounds or have varying levels of mathematical proficiency. Teachers play a crucial role in supporting Learners understanding by providing language support and adapting instructional strategies to meet diverse learning needs. However, challenges persist, particularly when learners transition from daycare to Grade I, where they may encounter difficulties due to language preferences and writing conventions.

Resource limitations pose significant challenges to the effective implementation of MTB-MLE in Mathematics instruction in Bicol. Teachers lack adequate instructional materials, including books and digital resources, impacting their ability to deliver high-quality instruction. Despite efforts to supplement resources with internet access and teacher guides, limitations persist, leading to reliance on shared materials and improvised teaching methods. Additionally, challenges arise in accessing indigenous materials and ensuring equitable distribution of resources across schools.

It implies that language barriers require a multi-pronged approach that acknowledges the diverse linguistic landscape of the classroom. Educators should collaborate with local communities to develop comprehensive language resources that cater to the specific needs of learners, including translations of mathematical terms and concepts. Professional development programs should focus on equipping teachers with strategies for effectively teaching in multilingual environments, such as code-switching and incorporating culturally relevant examples. Moreover, educational policies should prioritize the inclusion of diverse languages in curriculum development and instructional materials, ensuring equitable access to education for all learners. Enhancing Learner's reception of MTB-MLE in Mathematics requires a holistic approach that addresses individual learning needs and linguistic diversity. Educators should implement differentiated instruction strategies that accommodate diverse learning styles and abilities, providing additional support for learners who may struggle with mathematical concepts. Furthermore, a collaboration between educators, parents, and communities is essential to create a supportive learning environment that values linguistic diversity and promotes academic success for all learners. By fostering a culture of inclusivity and support, educators can empower learners to overcome challenges and thrive in Mathematics education. Moreover, resource limitations required systemic changes at both policy and practice levels. Educational authorities should prioritize investment in educational infrastructure, including the provision of sufficient instructional materials and digital resources, to support effective teaching and learning. Furthermore, professional development programs should equip teachers with the skills and knowledge to utilize available resources effectively and adapt teaching strategies to meet diverse learning needs. Collaborative efforts between government agencies, educational institutions, and

community stakeholders are essential to ensure equitable access to resources and promote educational equity in Bicol and beyond.

Part II. The Challenges Towards the Use of MTB-MLE as a Medium of Instruction in Mathematics Encountered by the Teachers

Table 6

The Challenges Towards the Use of MTB-MLE as a Medium of Instruction in Mathematics Encountered by the Teachers in Tagalog

Theme	Sub-theme	Experiences
Challenges of MTB-MLE in Mathematics	*Curriculum Alignment*	*Di po ako sure kung align kasi nga English ang curriculum guide tapos tagalog mo siya ituturo* *Challenge yong paggamit dahil walang training lalo na yong mga bagong guro dahil ng una pa lng talagang ang gamit ay English* *It is appropriate in primary level lalo na ta karamihan sa mga bata ay di nakaka intindi ng Ingles but mas sanay sila na English ang tawag sa bilang.* *Di po masyado kasi English nga sa CG need mo pa translate yong iba. Dagdag trabaho kay teacher kung pano niya ituturo yong lesson* *Hindi siya align Hirap si teacher in executing lessons although tagalog mo sya ituturo may mga words talaga na kahit kami hirap maunawaan ito.* *For me, some terminologies in Mathematics were complicated to translate into their mother tongue and they are also complicated to understand by learners*
	Teacher Preparedness	*Para sa akin di siya ganun ka challenging dahil mas nakatulong siya sa akin basta gamit ay mother tongue*

		Siguro yong mga cahallenges naming yong ibang bata ay di particular in counting numbers *Siyempre pag tagalog mas Madali nilang matulungan ang mga anak nila* *I need more training to help me as a teacher to execute the lesson and to disseminate the effectiveness of using MTB-MLE*
	Parental Involvement	*Mas aware ang magulang dahil un ang gamit nila sa bahay pero minsan may mga trermenology na hindi nila maintindihan.* *Sa parents naman pag may mga homework yong mga learner na hindi rin maunawaan ng mga parents yong mga instruction na naka-MTB-MLE dahil ung mga siinaunang parents ay nasanay sila ang gamit ay ingles* *Yong di napapafollow up sa bahat ang mga bata* *Parents should have a positive attitude towards helping and should follow up on the learnings of the learners at home so that the skills that were learned at school will not be easily forgotten* *Sa parent wala masyado pakialam sa mga anak*

Table 5 presents the challenges to the use of MTB-MLE as a medium of instruction in Mathematics encountered by the teachers in Tagalog. Curriculum alignment highlights the challenges and successes of aligning the Mother Tongue Based Multilingual Education (MTB-MLE) approach with the Mathematics curriculum. Teachers express varying degrees of ease or difficulty in implementing MTB-MLE in Mathematics instruction, depending on their familiarity with the curriculum and the training they have received. While some teachers find it relatively easy to align the MTB-MLE approach with the curriculum, others struggle due to complex mathematical terminologies and lack of training. Despite these challenges, teachers acknowledge the benefits of using MTB-MLE, particularly in helping both teachers and learners understand lesson objectives and execute activities effectively. Enhancing curriculum alignment requires targeted support for teachers, including comprehensive training on curriculum objectives and strategies for

integrating MTB-MLE in Mathematics instruction. Professional development programs should focus on building teachers' capacity to effectively translate complex mathematical concepts into mother tongue languages and adapt instructional materials to suit diverse learning needs. Additionally, educational authorities should provide ongoing guidance and resources to support teachers in aligning MTB-MLE with the Mathematics curriculum, ensuring consistency and effectiveness in teaching practices.

Teacher preparedness underscores the challenges faced by teachers in implementing MTB-MLE in Mathematics due to inadequate training and preparation. Teachers express a need for more training to effectively execute lessons and disseminate the effectiveness of using MTB-MLE. Some teachers attribute challenges in teaching mother tongue languages to their lack of preparation and training, particularly in adapting instructional strategies to suit diverse learning needs. However, despite these challenges, teachers recognize the importance of continuous professional development in enhancing their capacity to deliver high-quality MTB-MLE instruction. Improving teacher preparedness requires comprehensive training programs that equip educators with the knowledge, skills, and resources needed to effectively implement MTB-MLE in Mathematics instruction. Educational authorities should prioritize professional development opportunities that address teachers' specific needs, including training on curriculum alignment, language proficiency, and instructional strategies. Additionally, mentorship programs and peer support networks can provide ongoing guidance and assistance to teachers as they navigate the challenges of implementing MTB-MLE in Mathematics. By investing in teacher preparedness, educational stakeholders can ensure that educators are equipped to deliver equitable and effective Mathematics instruction in multilingual settings. Parental involvement highlights the role of parents in supporting MTB-MLE in Mathematics education and the challenges they face in understanding and engaging with the curriculum. Parents' awareness and understanding of MTB-MLE vary, with some being more familiar with the language used at home and others struggling to comprehend the terminology used in the curriculum. While some parents actively support their children's learning by assisting with homework, others may lack the knowledge or inclination to engage with the MTB-MLE approach.

Promoting parental involvement in MTB-MLE requires targeted outreach and support initiatives that empower parents to actively engage in their children's education. Schools and educational authorities should provide resources and information in languages accessible to parents, including translations of curriculum materials and guidance on how to support MTB-MLE at home. Additionally, parent-teacher collaboration platforms and workshops can facilitate communication and collaboration between educators and parents, fostering a supportive learning environment for learners. By promoting parental involvement, educators can enhance the effectiveness of MTB-MLE in Mathematics education and promote positive learning outcomes for all learners.

Melencion (2017) as cited by Tortola (2021), stated that some teachers are asked to teach some other language or vernacular, multilingual dialects that are unfamiliar to them. This points to the difficulty of using the MTBMLE since there are different variations of the mother tongue even in one locality.

Table 7

The Challenges Towards the Use of MTB-MLE as a Medium of Instruction in Mathematics Encountered by the Teachers in Bicol

Theme	Sub-theme	Experiences
Challenges of MTB-MLE in Mathematics	*Curriculum Alignment*	*Dito nga kami sa mtb-mle naglulukso ay kase hindi naman naming lahat nauunawaan ay kahit din ng mga bata, sa matematika naman ay may mga terms talaga na hindi talaga matra-translate sa mother tongue, kaya english na gagamtiin niyan kumbaga kailangan mo lang i-open sa bata na di mo yan kaya maintranslate sa tagalog, para alam nila kung ano ba ang mga pwedeng itranslate sa tagalog. Sa alignment di naman marami pa need eenhance.* *Ayan namang curriculum, bago yan niimplement pinag-aralan but in some aspect kulang sila sa preparation.* *Hindi po masyado kasi marami mga terms na kahit guro nahihirapan kasi nga kulang sa explanation si teacher ang nahihirapan magiisip pa siya kung pano ito translate* *Dati nga kasi English kailangan mo pa explain sa mother tongue nila so ngayon hindi na kasi nga ang gamit na ay mtb pero yong once tens hundreds naforce si teacher na ituro talaga ito* *English sa curriculum guide tapos ang itututuro ay tagalog translate na lng sa mtb nila siyempre align naman.* *May mga estudyanteng galing sa ibang lugar like Bicol kasi may mga bumabalik dito sa atin a naninirahan na don na ung bata yon na yong nakagisnan na experience ko na po yon ayon po nagresearch ako ng dialect nila.*

	Teacher Preparedness	*Hindi masyado kase nga kulang pa ako sa trainings* *Challenging talaga sa amin bilang guro lalo na at pagdaating ng grade 4 english na ang gamit nila sa Mathematics. Kahit pa sabihin na mother tongue ang hirap pa rin sa part namin lalo na kapag ang bata ay walang interest at mas gusto nila ay English lalo na pagdating sa bilang.* *Sa mga bagong guro walang training hirap pa sila Oo meron tayong mga trainings, pero pili lang ang naattend dito sa min.* *Kaya sana magbigay ng training pa sa mga guro para mas maimprove pa ang kakayahan nila sa paggamit ng mother tongue.*
	Parental Involvement	*Mahirap sa magulang kase limatado o depende rin kung nag-aabyad ang magulang sa kanilang mga anak na fo-follow up nila yun. May iba kase na sariling sikap ang estudyante, wala kang makukuhang suporta sa magulang lalo na kapag single mother na may trabaho o isang kahig isang tuka baga dun nagiging mahirap. Kaya dun na inaasa sa school lalo na kapag bakasyon pero kapag supportive ang parents makikita mo talaga na sobrang nageexcell ang bata sa klase kase nakaka follow up.* *Yan ang pinaka problema. Maganda yung mga bata na ang parents nila ay supportive or yung mga maalwan kase mas natutukan nila ang bata. At yung mga bata nasa strugglers or struggling learner, kase yung mga magulang ay nagtratrabaho kaya hindi na natutukan ang anak nila. At yung educational background nung parents, pano kung hindi rin alam ng magulang ang mga lessons pag nagtatanong ang bata. Yung textbook din kase dati ay iba ang textbook kase English talaga.*

		Parental attitudes minsan pag nagpapahomework ako halimbawa isulat ang numerong ito minsan mali ang pangalan ng bilang kinse , dos kase yon yong nakanayan ng parents.

Table 7 presents the challenges towards the use of MTB-MLE as a medium of instruction in Mathematics encountered by the teachers in Bicol.

Curriculum alignment highlights both the challenges and successes in aligning the Mother Tongue Multilingual Education (MTB-MLE) approach with the Mathematics curriculum in Bicol. Teachers express difficulties in translating certain mathematical terms into the mother tongue, necessitating the use of English for explanation. However, they also emphasize the importance of alignment between the curriculum and teaching practices, acknowledging the efforts made to ensure coherence and effectiveness in instruction. Teachers demonstrate adaptability in addressing challenges, such as providing translations for difficult terms, and recognize the value of implementing MTB-MLE despite its complexities.

Ensuring effective curriculum alignment requires ongoing collaboration and communication between educators, curriculum developers, and policymakers. Educational authorities should provide comprehensive guidance and resources to support teachers in aligning MTB-MLE with the Mathematics curriculum, including translations of difficult terms and clear guidelines for implementation. Additionally, professional development programs should equip teachers with the skills and knowledge needed to effectively integrate MTB-MLE into Mathematics instruction, fostering a deeper understanding of curriculum objectives and instructional strategies. By promoting alignment between the curriculum and teaching practices, educators can enhance the effectiveness of MTB-MLE in Mathematics education and improve learning outcomes for learners.

Teacher preparedness reflects the challenges and efforts involved in ensuring that educators are adequately trained and equipped to implement MTB-MLE in Mathematics instruction. Teachers express varying levels of preparedness, with some feeling confident in their training and others acknowledging the ongoing nature of professional development. Despite challenges, such as the transition to online training during the pandemic, teachers demonstrate a commitment to
continuous improvement and recognize the importance of training in enhancing their effectiveness as educators.

Enhancing teacher preparedness requires sustained investment in professional development opportunities that address the specific needs of educators in implementing MTB-MLE in Mathematics instruction. Educational authorities should provide ongoing

training and support that is aligned with curriculum objectives and instructional priorities. Additionally, mentorship programs and peer collaboration can facilitate knowledge sharing and skill development among educators, fostering a culture of continuous learning and improvement. By prioritizing teacher preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

Parental involvement underscores the challenges and importance of parental support in facilitating Learners learning in MTB-MLE Mathematics education. Teachers note the impact of parental attitudes and engagement on learners' success, highlighting the influence of factors such as parental availability, educational background, and willingness to support their children's learning. Challenges arise when parents lack the time, resources, or understanding to effectively support their children's education, leading to disparities in Learners' outcomes.

Promoting parental involvement requires targeted efforts to engage and support parents in their children's education, particularly in understanding and supporting MTB-MLE Mathematics instruction. Schools can provide resources and guidance to parents on how to support their children's learning at home, including translations of curriculum materials and strategies for reinforcing mathematical concepts. Additionally, schools can foster a culture of collaboration between educators and parents, encouraging open communication and mutual support. By addressing barriers to parental involvement and promoting a supportive home learning environment, educators can enhance learners' success in MTB-MLE Mathematics education.

Part III. The Coping Mechanism of Teachers in Addressing Challenges Encountered by the Teachers in Teaching Mathematics Using Mother-Tongued- Based Multilingual Instruction

Table 8
The Coping Mechanism of Teachers in Addressing Challenges Encountered by the Teachers in Teaching Mathematics Using Mother Tongue – Based Multilingual Instruction in Tagalog

Theme	Sub-theme	Experiences
Coping Mechanisms for Addressing Challenges	*Curriculum Alignment*	*Pinag - aaralang Mabuti ang lesson at gumagawa ng mga instructional materials na mas maiintindihan ng mga learners lalo ma yong mga salita o terms na kanilang ginagamit dahil minsan may mga salita pa rin sila na hindi maintindihan.* *Para mas Madali nilang matutunan Yong lesson mas pinapadali ko yong mga words na mhihirap Mas madali nilang maexpress yong sagot nila pag sila ay may mga group activity lalo na sa Grades 1-3.*

		Nagproprovide ng materials upang mas Madali nila maintindihan upang mas lalo silang maging confident sa paggamit ng mother tongue.pu Mas Madaling matutunan ng bata *Teachers can search and prepare the learner's strategies and methods in learning for the proper execution of lessons so that learners will understand it easily.*
	Teacher Preparedness	*Kapag MTB malaking tulong sa mga guro dahil nga mas nauunawaan din at mas naiipaliwanag ng guro ang mga lesson.* *Through different strategies and a more Interactive approach* *Prepared naman po dapat talaga ang mga guro.* *Siyempre dapat lagi tayong prepared laging gagawa ng paraan para maituro yong lesson* *Challenges face in preparedness help teachers to become more flexible in implementing strategies in order for the learners to understand more easily* *Yong mass training po mam pioneer kasi ang grade one noon pero sa tagal naman po nasanay.*
	Parental Involvement	*Minsan may mga parents na use sa ingles terms kay. medyo nahihiorapan sila pero ipinaliliwanag na lng po naming para mas maunawaan nila ito kapag may mga meetings* *Through parent academy naipapaliwanag sa mga magulang yong kanilang mga problema at natruturuan sila ng tama about MTB-MLE.* *Involving parents like sa mga meetings trainings para maintindihan nila ang gamit ng mother tounge instruction sa Mathematics.*

		Pagbibigay ng assignment para mas magkaroon sila ng time na magkasama and maging bonding na din nila. *Parents should be aware so that they should participate in the learning of their learners to help them and learned develop their skills* *Pagbibigay ng assignment para magkaroon ng update at learning ang bata at the same time magkakaroon sila ng time sa isat isa.*

Table 8 presents the coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue – Based Multilingual Education in Tagalog. Curriculum alignment highlights the strategies employed by teachers to address challenges in implementing Mother Tongue Based Multilingual Education (MTB-MLE) in Mathematics instruction. Teachers emphasize the relevance of using the mother tongue in facilitating learners understanding and communication, particularly in group activities where learners can express their answers more confidently. MTB-MLE has also improved Learners confidence and learning outcomes, making it easier for them to grasp mathematical concepts. Teachers play a crucial role in searching for and preparing appropriate strategies and methods to ensure the effective execution of lessons and enhance Learners comprehension.

Encouraging the use of the mother tongue and implementing interactive and Learners-centered teaching strategies are key to addressing challenges in curriculum alignment. Professional development programs should equip teachers with a diverse repertoire of instructional strategies that cater to the linguistic and learning needs of learners. Additionally, schools can foster a collaborative learning environment where teachers share best practices and support each other in implementing MTB-MLE effectively. By promoting teacher innovation and collaboration, educators can enhance curriculum alignment and improve Learners engagement and learning outcomes in Mathematics education.

Teacher preparedness highlights the importance of ongoing training and support for educators in implementing MTB-MLE in Mathematics instruction. Teachers recognize the benefits of MTB-MLE in enhancing their understanding and explanation of lessons, particularly through the use of different strategies and interactive approaches. However, challenges exist, including the need for teachers to continuously adapt and find ways to effectively teach lessons. Mass training initiatives have been instrumental in introducing MTB-MLE, but ongoing support is essential for teachers to become more flexible and confident in implementing strategies.

Strengthening teacher preparedness requires sustained investment in professional development programs that provide ongoing training and support tailored to the needs of educators. Mentorship programs and peer collaboration can facilitate

knowledge sharing and skill development among teachers, promoting a culture of continuous learning and improvement. Educational authorities should prioritize the provision of resources and support to ensure that teachers have the necessary tools and skills to effectively implement MTB-MLE in Mathematics instruction. By investing in teacher preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

Parental involvement underscores the importance of engaging parents in supporting their children's learning in MTB-MLE Mathematics education. Teachers recognize the challenges faced by parents in understanding and supporting MTB-MLE, particularly when English terms are used. However, efforts such as parent academies and regular communication help bridge the gap and facilitate parental understanding and involvement. Assignments and activities also provide opportunities for parents to spend time with their children and support their learning at home. Promoting parental involvement requires collaborative efforts between schools and families to provide resources, information, and support for parents in understanding and supporting MTB-MLE Mathematics education. Schools can offer parent workshops, resources, and regular communication channels to facilitate parental engagement and understanding. Additionally, educators can provide assignments and activities that encourage parent-child interaction and support learning at home. By fostering partnerships between schools and families, educators can enhance parental involvement and promote positive learning outcomes for learners in MTB-MLE Mathematics education.

Table 9
The Coping Mechanism of Teachers in Addressing Challenges Encountered by the Teachers in Teaching Mathematics Using Mother Tongue – Based Multilingual Instruction in Bicol

Theme	Sub-theme	Experiences
Coping Mechanisms for Addressing Challenges	*Curriculum Alignment*	*Dito sa min Yung mother tongue instruction mas nahihirapan sila kaya English na ginagamit naming kase mas naiintidihan* *Dapat ang Curriculum guide ng Mathematics ay nakaalign diin sa mother tongue* *Pag ang mga learners ko ay bicol binibicol ko rin siyempre para mas maunawaan.* *Dito sa grade 3 sinisimulan ko na English mas nauunawaan nila para mas hand ana sila sa grade 4* *Don sa mga terminilogies na dapat malaman nila lalo na pagdating sa next level tinuturo ko na din.* *Ang mother tongue naman ay align kase nga mas naiintindihan nila pero pagdating sa grade 4 English na.*

	Teacher Preparedness	*Syempre mahirap, so bilang paghahanda bukod sa binibigay ng mga trainees, kung hindi effective sa kanila kailangan mong gumawa ng paraan para maiangkop o malaman kung ano ang effective sa mga bata.* *Pag prepare ang teacher, Kinakaya lagi naman at school heads and master teacher kasi nga sila madalas nadalo sa mga trainings. Pero dapat laging ready tayo, pag may bagong curriculum kailangan natin i-adapt para lahat ng nasa curriculum ay maituro natin sa mga bata.* *Prepare ka lng lagi gumagawa ako ng mga instructional materials na makatutulong at mas effective sa kanila para mas maitindihan nila ang lesson.* *Dapat si teacher ay maraming visual aids/instructional Materials para mas maintindihan ng bata.*
	Parental Involvement	*So kung ang parents sana ay malalim ang involvement sa bata mas magiging motivated o gaganahan mag-aral ang mga bata. Sinasabi naming ang mga problema sa mga bata para alam ng mga magulang. Ganun ang nagiging hirap ng isang teacher kapag involve na ang magulang* *Kailangan talaga natin ng tulong ng parental involvement, hindi lang yung slow learners ang kailangan turuan sa bahay, kailangan ay lahat sila. Meron tayong meeting kung saan tinatalakay natin yung problems and kung paano sila makakatulong sa bata, kaya humihingi ng tulong sa magulang na turuan sa pagdidisplina ng mga bata. Mayron tayong gc kung saan ibinabahagi natin ang mga updates tungkol sa bata at sa nangyayari sa eskwelahan.*

		Kapag may meetings sinasabi sa mga parents ang problema sa mga bata lalo na sa Mathematics. *Patawag ng meeting sa parent's para mas malaman nila ang mga problems and issue ng bata lalo na pagdating sa kanilang learning sa Mathematics.*

Table 9 presents the coping mechanism of teachers in addressing challenges encountered by the teachers in teaching Mathematics using Mother Tongue –Multilingual Education in Bicol

The coping mechanisms for curriculum alignment in Bicol emphasize the importance of ensuring that instructional materials and teaching methods are aligned with the curriculum to enhance learners' understanding and skills. Teachers highlight the effectiveness of using the mother tongue in instruction, as it facilitates better comprehension and communication among learners. However, challenges arise when learners transition to higher grades where English becomes the medium of instruction. Despite this, teachers adapt their teaching strategies to ensure that learners grasp the necessary terminologies and concepts, thus maintaining alignment with the curriculum.

It implies that educators need ongoing support and resources to ensure that instructional materials and methods align with curriculum objectives. Professional development programs should focus on equipping teachers with effective strategies for teaching in multilingual environments and transitioning learners between language mediums. Additionally, collaboration between educators and curriculum developers is essential to ensure that instructional materials are culturally and linguistically relevant to learners. By prioritizing alignment with the curriculum, educators can enhance the effectiveness of instruction and promote positive learning outcomes for learners in Bicol.

The coping mechanisms for teacher preparedness highlight the importance of continuous professional development and adaptability in addressing challenges in implementing Mother Tongue Multilingual Education (MTB-MLE) in Mathematics instruction. Teachers emphasize the need for flexibility and resourcefulness in adapting to new curricula and finding effective teaching methods for learners. They also stress the importance of visual aids and instructional materials in enhancing Learners understanding and engagement in the classroom. Enhancing teacher preparedness requires ongoing support and training that addresses the specific needs of educators in Bicol. Professional development programs should provide opportunities for teachers to learn and share effective instructional strategies, adapt to new curricular requirements, and utilize visual aids and instructional materials effectively. Additionally, mentorship programs and peer collaboration can facilitate knowledge sharing and skill development among teachers,

fostering a culture of continuous learning and improvement. By investing in teacher preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

The coping mechanisms for parental involvement underscore the importance of engaging parents in supporting their children's learning in Mathematics education. Teachers recognize the positive impact of parental involvement on Learners' motivation and academic success and actively seek to involve parents in their children's education through communication, meetings, and assignments. By fostering collaboration between educators and parents, teachers aim to address Learners' needs more effectively and promote a supportive learning environment both at school and at home.

Promoting parental involvement requires collaborative efforts between schools and families to provide resources, information, and support for parents in Bicol. Schools can offer workshops, communication channels, and regular meetings to facilitate parental engagement and understanding of their children's educational needs. Additionally, educators can provide assignments and activities that encourage parent-child interaction and support learning at home. By fostering partnerships between schools and families, educators can enhance parental involvement and promote positive learning outcomes for learners in Mathematics education.

According to Tortola (2021), most of the teachers became innovative in finding solutions to address the needs and problems of the learners. Teachers spent time in surfing the internet to look for additional resources since the Mathematics book has very limited resources. They downloaded instructional materials needed like worksheets and enhancement activities to enrich the learning of the learners. Some teachers claimed that when they encountered difficulties in deep terms or highly localized in Sinugbuanong Binisaya, they would ask the senior teacher or the co-teacher who was familiar with the terms. One way to make lessons easier to understand is the use of context clue. During classroom observation, the teacher simplified an unfamiliar term to simple Binisaya term. In situations like this, there is a need for a fluent teacher in the medium of instruction or in the mother tongue of her/his learners.

Part IV. Program to Enhance the Sustainability and Effectiveness of Using Mother Tongue in Teaching Mathematics

The program aimed at enhancing the sustainability and effectiveness of using the mother tongue in teaching Mathematics encompasses various critical aspects. Firstly, it is imperative for governments to officially endorse and support the integration of Mother Tongue-Based Multilingual Education (MTB-MLE) in Mathematics instruction, allocating resources and developing programs. Curriculum developers should ensure alignment between Mathematics curricula and MTB-MLE principles, incorporating culturally relevant content and indigenous knowledge. Furthermore, comprehensive teacher training and professional development programs are essential to equip educators with the necessary skills and strategies for effective implementation. The production of high-quality instructional materials in local languages is also vital to support teachers and learners in

the learning process. Additionally, fostering parent and community involvement is crucial for garnering support and creating a conducive learning environment. Regular monitoring and evaluation mechanisms should be established to assess program implementation and inform improvements. Finally, ongoing research and knowledge-sharing initiatives are necessary to document best practices and inform policy and practice. Through these concerted efforts, stakeholders can contribute to the sustainability and effectiveness of using the mother tongue in teaching Mathematics, ultimately promoting inclusive and culturally responsive education for all learners. The complete proposed program is in Appendix

DISCUSSION

Table 2 presents the positive experiences of teachers utilizing Mother Tongue Based Multilingual Education (MTB-MLE) in teaching Mathematics in primary education, particularly in Tagalog, three main themes emerge from the data: Learners Engagement, Conceptual Clarity, and Teaching Effectiveness, each highlighting specific advantages observed by the teachers.

In terms of pupil's Engagement, teachers report that learners understand lessons better and can answer questions more readily when taught in their mother tongue. This improved comprehension leads to more active participation and immediate responses to teacher inquiries. Furthermore, using Tagalog reduces learners' fear or shame, encouraging them to participate more willingly in classroom activities. The cultural relevance of commands and instructions in Tagalog resonates more deeply with learners, fostering a sense of connection and comfort in the learning environment.

When it comes to Conceptual Clarity, the use of the mother tongue simplifies problem-solving for learners. Mathematical concepts and problems explained in Tagalog are easier for learners to grasp and analyze. Teachers also find that instructions given in the mother tongue are clearer, helping learners to understand and complete their lessons and exams more effectively. This clarity leads to improved cooperation among learners' as they can better comprehend and follow the tasks assigned to them.

Regarding Teaching Effectiveness, teachers observe that learners' mean percentage scores have improved, indicating better academic performance. The use of Tagalog encourages all learners to participate in activities and solve problems correctly, demonstrating the effectiveness of this teaching approach. Additionally, teachers find it easier to prepare materials and conceptualize teaching strategies when using Tagalog, which enhances their overall teaching effectiveness. Despite some challenges in translating technical mathematical terms, the overall benefits of using the mother tongue outweigh these difficulties, resulting in more effective teaching.

It implies that the positive experiences of teachers in using Tagalog as MTB-MLE in teaching Mathematics underscore its potential to enhance learning outcomes and

promote learners' engagement. By addressing challenges and leveraging the benefits of MTB-MLE, educators can create a more effective and inclusive learning environment that caters to the diverse linguistic needs of learners in primary education.

Table 3 presents the negative experiences of teachers in teaching Mathematics in primary using Tagalog as mother tongue based multilingual education.

Teachers face significant challenges in teaching Mathematics using Mother Tongue Based Multilingual Education (MTB), particularly due to language barriers. learners, especially those from different linguistic backgrounds, struggle to grasp mathematical concepts presented in Tagalog, even though they are more accustomed to their mother tongue. This leads to difficulties in communication and comprehension, hindering effective teaching and learning. To address language barriers, educators need to adopt diverse instructional strategies that cater to the linguistic diversity of learners. This may include providing bilingual or multilingual resources, offering language support programs, and fostering a culturally responsive learning environment. Additionally, teacher training programs should focus on equipping educators with the necessary skills and tools to effectively teach Mathematics in multilingual settings, thereby improving learner engagement.

The reception of Mother Tongue Based Multilingual Education (MTB) in Mathematics varies among learners, influenced by factors such as language background and instructional support. Some learners may struggle to understand mathematical concepts presented in Tagalog, leading to confusion and frustration. However, with adequate support and encouragement, learners demonstrate resilience and willingness to learn, highlighting the importance of fostering a supportive learning environment. Educators must prioritize creating inclusive learning environments where learners feel supported and valued, regardless of their language background. This involves providing individualized support to learners who may struggle with language comprehension, implementing collaborative learning activities that promote peer interaction and support, and celebrating linguistic and cultural diversity in the classroom. By addressing learners' diverse needs and fostering a positive learning environment, educators can enhance learners reception of MTB in Mathematics and promote equitable access to education for all learners.

Resource limitations pose significant challenges to the implementation of Mother Tongue Based Multilingual Education (MTB) in Mathematics, impacting the quality of instruction and learning outcomes. Teachers often lack sufficient instructional materials and training opportunities, forcing them to create local materials and adapt teaching strategies to address resource gaps. This not only consumes valuable time and effort but also affects the effectiveness of teaching and learning. Addressing resource limitations requires a multi-faceted approach that involves both policy-level interventions and localized strategies. Governments and educational authorities should prioritize investment in education infrastructure, including the provision of adequate instructional materials, training opportunities for teachers, and support for curriculum development in local languages. Additionally, educators can leverage existing resources more efficiently

through collaborative networks, sharing best practices, and tapping into community resources. By addressing resource limitations comprehensively, educators can enhance the implementation of MTB in Mathematics and improve Learners learning outcomes.

Furthermore, a balance between mastery of the facts of higher order thinking skills translated into the native dialect must be forged by the teachers in their choice of a teaching strategy, selecting appropriate teaching strategy and suited for the level of the learner, and mastery of prerequisite knowledge or concept as translated in the native dialect (Ball, 2010) as cited by Tortola (2021)

Table 4 presents the positive experiences of teachers employing Bicol as their Mother Tongue Based Multilingual Education (MTB-MLE) in teaching Mathematics in the Bicol region focusing on learners engagement, conceptual clarity, and teaching effectiveness.

Teachers observe that using MTB-MLE significantly enhances engagement, especially when lessons are translated into Tagalog or Bicol. Most learners are Bicolano, and they respond better to instruction in their native language, leading to more productive lessons. This approach helps learners comprehend better and participate more actively. Teachers note that learners understand problem situations better in their mother tongue compared to English, which was previously used. Although there are challenges with terminology differences, especially when transitioning between Tagalog and Bicol, the overall engagement and confidence of learners have increased. This boost in confidence is attributed to their improved understanding of the lessons, facilitated by the use of their mother tongue.

Using the mother tongue in teaching mathematical concepts enhances learners' understanding and clarity. Teachers find that instructions are clearer, and learners' grasp mathematical terms and concepts more effectively. When learners speak and learn in their mother tongue, they can express themselves better and engage more meaningfully in problem-solving activities. This clarity extends to specific instructions, making it easier for learners to follow along and respond accurately. Teachers report that 'earners immediately understand and apply instructions when taught in their mother tongue, reducing the need for repeated explanations. This immediate comprehension leads to smoother classroom interactions and better academic performance in Mathematics.

Teachers experience improved teaching effectiveness with the use of Bicol as MTB-MLE. Daily instruction in the mother tongue helps learners understand lessons more easily, leading to better academic outcomes. Although there is a noted challenge when learners transition to higher grades where English is the primary medium of instruction, the foundational understanding built through MTB-MLE remains beneficial. Teachers find that using materials in the mother tongue makes lessons more effective and helps learners quickly grasp and retain mathematical concepts. This effectiveness is particularly evident in exams, where learners demonstrate quicker understanding and accurate responses. Teachers emphasize that being effective in their instruction is crucial for expanding learners learning and understanding. Overall, the use of the mother tongue

proves to be an effective strategy in enhancing the teaching and learning process in primary Mathematics education.

The positive experiences with MTB-MLE in Bicol highlight the need for educational policies that support multilingual education, especially in regions with diverse linguistic backgrounds. Developing comprehensive bilingual or multilingual resources can help standardize terminology and improve understanding. Providing continuous professional development and training for teachers in MTB-MLE methodologies is essential to equip them with effective strategies for engaging learners and enhancing conceptual clarity. Allocating adequate resources, including textbooks and teaching aids in both Tagalog and regional dialects, is crucial to support MTB-MLE. Additionally, involving parents and the community in the educational process can reinforce classroom learning and provide additional support for learners. Regular assessment and feedback mechanisms can help identify best practices and areas for improvement, ensuring the sustained success of MTB-MLE programs. By addressing these implications, the effectiveness of teaching Mathematics in primary education using MTB-MLE in Bicol can be further enhanced, leading to better academic outcomes and Learners' engagement.

According to Englis, & Boholano (2021), the use of mother-tongue in teaching Mathematics is effective in acquiring Mathematical knowledge. The teachers are well-prepared in terms of content and instructional material preparation. Moreover, the contextualized and innovative model in teaching Mathematics using mother-tongue helps in acquiring basic skills in Mathematics hence, in order to help the Mathematics teachers in making use of this model, this finding would be a great help to the primary teachers in Mathematics as well as the institution the value of contextualization and innovation as core functions in teaching strategies where the school administrators will continually support the teachers development plan and provide the tools and equipment needed on teaching.

Table 5 presents the negative experiences of teachers in teaching Mathematics in primary using Mother Tongue Based Multilingual Instruction in Bicol

The experience of language barriers in Mother Tongue Based Multilingual Education (MTB-MLE) in Bicol underscores the complexity of linguistic diversity in educational settings. Teachers face challenges in translating mathematical concepts from Tagalog to Bicol, as some terms may not have direct equivalents. Additionally, Learnerss may struggle with deeper concepts like problem-solving due to language limitations, impacting their comprehension and learning experiences. Despite efforts to bridge the language gap, such as using English for clarification, challenges persist for both learners' and teachers, particularly when learners come from different linguistic backgrounds.

The reception of MTB-MLE in Mathematics among learners in Bicol varies based on individual abilities, linguistic backgrounds, and previous experiences with Mathematics instruction. While MTB-MLE may be effective for some learners, others may struggle, particularly if they come from different linguistic backgrounds or have varying levels of mathematical proficiency. Teachers play a crucial role in supporting Learners

understanding by providing language support and adapting instructional strategies to meet diverse learning needs. However, challenges persist, particularly when learners' transition from day care to Grade I, where they may encounter difficulties due to language preferences and writing conventions.

Resource limitations pose significant challenges to the effective implementation of MTB-MLE in Mathematics instruction in Bicol. Teachers lack adequate instructional materials, including books and digital resources, impacting their ability to deliver high-quality instruction. Despite efforts to supplement resources with internet access and teacher guides, limitations persist, leading to reliance on shared materials and improvised teaching methods. Additionally, challenges arise in accessing indigenous materials and ensuring equitable distribution of resources across schools.

It implies that language barriers require a multi-pronged approach that acknowledges the diverse linguistic landscape of the classroom. Educators should collaborate with local communities to develop comprehensive language resources that cater to the specific needs of learners, including translations of mathematical terms and concepts. Professional development programs should focus on equipping teachers with strategies for effectively teaching in multilingual environments, such as code-switching and incorporating culturally relevant examples. Moreover, educational policies should prioritize the inclusion of diverse languages in curriculum development and instructional materials, ensuring equitable access to education for all learners. Enhancing Learners reception of MTB-MLE in Mathematics requires a holistic approach that addresses individual learning needs and linguistic diversity. Educators should implement differentiated instruction strategies that accommodate diverse learning styles and abilities, providing additional support for learners' who may struggle with mathematical concepts. Furthermore, collaboration between educators, parents, and communities is essential to create a supportive learning environment that values linguistic diversity and promotes academic success for all earners. By fostering a culture of inclusivity and support, educators can empower learners to overcome challenges and thrive in Mathematics education. Moreover, resource limitations required systemic changes at both policy and practice levels. Educational authorities should prioritize investment in educational infrastructure, including the provision of sufficient instructional materials and digital resources, to support effective teaching and learning. Furthermore, professional development programs should equip teachers with the skills and knowledge to utilize available resources effectively and adapt teaching strategies to meet diverse learning needs. Collaborative efforts between government agencies, educational institutions, and community stakeholders are essential to ensure equitable access to resources and promote educational equity in Bicol and beyond.

Table 6 presents the challenges towards the used of MTB-MLE as a medium of instruction in Mathematics were encountered by the teachers in Tagalog. Curriculum alignment highlights the challenges and successes of aligning the Mother Tongue Based Multilingual Education (MTB-MLE) approach with the Mathematics curriculum. Teachers express varying degrees of ease or difficulty in implementing MTB-MLE in Mathematics instruction, depending on their familiarity with the curriculum and the training they have

received. While some teachers find it relatively easy to align the MTB-MLE approach with the curriculum, others struggle due to complex mathematical terminologies and lack of training. Despite these challenges, teachers acknowledge the benefits of using MTB-MLE, particularly in helping both teachers and learners understand lesson objectives and execute activities effectively. Enhancing curriculum alignment requires targeted support for teachers, including comprehensive training on curriculum objectives and strategies for integrating MTB-MLE in Mathematics instruction. Professional development programs should focus on building teachers' capacity to effectively translate complex mathematical concepts into mother tongue languages and adapt instructional materials to suit diverse learning needs. Additionally, educational authorities should provide ongoing guidance and resources to support teachers in aligning MTB-MLE with the Mathematics curriculum, ensuring consistency and effectiveness in teaching practices.

Teacher preparedness underscores the challenges faced by teachers in implementing MTB-MLE in Mathematics due to inadequate training and preparation.

Promoting parental involvement in MTB-MLE requires targeted outreach and support initiatives that empower parents to actively engage in their children's education. Schools and educational authorities should provide resources and information in languages accessible to parents, including translations of curriculum materials and guidance on how to support MTB-MLE at home. Additionally, parent-teacher collaboration platforms and workshops can facilitate communication and collaboration between educators and parents, fostering a supportive learning environment for learners. By promoting parental involvement, educators can enhance the effectiveness of MTB-MLE in Mathematics education and promote positive learning outcomes for all learners.

Melencion (2017) as cited by Tortola (2021), stated that some teachers are asked to teach some other language or vernacular, multilingual dialects that are unfamiliar to them. These points to the difficulty of using the MTBMLE since there are different variations of the mother tongue even in one locality.

Table 7 presents the challenges towards the used of MTB-MLE as a medium of instruction in Mathematics were encountered by the teachers in Bicol.

Curriculum alignment highlights both the challenges and successes in aligning the Mother Tongue Based Multilingual Education (MTB-MLE) approach with the Mathematics curriculum in Bicol. Teachers express difficulties in translating certain mathematical terms into the mother tongue, necessitating the use of English for explanation. However, they also emphasize the importance of alignment between the curriculum and teaching practices, acknowledging the efforts made to ensure coherence and effectiveness in instruction. Teachers demonstrate adaptability in addressing challenges, such as providing translations for difficult terms, and recognize the value of implementing MTB-MLE despite its complexities.

Ensuring effective curriculum alignment requires ongoing collaboration and communication between educators, curriculum developers, and policymakers.

Educational authorities should provide comprehensive guidance and resources to support teachers in aligning MTB-MLE with the Mathematics curriculum, including translations of difficult terms and clear guidelines for implementation. Additionally, professional development programs should equip teachers with the skills and knowledge needed to effectively integrate MTB-MLE into Mathematics instruction, fostering a deeper understanding of curriculum objectives and instructional strategies. By promoting alignment between the curriculum and teaching practices, educators can enhance the effectiveness of MTB-MLE in Mathematics education and improve learning outcomes for learners.

Teacher preparedness reflects the challenges and efforts involved in ensuring that educators are adequately trained and equipped to implement MTB-MLE in Mathematics instruction. Teachers express varying levels of preparedness, with some feeling confident in their training and others acknowledging the ongoing nature of professional development. Despite challenges, such as the transition to online training during the pandemic, teachers demonstrate a commitment to
continuous improvement and recognize the importance of training in enhancing their effectiveness as educators.

Enhancing teacher preparedness requires sustained investment in professional development opportunities that address the specific needs of educators in implementing MTB-MLE in Mathematics instruction. Educational authorities should provide ongoing training and support that is aligned with curriculum objectives and instructional priorities. Additionally, mentorship programs and peer collaboration can facilitate knowledge sharing and skill development among educators, fostering a culture of continuous learning and improvement. By prioritizing teacher preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

Parental involvement underscores the challenges and importance of parental support in facilitating Learners learning in MTB-MLE Mathematics education. Teachers note the impact of parental attitudes and engagement on learners success, highlighting the influence of factors such as parental availability, educational background, and willingness to support their children's learning. Challenges arise when parents lack the time, resources, or understanding to effectively support their children's education, leading to disparities in Learners outcomes.

Promoting parental involvement requires targeted efforts to engage and support parents in their children's education, particularly in understanding and supporting MTB-MLE Mathematics instruction. Schools can provide resources and guidance to parents on how to support their children's learning at home, including translations of curriculum materials and strategies for reinforcing mathematical concepts. Additionally, schools can foster a culture of collaboration between educators and parents, encouraging open communication and mutual support. By addressing barriers to parental involvement and promoting a supportive home learning environment, educators can enhance learners success in MTB-MLE Mathematics education.

Table 8 presents the coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue – Based Multilingual Education in Tagalog. Curriculum alignment highlights the strategies employed by teachers to address challenges in implementing Mother Tongue Based Multilingual Education (MTB-MLE) in Mathematics instruction. Teachers emphasize the relevance of using the mother tongue in facilitating learners understanding and communication, particularly in group activities where learners can express their answers more confidently. MTB-MLE has also improved Learners confidence and learning outcomes, making it easier for them to grasp mathematical concepts. Teachers play a crucial role in searching for and preparing appropriate strategies and methods to ensure the effective execution of lessons and enhance Learners comprehension.

Encouraging the use of the mother tongue and implementing interactive and Learners-centered teaching strategies are key to addressing challenges in curriculum alignment. Professional development programs should equip teachers with a diverse repertoire of instructional strategies that cater to the linguistic and learning needs of learners. Additionally, schools can foster a collaborative learning environment where teachers share best practices and support each other in implementing MTB-MLE effectively. By promoting teacher innovation and collaboration, educators can enhance curriculum alignment and improve Learners engagement and learning outcomes in Mathematics education.

Teacher preparedness highlights the importance of ongoing training and support for educators in implementing MTB-MLE in Mathematics instruction. Teachers recognize the benefits of MTB-MLE in enhancing their understanding and explanation of lessons, particularly through the use of different strategies and interactive approaches. However, challenges exist, including the need for teachers to continuously adapt and find ways to effectively teach lessons. Mass training initiatives have been instrumental in introducing MTB-MLE, but ongoing support is essential for teachers to become more flexible and confident in implementing strategies.

Strengthening teacher preparedness requires sustained investment in professional development programs that provide ongoing training and support tailored to the needs of educators. Mentorship programs and peer collaboration can facilitate knowledge sharing and skill development among teachers, promoting a culture of continuous learning and improvement. Educational authorities should prioritize the provision of resources and support to ensure that teachers have the necessary tools and skills to effectively implement MTB-MLE in Mathematics instruction. By investing in teacher preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

Parental involvement underscores the importance of engaging parents in supporting their children's learning in MTB-MLE Mathematics education. Teachers recognize the challenges faced by parents in understanding and supporting MTB-MLE, particularly when English terms are used. However, efforts such as parent academies and regular communication help bridge the gap and facilitate parental understanding and

involvement. Assignments and activities also provide opportunities for parents to spend time with their children and support their learning at home. Promoting parental involvement requires collaborative efforts between schools and families to provide resources, information, and support for parents in understanding and supporting MTB-MLE Mathematics education. Schools can offer parent workshops, resources, and regular communication channels to facilitate parental engagement and understanding. Additionally, educators can provide assignments and activities that encourage parent-child interaction and support learning at home. By fostering partnerships between schools and families, educators can enhance parental involvement and promote positive learning outcomes for learners in MTB-MLE Mathematics education.

Table 9 presents the coping mechanism of teachers in addressing challenges encountered by the teachers in teaching Mathematics using Mother Tongue-Based Multilingual Education in Bicol

The coping mechanisms for curriculum alignment in Bicol emphasize the importance of ensuring that instructional materials and teaching methods are aligned with the curriculum to enhance learner's understanding and skills. Teachers highlight the effectiveness of using the mother tongue in instruction, as it facilitates better comprehension and communication among learners. However, challenges arise when learners transition to higher grades where English becomes the medium of instruction. Despite this, teachers adapt their teaching strategies to ensure that learners grasp the necessary terminologies and concepts, thus maintaining alignment with the curriculum.

It implies that educators need ongoing support and resources to ensure that instructional materials and methods align with curriculum objectives. Professional development programs should focus on equipping teachers with effective strategies for teaching in multilingual environments and transitioning learners between language mediums. Additionally, collaboration between educators and curriculum developers is essential to ensure that instructional materials are culturally and linguistically relevant to learners. By prioritizing alignment with the curriculum, educators can enhance the effectiveness of instruction and promote positive learning outcomes for learners' in Bicol.

The coping mechanisms for teacher preparedness highlight the importance of continuous professional development and adaptability in addressing challenges in implementing Mother Tongue Based Multilingual Education (MTB-MLE) in Mathematics instruction. Teachers emphasize the need for flexibility and resourcefulness in adapting to new curricula and finding effective teaching methods for learners. They also stress the importance of visual aids and instructional materials in enhancing Learners understanding and engagement in the classroom. Enhancing teacher preparedness requires ongoing support and training that addresses the specific needs of educators in Bicol. Professional development programs should provide opportunities for teachers to learn and share effective instructional strategies, adapt to new curricular requirements, and utilize visual aids and instructional materials effectively. Additionally, mentorship programs and peer collaboration can facilitate knowledge sharing and skill development among teachers, fostering a culture of continuous learning and improvement. By investing in teacher

preparedness, educational stakeholders can enhance the quality of Mathematics education and promote positive learning outcomes for all learners.

The coping mechanisms for parental involvement underscore the importance of engaging parents in supporting their children's learning in Mathematics education. Teachers recognize the positive impact of parental involvement on Learners motivation and academic success and actively seek to involve parents in their children's education through communication, meetings, and assignments. By fostering collaboration between educators and parents, teachers aim to address Learners needs more effectively and promote a supportive learning environment both at school and at home.

Promoting parental involvement requires collaborative efforts between schools and families to provide resources, information, and support for parents in Bicol. Schools can offer workshops, communication channels, and regular meetings to facilitate parental engagement and understanding of their children's educational needs. Additionally, educators can provide assignments and activities that encourage parent-child interaction and support learning at home. By fostering partnerships between schools and families, educators can enhance parental involvement and promote positive learning outcomes for learners' in Mathematics education.

According to Tortola (2021), most of the teachers became innovative in finding solutions to address the needs and problems of the learners. Teachers spent time in surfing the internet to look for additional resources since the Mathematics book has very limited resources. They downloaded instructional materials needed like worksheets and enhancement activities to enrich the learning of the learners. Some teachers claimed that when they encountered difficulties in deep terms or highly localized in Sinugbuanong Binisaya, they would ask the senior teacher or the co-teacher who was familiar with the terms. One way to make lessons easier to understand is the use of context clue. During classroom observation, the teacher simplified an unfamiliar term to simple Binisaya term. In situations like this, there is a need for a fluent teacher in the medium of instruction or in the mother tongue

Summary

This study was conducted to explore the experiences of teachers in teaching Mathematics using Mother Tongue – Based Multilingual Education across South Luzon. The qualitative research is designed to gain in-depth insights into the experiences, challenges, and strategies of teachers in South Luzon. Qualitative research is well-suited for exploring complex phenomena and understanding the lived experiences of participants. This design allows for a nuanced exploration of the multifaceted aspects of MTB-MLE in Mathematics instruction. The study is to be conducted across selected elementary schools in Quezon and Bicol Regions. The researcher chose schools in Quezon, namely, Pedro Cabangon Elementary School Located at Brgy. Mascariña, Quezon, Quezon and Del Pilar Elementary School Located at Brgy. Del Pilar Quezon, Quezon. While across the Bicol Region, Dygico Elementary School Sta Elena Camarines Norte and San Pedro Elementary School San Pedro, Camarines Norte. The researcher

participants are composed of 6 teachers in Quezon District who are actively teaching MTB-MLE and teachers from Grades 1-3 in Dygico Elementary School and San Pedro Elementary School. The choice of South Luzon is based on its linguistic diversity and the significant implementation of MTB-MLE in the region.

The research population for this study encompasses educators based in South Luzon actively engaged in instructing Mathematics through the Mother Tongue-Based Multilingual Education (MTB-MLE) framework. This diverse group of teachers represents various linguistic backgrounds and spans different educational levels. To ensure a comprehensive and representative sample, a purposive sampling technique will be utilized. near the researcher's These chosen schools were specifically identified for their implementation of MTB-MLE in Tagalog, and Bicol languages, aligning with the study's focus on multilingual instructional contexts. The primary data collection instrument will be interviews and observations. An interview guide will be developed, consisting of open-ended questions designed to elicit teachers' experiences, challenges, strategies, and perceptions regarding MTB-MLE in Mathematics instruction. The interview guide will be pre-tested to ensure clarity and effectiveness.

Findings

The study yielded the following findings.

The study yielded the following findings.

1. The positive and negative experiences of teachers in teaching Mathematics in primary using Mother Tongue - Based Multilingual Instruction.

    1.1 The positive experiences of teachers in teaching Mathematics in primary using Mother Tongue Multilingual Education. Mother Tongue Based Multilingual Education (MTB-MLE) in Tagalog. Learners Engagement, Conceptual Clarity, and Teaching Effectiveness, each showcasing specific benefits observed by teachers. Teachers note that learners understand lessons better and can respond more readily when taught in their mother tongue, Tagalog. This improved comprehension leads to more active participation and quicker responses. Additionally, using Tagalog reduces learners' fear or shame, encouraging more willing participation in classroom activities. The cultural relevance of Tagalog commands and instructions resonates deeply, fostering a sense of connection and comfort in the learning environment. The use of the mother tongue simplifies problem-solving for learners. Mathematical concepts and problems explained in Tagalog are easier for learners to grasp and analyze. Teachers find that instructions given in the mother tongue are clearer, helping Learners understand and complete their lessons and exams more effectively. This clarity enhances learners’ cooperation as they better comprehend and follow assigned tasks. Furthermore, teachers observe improved academic performance, as indicated by higher mean percentage scores. The use of Tagalog encourages all learners to participate in activities and solve problems correctly, demonstrating the effectiveness of this teaching

approach. Additionally, it is easier for teachers to prepare materials and conceptualize teaching strategies when using Tagalog, enhancing their overall teaching effectiveness. Despite some challenges in translating technical mathematical terms, the benefits of using the mother tongue outweigh these difficulties, resulting in more effective teaching. The positive experiences of teachers using MTB-MLE (Mother Tongue-Based Multilingual Education) in teaching Mathematics highlight its potential to enhance learning outcomes and promote Learner engagement. By addressing challenges and leveraging the benefits of MTB-MLE, educators can create a more effective and inclusive learning environment that caters to the diverse linguistic needs of primary education learners.

1.2 The positive experiences of teachers in teaching Mathematics in primary using Mother tongue-based Multilingual Education. Mother Tongue-Based Multilingual Education (MTB-MLE) in Bicol. Teachers observe that using MTB-MLE (Mother Tongue-Based Multilingual Education) significantly enhances Learner's engagement, especially when lessons are translated into Tagalog or Bicol. Most learners, being Bicolano, respond better to instruction in their native language, leading to more productive lessons and active participation. Although there are terminology challenges, the overall Learners' engagement and confidence have increased due to better comprehension of lessons. Using the mother tongue in teaching mathematical concepts improves learners' understanding and clarity. Instructions are clearer, and learners grasp terms and concepts more effectively, leading to smoother classroom interactions and better academic performance.

Teachers also experience improved teaching effectiveness with MTB-MLE. Lessons in the mother tongue result in better academic outcomes, and while transitioning to English in higher grades is challenging, the foundational understanding built through MTB-MLE remains beneficial. The use of mother tongue materials makes lessons more effective, helping learners quickly grasp and retain concepts.

The positive experiences with MTB-MLE in Bicol highlight the need for policies supporting multilingual education. Developing bilingual resources, providing teacher training, and involving the community can enhance the effectiveness of MTB-MLE, leading to better academic outcomes and Learner engagement.

2. The negative experiences of teachers in teaching Mathematics in primary using Mother Tongue-Based Multilingual Instruction. ,

2.1 The negative experiences of teachers in teaching Mathematics in primary using Mother Tongue Multilingual Education. Mother Tongue Based Multilingual Instruction (MTB-MLE) in Tagalog. Teachers face significant challenges in teaching Mathematics using Mother Tongue-Based Multilingual Education (MTB-

MLE) due to language barriers. learners from diverse linguistic backgrounds struggle with mathematical concepts in Tagalog, leading to difficulties in communication and comprehension. To address these issues, educators need to adopt diverse instructional strategies, provide bilingual resources, offer language support programs, and foster culturally responsive learning environments. Teacher training should equip educators with skills to teach in multilingual settings, enhancing Learner's engagement.

The reception of MTB-MLE in Mathematics varies among learners, with some struggling to understand concepts in Tagalog. However, with adequate support, learners show resilience and willingness to learn. Educators must create inclusive learning environments, provide individualized support, implement collaborative learning activities, and celebrate linguistic diversity. This improves Learners' reception of MTB-MLE and promotes equitable education.

Resource limitations also pose significant challenges, impacting instruction quality. Teachers often lack sufficient materials and training, leading to resource gaps. Addressing these limitations requires policy-level interventions and localized strategies. Governments should invest in educational infrastructure, provide instructional materials and training, and support curriculum development. Educators can leverage resources through collaborative networks and community involvement, enhancing MTB-MLE implementation and improving Learner's outcomes.

2.2 The negative experiences of teachers in teaching Mathematics in primary using Mother Tongue-Based Multilingual Instruction. Mother Tongue-Based Multilingual Education (MTB-MLE) in Bicol. Language barriers in MTB-MLE in Bicol complicate education, as translating mathematical concepts from Tagalog to Bicol is challenging. This affects learners' comprehension and problem-solving skills, despite using English for clarification. The reception of MTB-MLE in Mathematics varies among learners, influenced by their linguistic backgrounds and prior math experiences. Teachers play a crucial role in supporting learners, but challenges persist, especially during transitions from daycare to Grade I. Resource limitations, such as insufficient instructional materials, further hinder effective MTB-MLE implementation, despite efforts to supplement with internet access and shared materials.

3. The challenges towards the use of MTB-MLE as a medium of instruction in

Mathematics encountered by the teachers.

3.1 The teachers in Tagalog encountered challenges in using MTB-MLE as a medium of instruction in Mathematics. the challenges encountered by Tagalog-speaking teachers in using MTB-MLE as a medium of instruction in Mathematics are Curriculum alignment poses difficulties for teachers in effectively integrating MTB-MLE

with the Mathematics curriculum, with varying degrees of ease depending on their familiarity and training. Despite challenges, teachers recognize the benefits of MTB-MLE in clarifying lesson objectives and activities. To enhance alignment, targeted support through comprehensive training and ongoing guidance is necessary. Teacher preparedness is hindered by inadequate training, emphasizing the need for professional development programs tailored to address curriculum alignment, language proficiency, and instructional strategies. Improving teacher preparedness is essential for equitable and effective MTB-MLE implementation. Parental involvement varies, with some parents actively supporting their children's learning while others struggle to engage with the curriculum. Promoting parental involvement requires outreach efforts, accessible resources, and collaboration platforms to foster a supportive learning environment and enhance the effectiveness of MTB-MLE in Mathematics education.

3.2. The teachers in Bicol encountered challenges with the use of MTB-MLE as a medium of instruction in Mathematics. The challenges faced by Bicol-speaking teachers in implementing MTB-MLE as a medium of instruction in Mathematics are Curriculum alignment poses difficulties, particularly in translating mathematical terms into the mother tongue, but teachers emphasize its importance for effective instruction. They demonstrate adaptability in addressing challenges and recognize the value of MTB-MLE despite complexities. Ongoing collaboration and guidance are essential for effective alignment, requiring support from educational authorities and comprehensive professional development for teachers. Teacher preparedness varies, with efforts needed to ensure continuous improvement through tailored training and mentorship programs. Parental involvement is crucial for Learner’s success in MTB-MLE Mathematics education, requiring targeted efforts to engage and support parents in understanding and supporting their children's learning at home. By addressing these challenges, educators can enhance the effectiveness of MTB-MLE in Mathematics education and improve learning outcomes for learners.

4. The coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue – Based Multilingual Instruction

4.1 The coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue- Multilingual Instruction in Tagalog employed by Tagalog-speaking teachers to address challenges in teaching Mathematics using Mother Tongue-Based Multilingual Education (MTB-MLE). Curriculum alignment strategies focus on utilizing the mother tongue to enhance Learners understanding and confidence, particularly in interactive group activities. Teachers emphasize the importance of professional development programs to equip them with diverse instructional strategies tailored to learners' linguistic and learning needs. Encouraging teacher innovation and collaboration fosters effective curriculum alignment and improves Learner engagement. Teacher preparedness involves ongoing training and support to enhance educators' flexibility and confidence in implementing MTB-MLE strategies. Sustained investment in professional

development, mentorship programs, and peer collaboration is crucial to ensure teachers have the necessary skills for effective instruction. Parental involvement initiatives such as parent academies and regular communication channels help bridge the gap in understanding and support for MTB-MLE Mathematics education. Collaborative efforts between schools and families, including workshops and activities, promote parental engagement and enhance Learners learning outcomes.

4.2. The coping mechanism of teachers in addressing challenges encountered by the Teachers in Teaching Mathematics using Mother Tongue –Multilingual Instruction in Bicol. The coping mechanisms employed by Bicol-speaking teachers to address challenges in teaching Mathematics using Mother Tongue-Based Multilingual Education (MTB-MLE). Curriculum alignment strategies focus on ensuring instructional materials and methods align with the curriculum to enhance Learners understanding. Teachers highlight the effectiveness of using the mother tongue in instruction but adapt strategies as learners transition to English-medium instruction in higher grades. Ongoing support and resources are essential for teachers to maintain alignment with curriculum objectives, with professional development programs focusing on effective teaching strategies and collaboration with curriculum developers. Teacher preparedness emphasizes continuous professional development and adaptability in implementing MTB-MLE, with a focus on effective instructional strategies and the use of visual aids. Ongoing support and training tailored to the specific needs of educators in Bicol are crucial for enhancing teacher preparedness. Parental involvement initiatives aim to engage parents in supporting their children's learning in Mathematics education through communication, meetings, and assignments. Collaborative efforts between schools and families, including workshops and regular meetings, promote parental engagement and support learning at home, ultimately enhancing Learner's outcomes in Mathematics education.

5. The program proposal can be made to enhance the sustainability and effectiveness of using Mother Tongue in Teaching Mathematics. To enhance the sustainability and effectiveness of using Mother Tongue in teaching Mathematics, policymakers should officially endorse MTB-MLE integration, ensure curriculum alignment, provide comprehensive teacher training, produce high-quality instructional materials, foster parent and community involvement, establish monitoring mechanisms, and promote ongoing research and knowledge sharing. These efforts aim to create inclusive and culturally responsive education, benefiting all learners.

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. The findings revealed that Mother tongue-based Multilingual Education (MTB-MLE) significantly improves instructional practices and Learners' learning outcomes in primary Mathematics education. By using learners' native language, MTB-MLE enhances engagement, comprehension, and problem-

solving skills, fostering confidence and active class participation. Despite its benefits, MTB-MLE presents challenges for teachers, including language barriers and resource limitations. Translation difficulties and inadequate instructional materials hinder Learner's comprehension and engagement in Mathematics learning.

2. According to research findings, implementing MTB-MLE for Mathematics instruction faces challenges such as curriculum alignment and teacher preparedness. Comprehensive alignment between curriculum objectives and instructional materials is crucial, along with targeted professional development for teachers and fostering parental involvement.

3. The findings of this study, teachers employ coping mechanisms to address challenges in MTB-MLE implementation, including ensuring relevance and comprehensibility of the mother tongue in instruction. They utilize interactive approaches, prepare instructional strategies, and emphasize continuous professional development and parental involvement to support Learner's learning.

4. To enhance the sustainability and effectiveness of using Mother Tongue in teaching Mathematics, policymakers should endorse MTB-MLE integration, ensure curriculum alignment, provide comprehensive teacher training, foster parent and community involvement, establish monitoring mechanisms, and promote ongoing research and knowledge sharing. These efforts aim to create inclusive and culturally responsive education, benefiting all learners.

Recommendations

The following recommendations are hereby suggested:

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1. Since the findings revealed that using Mother Tongue-Based Multilingual Instruction in Mathematics faces challenges including language barriers, resource limitations, translation difficulties, and inadequate instructional materials that affect the Learners' comprehension and engagement in Mathematics learning, it is recommended to DepEd officials to establish teacher training programs focused on MTB-MLE implantation strategies and provide ongoing support and resource for Learners School Heads.

2. After seeing the result of the study that using Mother Tongue for Mathematics instruction faces challenges such as curriculum alignment and teacher preparedness and comprehensive alignment between curriculum objectives and instructional materials is crucial, School heads may target professional development for teachers to support them in implementing Mother Tongue Based-Multilingual Instruction by providing leadership, resources, and professional development opportunities.

3. In as much the findings revealed that teachers face challenges in Mother Tongue-Based Multilingual Instruction, including ensuring relevance and comprehensibility of the mother tongue in instruction, hence they may utilize interactive approaches, prepare instructional strategies, and emphasize continuous professional development and parental involvement to support learners' learning. Include encouraging teachers, to embrace Mother Tongue-Based Instruction as a pedagogical approach and seek professional development opportunities to enhance skills in teaching Mathematics using the mother tongue.

4. According to the findings of the study the learners struggle due to complex mathematical terminologies and lack of vocabulary, teachers may provide instructional materials such as flashcards, and vocabulary words written on strips of paper for the learners to become more active and participate in Mathematics lessons conducted in the mother tongue and seek assistance from teachers when needed.

5. Since the study of Experiences of Teachers in Teaching Mathematics using Mother Tongue-Based Multilingual Instruction is limited only across South Luzon, future Researchers may conduct research studies in a wider range to evaluate the long-term impact and effectiveness of using Mother Tongue-Based Instruction in teaching Mathematics.

Compliance with Ethical Standards

All participants, including educators, administrators, and other relevant stakeholders, provided informed consent before their involvement in the study, which was initially acquired by the researcher. The participants were informed about the purpose, procedures, potential risks, and benefits of the study. They were also given the freedom to withdraw from it at any time without incurring any penalties. Confidentiality and anonymity were also maintained to protect the privacy of the participants, ensuring that their responses and personal data were kept private and not disclosed without their express consent. In addition, the research was conducted with honesty, integrity, and transparency of fraud or manipulation.

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EXPLORING BANANA *(Musa balbisiana colla)* BLOSSOM WITH FORTIFIED SAGIP NUTRI-PACK FOR MACAROON PRODUCTION

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ABSTRACT

This research study focuses on the innovative utilization of Banana Blossom *(Musa balbisiana colla)* with Fortified Sagip Nutri-Pack for Macaroon Production. The methodology employed involved a comprehensive approach, utilizing a variety of preparation tools, equipment, and specific ingredients tailored for creating banana blossom macaroons. The study's developmental procedure included stages such as harvesting, peeling, washing, boiling, chopping, and squeezing the banana blossoms, followed by measuring, mixing, baking, packaging, and labeling the final product. Sensory evaluation was conducted with 60 respondents from different age groups using a 9-point Hedonic Scale to assess the acceptability of the macaroons based on appearance, aroma, taste, and texture. The nutritional analysis revealed that the banana blossom macaroons are nutritious, offering significant levels of dietary fiber and essential amino acids. The cost and return analysis demonstrated a consistent return on investment of 40% across all treatments. The shelf-life study indicated that these macaroons can maintain quality for up to ten days at room temperature and up to a month when refrigerated. In conclusion, incorporating banana blossom in macaroon production presents a promising innovation with potential for commercial production, highlighting its feasibility, nutritional value, sensory appeal, economic viability, and shelf-life.

Keywords: *Banana Blossom, Sagip Nutri-Pack, Macaroon Production, Nutritional Analysis*

INTRODUCTION

In recent years, the Philippine Congress has enacted various laws to enhance Filipinos' nutritional health, reflecting a broader commitment to public health through dietary improvements. Notably, the Department of Education (DepEd) has implemented policies that regulate the sale of nutritious foods and beverages in schools and mandate feeding programs (Lawson, 2012). These legislative and policy measures underscore the government's dedication to fostering healthier eating habits among the population, particularly among school-aged children.

This study explores the culinary application of banana blossoms (Musa balbisiana Colla) as a primary ingredient in macaroon production. Banana blossoms, or banana hearts, are low in calories and contain small amounts of essential minerals such as calcium, potassium, phosphorus, copper, and zinc (Singh, Singh, & Yadav, 2018). Additionally, they are rich in antioxidants and have a lower natural sugar content compared to banana fruits, making them a potentially healthier ingredient for various culinary applications (Poem, 2013; Palczak et al., 2020).

Traditionally, macaroons are recognized as cookies made from sweet meringue and ground almonds, offering a distinct flavor and texture that enriches the sensory experience (Palczak et al., 2020). The choice of macaroons for this research is driven by their cost-effectiveness and popularity, particularly among students at Isabela School of Arts and Trades who favor baked goods like traditional coconut macaroons.

Incorporating banana blossoms with the corn-based SAGIP Nutri-Pack into macaroons could significantly enhance the nutritional value of these snacks. The SAGIP Nutri-Pack is a fortified blend containing corn, mung beans, sesame, cacao pod husk, malunggay (Moringa oleifera), and turmeric powder. This mix offers a comprehensive array of macro and micronutrients essential for maintaining bodily functions and preventing nutritional deficiencies (Reyes, 2017). Including these ingredients helps prevent anemia, neuritis, and memory disorders and protects against cancers, infectious diseases, high blood pressure, and strokes (Reyes, 2017; Bernardo, 2018).

The Corn-Based SAGIP Nutri-Pack was developed as a supplementary mix of food by the College of Education at Isabela State University-Main to combat malnutrition (Bernardo, 2018). This study aims to further this initiative by enhancing our understanding of the culinary uses of banana blossoms, locally known as "Susup" in Ilocano. The research will be implemented in the school canteen of Isabela School of Arts and Trades-Main, as part of the ongoing Income Generating Project (IGP) "Project Bake It With You (Bakery Product Making)" undertaken by the researcher.

Importantly, this initiative aligns with DepEd Order No. 13 Series 2017, which outlines policies and guidelines for promoting healthy food and beverage choices in schools and DepEd offices. This policy encourages the provision of healthy, nutritious, and affordable menu options, setting standards for food choices and promoting healthy eating habits among youth and DepEd employees (Department of Education, 2017).

The municipality of Benito Soliven in Isabela stands to benefit significantly from the outcomes of this research, given that bananas are a central agricultural product in the region. Utilizing banana blossoms for various food items can enhance the town's recognition as a leading banana product producer not only in Cagayan Valley but also in the entire Philippines. Similarly, the City of Ilagan would benefit, as the product incorporates a corn-based ingredient, a source of agricultural pride in the city (Philippine Statistics Authority, 2020).

Therefore, the primary objective of this study is to investigate the development of food products utilizing banana blossoms, focusing on their nutritional value and sensory qualities when combined with a Corn-Based SAGIP Nutri-Pack. This research aims to determine their suitability for macaroon production and as a nutritious snack option for school canteens. Overall, this endeavor contributes to achieving several Sustainable Development Goals (SDGs), particularly "No Poverty," "Zero Hunger," "Good Health and Well-being," "Decent Work and Economic Growth," "Industry, Innovation, and Infrastructure," and "Sustainable Cities and Communities" by introducing this innovative product (United Nations, 2020).

Research Questions

Generally, the study aimed to determine the acceptability and nutritive value of Banana Blossom with Fortified Sagip Nutri-pack for Macaroon Production. Specifically, it sought to answer the following:

1. What processes are involved in making banana blossoms with Fortified Sagip Nutri-Pack for Macaroon Production?
2. What is the nutritive value of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production?
3. What is the level of acceptability of the banana blossom with corn-based Sagip Nutri-pack for macaroon production of 1000g, 900g, 800g, 700g, and the original recipe in terms of:
    a. Appearance;
    b. Aroma;
    c. Taste; and
    d. Texture
4. Is there a significant difference in the evaluation of the food experts, food technology students, and consumers on the prepared banana blossom with corn-based Sagip Nutri-pack for macaroon production in different ratios?
5. What is the cost analysis computed for the different treatments?
6. What is the shelf-life of banana blossom with corn-based Sagip Nutri-pack for macaroon production at room temperature?

METHODOLOGY

A. Materials

1. Tools and Equipment

Table 1 below shows the preparation tools and equipment that will be used during the conduct of the study.

Table 1. Tools, utensils, and equipment used in the conduct of the study

PREPARATION TOOLS	MEASURING TOOLS	CUTTING TOOLS	MIXING TOOLS	PACKAGING MATERIALS	EQUIPMENT
Sterilize knife	Measuring cup	Sterilize knife	Rubber scraper	Small round plastic container	Blender
Spatula	Measuring spoon		Wooden spoon	Medium rectangular plastic container	Stand Mixer
Collander/Strainer	Digital Weighing Scale		Mixing bowl	Macaroon liner	Gas range
Chopping boards				LDPE plastic Bags Food Packaging	Electric Oven
Piping bag					
Disposable gloves					
Utility tray					

2. Ingredients

Table 2 shows the proportion of ingredients to be used in the preparation of banana blossom Macaroon with Corn-Based Sagip Nutri-Pack. The recipes used for Coconut macaroon in this study are based on the standard recipes in the Bread and Pastry Production NC II Module.

Table 2. The proportion of ingredients used in Baking Banana Blossom with Corn-Based Sagip Nutri-Pack for Macaroon Production

Ingredients	T1	T2	T3	T4	T5
Corn Based Sagip Nutri-Pack		100g	100g	100g	100g
All-Purpose Flour	1000g	1000g	1000g	1000g	1000g

Desiccated Coconut	1000g				
Boiled and chopped Banana Blossom/		1000g	900g	800g	700g
Butter	678g	678g	678g	678g	678g
Eggs	810g	810g	810g	810g	810g
Granulated Sugar	820g	820g	820g	820g	820g
Condensed milk	1900g	1900g	1900g	1900g	1900g
Vanilla	18g	18g	18g	18g	18g

B. Developmental Procedure

1. Collection and Preparation of the Material

Banana blossoms were harvested from the Banana Farm in the town of Benito Soliven, Isabela. Detach the Banana blossoms from the Saba variety with tightly packed bracts. The tough outer layers shall be removed until the pale pink leaves appear which are tender and edible. The edible bracts removed were immediately submerged in clean water to avoid discolorations. This process of removing the leaves, and then the smaller fronds was repeated until the leaves became too small to peel. At this point, just chop off whatever remains of the stem, and slice or dice the smaller leaves and small heart at the center. The fronds and bracts submerged in boiling water were chopped before it is squeezed to remove the bitter taste and pongee smell. The Macaroon will be prepared using the proportion of chopped banana blossom with the ratio of 1000g, 900g, 800g, and 700g for the treatment samples. The flowchart for making banana blossom macaroons is shown in Figure 3.

After measuring all the ingredients, preheat first the oven to 350 degrees F. Prepare the macaroon molder. In a mixing bowl, cream the butter, sugar, and eggs. Add condensed milk, all-purpose flour, and vanilla. stir in the boiled and chopped Banana blossom. Use a pastry bag and fill the mixture into it. Drop the batter mixture into lined muffin pans. Bake at 375 degrees F. until golden brown. Remove the baked macaroon from the oven and keep it cold.

The same procedure will be done for the experimental products by using separate baking utensils to eliminate contaminations that will affect the organoleptic characteristics of the product.

For better understanding, the flowchart (Figure 1) below shows the process followed by the researcher during the developmental stage of the product.

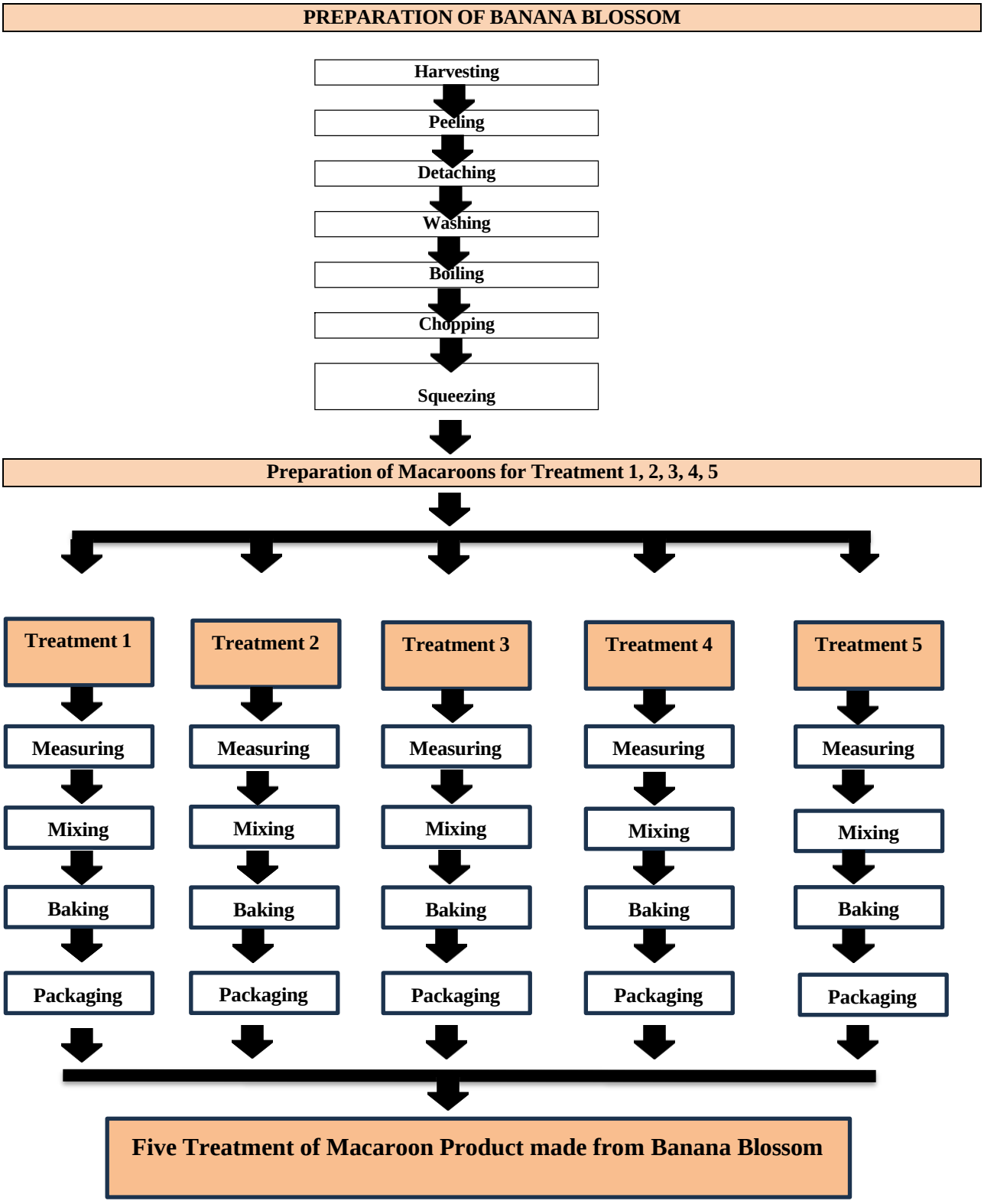


Figure 1. Flow Diagram of the Procedure in Baking Banana Blossom *(Musa acuminata Colla)* with Corn-Based Sagip Nutri-Pack.

Data Gathering Instrument

This study used a modified instrument from Aggabao's (2017) experimental study entitled "Macaroons with shoots from different species of bamboo". The instrument was modified to suit the objectives of the present study.

Data Gathering Procedure

Permission to conduct the study through sensory evaluation was requested from the respondents, consisting of children, teenagers, adults, and experts. After permission was granted, the administration of the sensory evaluation followed. Directions concerning the accomplishment of the questionnaires was discussed by the researcher with the evaluators personally. Copies of the checklist forms were retrieved after being completed by the respondents.

The Department of Agriculture assessed the developed food products to determine their nutritional value. In addition, to determine the shelf life of the food products, the observation method was used to identify changes in the appearance, aroma, taste, and texture of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production. It was conducted at the Regional Food Technology Development and Incubation Center; Integrated Laboratory Division of the Department of Agriculture Regional Government Center, Carig Sur, Tuguegarao City, Cagayan.

C. Treatment of the Study

The proportions of ingredients of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production are the same except for the main ingredient which was the chopped banana blossom. A different ratio of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production was used as the main ingredient in making macaroons.

The treatments to be used in this study are as follows:

T1 = Commercial Macaroon
T2 = Corn Sagip Nutri-pack (100g), All-purpose Flour (1000g), Banana blossom (1000g)
T3 = Corn Sagip Nutri-pack (100g), All-purpose Flour (1000g), Banana blossom (900g)
T4 = Corn Sagip Nutri-pack (100g), All-purpose Flour (1000g), Banana blossom (800g)
T5 = Corn Sagip Nutri-pack (100g), All-purpose Flour (1000g), Banana blossom (700g)

D. Sensory Evaluation

The finished products were subjected to sensory evaluation. Sixty (60) respondents from varied age groups shall be selected and properly oriented on how to

evaluate the products using the 9-point Hedonic Scale. The samples were arranged and evaluated.

Sensory evaluation was conducted at the Bread and Pastry Production Laboratory Room, Isabela School of Arts and Trades, City of Ilagan, Isabela to determine the acceptability of the experimental product in terms of color/appearance, odor/aroma, taste/flavor, texture and general acceptability of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production. The instrument for data gathering contained a score sheet using the 9-point Hedonic Scale.

The range of scale is interpreted as follows:

	Range	**Qualitative Description**
9	8.50-9.00	Like Extremely
8	7.50-8.49	Like Very Much
7	6.50-7.49	Like Moderately
6	5.50-6.49	Like Slightly
5	4.50-5.49	Neither Like nor Dislike
4	3.50-4.49	Dislike Slightly
3	2.50-3.49	Dislike Moderately
2	1.50-2.49	Dislike Very Much
1	1.00-1.49	Dislike Extremely

A sensory panel was composed of sixty (60) individuals who will be identified as (20) food experts, (20) food technology students, and (20) consumers. The qualification of the panelists in terms of age should be 12-60 years old. They will be screened to be non-smokers, not liquor drinkers, and in good health during the sensory evaluation.

The treatment samples of 1 piece of macaroon were tasted and subjected to sensory evaluation by the panelists. The panelists evaluated the samples according to their color/appearance, odor/aroma, taste flavor, texture, and general acceptability using the Hedonic scale ratings. Requiring the respondents to rinse their mouths before tasting each sample was strictly observed as a standard procedure to ensure the credibility and validity of the result of the study.

E. Experimental Design

There were five treatments of the study (T1-301, T2-302, T3-303, T4-304, T5-305) which were assigned randomly to the experimental units within a block (BLK1, BLK2, BLK3, BLK4, BLK5).

The grouping of the experimental units per block was as follows:

Table 3. Arrangement of the **5** treatments (T1-301, T2-302, T3-303, T4-304, T5-305) and blocks of Banana Blossom Macaroon with Sagip Nutri-Pack Powder.

BLOCK						
1	301	302	303	304	305
2	302	303	304	305	301
3	303	304	305	301	302
4	304	305	301	302	303
5	305	301	302	303	304

RESULTS AND DISCUSSION

Product Development

The banana blossom fortified with sagip Nutri-pack in macaroon production underwent different stages of development starting from harvesting, peeling, detaching, washing, boiling, chopping, squeezing, measuring, mixing, baking, packaging, and labeling. Through these stages of development, careful observation and analysis were done to come up with banana blossoms fortified with sagip Nutri-pack in macaroon production.

Preparation of Banana Blossom Macaroon in Five Treatments

The development process started with the creation of banana blossom macaroon with sagip Nutri-pack in four different treatments. The procedure began with peeling the cover of the banana blossom detaching the flowers, washing it after, and removing the buds. Boil the blossom with a small amount of salt to prevent darkness in color until thoroughly cooked, then drain and allow to cool. Chop with a knife and chopping board or grind the banana blossom with a blender then squeeze to remove the excess water. To present the measurements and ingredients systematically including the original recipe of Coconut Macaroon as a control variable in the study, a table is provided.

Table 4. Measurements and ingredients in the preparation of Coconut Macaroon

Measurements	Ingredients
1000 g	Desiccated Coconut
1000 g	All-Purpose Flour
678g	Butter
810g	Eggs
820g	Granulated Sugar
1900g	Condensed milk
18g	Vanilla

Procedure

The process of making coconut macaroons begins with accurately measuring all required ingredients and preheating the oven to 350 degrees Fahrenheit. Meanwhile, prepare the macaroon molder by lining it with appropriate liners or lightly greasing it to prevent sticking. In a mixing bowl, cream together the butter, sugar, and eggs until the mixture is smooth and well combined. Next, add condensed milk, all-purpose flour, and vanilla extract, and stir in the desiccated coconut until evenly distributed.

Once the mixture is ready, transfer it into a pastry bag for easier handling and pipe the batter into the lined macaroon pans, filling each mold to the desired level. Increase the oven temperature to 375 degrees Fahrenheit and bake the macaroons until they turn golden brown, which typically takes about 15-20 minutes. Carefully remove the baked macaroons from the oven and allow them to cool completely.

After the macaroons have cooled, store them in a microwaveable plastic container or transparent plastic wrapper. Seal the container or wrapper to maintain freshness, and label the packaging with the product name, ingredients, and production date for proper identification and traceability. Following these steps ensures the production of delicious and visually appealing coconut macaroons that are ready for storage, sale, or consumption.

Table 5. Measurements and ingredients in the preparation of four different Treatments of Banana Blossom Macaroon.

Measurements				**Ingredients**
T2	T3	T4	T5	
1000 g	900 g	800 g	700 g	Boiled and chopped Banana Blossom
1000 g	1000 g	1000 g	1000 g	All-Purpose Flour
100g	100g	100g	100g	Corn Based Sagip Nutri-Pack
678g	678g	678g	678g	Butter
810g	810g	810g	810g	Eggs
820g	820g	820g	820g	Granulated Sugar
1900g	1900g	1900g	1900g	Condensed milk
18g	18g	18g	18g	Vanilla

Procedure

The process of making the four treatments of banana blossom macaroons begins with accurately measuring all required ingredients and preheating the oven to 350 degrees Fahrenheit. Meanwhile, prepare the macaroon molder by lining it with appropriate liners or lightly greasing it to prevent sticking. In a mixing bowl, cream together the butter, sugar, and eggs until the mixture is smooth and well combined. Next, add

condensed milk, all-purpose flour, and vanilla extract, and stir in the boiled and chopped banana blossom until evenly distributed.

Once the mixture is ready, transfer it into a pastry bag for easier handling and pipe the batter into the lined macaroon pans, filling each mold to the desired level. Increase the oven temperature to 375 degrees Fahrenheit and bake the macaroons until they turn golden brown, which typically takes about 15-20 minutes. Carefully remove the baked macaroons from the oven and allow them to cool completely.

After the macaroons have cooled, store them in a microwaveable plastic container or transparent plastic wrapper. Seal the container or wrapper to maintain freshness, and label the packaging with the product name, ingredients, and production date for proper identification and traceability. Following these steps ensures the production of delicious and visually appealing banana blossom macaroons that are ready for storage, sale, or consumption.

Report of Analysis on the Nutritive Value of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production

The report analysis on the nutritive value of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production is shown in Table 6 below.

Table 6. Report of analysis on the nutritive value of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production

Lab No.	Sample Description	Crude Protein	Crude Fiber	Crude Fat	Moisture	Ash
		%	%	%	%	%
FT-24-0070	Treatment 1 For Banana Blossom, T1	4.29	1.63	13.28	24.17	0.84
FT-24-0071	Treatment 2 For Banana Blossom, T2	4.65	1.87	13.11	25.15	0.99
FT-24-0072	Treatment 3 For Banana Blossom, T3	4.47	1.41	13.60	25.46	0.95
FT-24-0073	Treatment 3 For Banana Blossom, T4	4.83	1.72	14.48	19.62	1.00

The outcome showed that the standard macaroon crude fat and the resultant crude fat differed little. Consequently, no evidence eating banana blossom macaroons can raise your chance of obesity or other linked health issues like high cholesterol and cardiovascular disease.

Based on the given result with its content of crude fat (13.28, 13.11, 13.60, 14.48 g/180 g) and total carbohydrates of 13 for treatment 2, 101 for treatment 3, 37 for treatment 4, and 108 for treatment 5, as is evident in the table, the Recommended Energy Nutrient Intake per 180 grams of the macaroon was 26% for treatment 2 and treatment 3, while 16% for treatment 4 and 28% for treatment 5. The sagip Nutri-pack enriched banana blossom macaroons can give customers extra energy so their bodies can work and function as intended.

Furthermore, the analysis report reveals that the crude fiber product content containing 1.63 g, 1.87 g, 1.41 g, and 1.72 g/180 g from treatment 2 to treatment 5 can aid in increasing the weight and size of stool as well as softening it. This means that those with stomach issues can benefit from these dietary fibers. A minor amount of protein (4.29 g, 4.65 g, 4.47 g, 4.83 g/180 g) is also present; this protein provides 11% of RENI for treatments 2 and 4, and 12% for treatments 3 and 5. Additionally, protein can provide amino acids, which the body needs to repair some of its muscles and bones.

Lastly, the analysis report reveals that out of all the treatments involving banana blossom fortified with Sagip Nutri-Pack for macaroons, the final treatment involving 700 grams of banana blossom had the highest nutrient content that had been tested.

Banana blossoms offer a noteworthy content of dietary fiber and well-balanced essential amino acids, making them a valuable addition to a healthy diet. These blossoms are abundant in macro elements like calcium (Ca), potassium (K), chlorine (Cl), and sulfur (S), as well as essential microelements such as manganese (Mn), zinc (Zn), and copper (Cu). Additionally, they contain alkaloids, glycosides, steroids, saponins, tannins, flavonoids, and terpenoids. Studies, including those by Tasnim et al. in 2020, suggest that the high levels of dietary fiber and polyphenols in banana blossoms contribute to various health benefits. Extracts from banana blossoms also act as natural antioxidants, aiding in the prevention of oxidative stress. The presence of these bioactive compounds indicates significant therapeutic potential, as highlighted by research conducted by Mapanao et al. in 2022 and Mostafa in an undisclosed year.

The Level of Acceptability of Banana Blossom Fortified with Sagip Nutri-Pack in Macaroon Production

The following table shows the level of acceptability of the banana blossom with corn-based Sagip Nutri-pack for macaroon production of 1000g, 900g, 800g, and 700g, and the original recipe in terms of appearance/color, aroma, taste, and texture.

Table 7. The level of acceptability of the original recipe of Coconut Macaroon in terms of appearance/color, aroma, taste, and texture

Treatment 1 Coconut Macaroon	Mean	Standard Deviation	Description
Appearance/Color			
a. Pleasing combination of colors and forms.	8.27	0.88	Like Very Much
b. Even, golden brown.	8.35	0.88	Like Very Much
c. The macaroon looks delicious.	8.30	0.89	Like Very Much
Grand Mean	8.30	0.77	Like Very Much
Aroma			
a. The coconut macaroon had a distinct aroma.	8.28	0.99	Like Very Much
b. A strong aroma emanates from the coconut macaroon.	8.18	1.16	Like Very Much
c. The coconut macaroon stimulates appetite.	8.30	0.87	Like Very Much
Grand Mean	8.25	0.90	Like Very Much
Taste			
a. The coconut macaroon had a sweet, wheaty flavor.	8.28	1.28	Like Very Much
b. The coconut macaroon is delicious.	8.40	0.92	Like Very Much
c. The taste of the coconut macaroon is just right.	8.35	0.90	Like Very Much
Grand Mean	8.34	0.86	Like Very Much
Texture			
a. The coconut macaroon is tender.	8.37	0.86	Like Very Much
b. The coconut macaroon is velvety and moist.	8.17	1.08	Like Very Much
c. The coconut macaroon is light, not compact or soggy.	8.12	0.92	Like Very Much
Grand Mean	8.22	0.84	Like Very Much

Table 7 shows the acceptability of commercial coconut macaroon as a controlled variable **Treatment 1** in the study focused on four key sensory attributes: appearance, aroma, taste, and texture. The evaluation utilized specific descriptors for each attribute, providing mean scores and standard deviations to quantify the level of acceptability.

For appearance, the macaroons were rated on three criteria: the pleasing combination of colors and forms (mean = 8.27, SD = 0.88), an even, golden brown color (mean = 8.35, SD = 0.88), and overall visual appeal and deliciousness (mean = 8.30, SD = 0.89). The grand mean for appearance was 8.30 with a standard deviation of 0.77, indicating that participants generally "like very much" the visual presentation of the macaroons.

In terms of aroma, participants evaluated the macaroons based on the distinctness of the aroma (mean = 8.28, SD = 0.99), the strength of the aroma (mean = 8.18, SD = 1.16), and the ability of the aroma to stimulate appetite (mean = 8.30, SD = 0.87). The grand mean for aroma was 8.25 with a standard deviation of 0.90, suggesting that the aroma was highly appealing to the participants, who "like very much" the scent of the macaroons.

The taste was assessed by considering the sweetness and wheaty flavor (mean = 8.28, SD = 1.28), overall deliciousness (mean = 8.40, SD = 0.92), and the balance of taste (mean = 8.35, SD = 0.90). The grand mean for taste was 8.34 with a standard deviation of 0.86, reflecting a strong positive reception where participants "like very much" the flavor profile of the macaroons.

Lastly, the texture was evaluated on the tenderness of the macaroons (mean = 8.37, SD = 0.86), their velvety and moist consistency (mean = 8.17, SD = 1.08), and their lightness, avoiding a compact or soggy feel (mean = 8.12, SD = 0.92). The grand mean for texture was 8.22 with a standard deviation of 0.84, showing that participants "like very much" the textural qualities of the macaroons.

Overall, the coconut macaroons scored consistently high across all sensory attributes, with grand means reflecting a high level of acceptability, indicating that participants "like very much" these macaroons in terms of appearance, aroma, taste, and texture.

Table 8. The level of acceptability of Banana Blossom Fortified with Sagip Nutri-Pack In Macaroon Production of 1000g in terms of appearance/color, aroma, taste, and texture

Treatment 2 Banana Blossom Macaroon	Mean	Standard Deviation	Description
Appearance/Color			
a. Pleasing combination of colors and forms.	8.37	0.88	Like Very Much
b. Even, golden brown.	8.35	0.80	Like Very Much
c.The macaroon looks delicious.	8.32	0.85	Like Very Much
Grand Mean	8.34	0.74	Like Very Much
Aroma			
a. The blossom macaroon had a distinct aroma.	8.28	0.88	Like Very Much
b. A strong aroma emanates from the blossom macaroon.	8.23	0.98	Like Very Much
c.The blossom macaroon stimulates appetite.	9.60	0.34	Like Extremely
Grand Mean	8.70	3.54	Like Extremely
Taste			
a. The blossom macaroon had a sweet, wheaty flavor.	8.22	0.88	Like Very Much

b. The blossom macaroon is delicious.	8.42	0.87	Like Very Much
c. The taste of the blossom macaroon is just right.	8.50	0.70	Like Extremely
Grand Mean	8.38	0.69	Like Very Much
Texture			
a. The blossom macaroon is tender.	8.43	0.77	Like Very Much
b. The blossom macaroon is velvety and moist.	8.43	0.77	Like Very Much
c. The blossom macaroon is light, not compact or soggy.	8.48	0.70	Like Very Much
Grand Mean	8.45	0.62	Like Very Much

Table 8 presents the evaluation of the banana blossom macaroon, referred to as **Treatment 2**, focused on the same four sensory attributes: appearance, aroma, taste, and texture. Each attribute was assessed using specific criteria, and the results were summarized with mean scores and standard deviations.

For appearance, the banana blossom macaroons were judged on the combination of colors and forms (mean = 8.37, SD = 0.88), the evenness of the golden-brown color (mean = 8.35, SD = 0.80), and the overall visual appeal and deliciousness (mean = 8.32, SD = 0.85). The grand mean for appearance was 8.34 with a standard deviation of 0.74, indicating that participants "like very much" the visual presentation of these macaroons.

Regarding aroma, the macaroons were rated based on the distinctness of the aroma (mean = 8.28, SD = 0.88), the strength of the aroma (mean = 8.23, SD = 0.98), and the ability of the aroma to stimulate appetite (mean = 9.60, SD = 0.34). The grand mean for aroma was 8.70 with a standard deviation of 3.54, suggesting a high variability in responses but an overall strong positive reception, especially notable with the "like extremely" rating for the appetite-stimulating property.

In terms of taste, the macaroons were evaluated on their sweet, wheaty flavor (mean = 8.22, SD = 0.88), overall deliciousness (mean = 8.42, SD = 0.87), and the balance of taste (mean = 8.50, SD = 0.70). The grand mean for taste was 8.38 with a standard deviation of 0.69, reflecting that the participants "like very much" the flavor profile, with a slight inclination towards "like extremely" for the balance of taste.

For texture, the evaluations considered the tenderness of the macaroons (mean = 8.43, SD = 0.77), their velvety and moist consistency (mean = 8.43, SD = 0.77), and their lightness, avoiding a compact or soggy feel (mean = 8.48, SD = 0.70). The grand mean for texture was 8.45 with a standard deviation of 0.62, indicating a strong preference, with participants "like very much" the textural qualities of these macaroons.

Overall, the banana blossom macaroons in Treatment 2 received high ratings across all sensory attributes. The grand means suggest that participants generally *"like very much"* these macaroons in terms of appearance, aroma, taste, and texture, with

particularly high marks for aroma and texture. The variability in aroma ratings, indicated by the higher standard deviation may reflect diverse preferences among participants, but the overall positive reception is clear.

Table 9. The level of acceptability of Banana Blossom Fortified with Sagip Nutri-Pack In Macaroon Production of 900g in terms of appearance/color, aroma, taste, and texture

Treatment 3 Banana Blossom Macaroon	Mean	Standard Deviation	Description
Appearance/Color			
a. Pleasing combination of colors and forms.	8.45	0.62	Like Very Much
b. Even, golden brown.	8.47	0.79	Like Very Much
c. The macaroon looks delicious.	8.53	0.75	Like Extremely
Grand Mean	8.48	0.64	Like Very Much
Aroma			
a. The blossom macaroon had a distinct aroma.	8.60	0.72	Like Extremely
b. A strong aroma emanates from the blossom macaroon.	8.47	0.81	Like Very Much
c. The blossom macaroon stimulates appetite.	8.53	0.65	Like Extremely
Grand Mean	8.53	0.63	Like Extremely
Taste			
a. The blossom macaroon had a sweet, wheaty flavor.	8.43	0.74	Like Very Much
b. The blossom macaroon is delicious.	8.62	0.71	Like Extremely
c. The taste of the blossom macaroon is just right.	8.58	0.74	Like Extremely
Grand Mean	8.54	0.67	Like Extremely
Texture			
a. The blossom macaroon is tender.	8.47	0.81	Like Very Much
b. The blossom macaroon is velvety and moist.	8.43	0.81	Like Very Much
c. The blossom macaroon is light, not compact or soggy.	8.50	0.70	Like Extremely
Grand Mean	8.47	0.70	Like Very Much

Table 9 presents the assessment of the banana blossom macaroon **Treatment 3,** the sensory attributes of appearance, aroma, taste, and texture were thoroughly evaluated, resulting in high levels of acceptability as indicated by the mean scores and standard deviations.

For appearance, the macaroons were judged on the combination of colors and forms (mean = 8.45, SD = 0.62), the evenness of the golden-brown color (mean = 8.47, SD = 0.79), and their overall visual appeal and deliciousness (mean = 8.53, SD = 0.75). The grand mean for appearance was 8.48 with a standard deviation of 0.64, suggesting

that participants *"like very much"* the visual aspects of these macaroons, with a slight inclination towards "like extremely."

In terms of aroma, the distinctness of the aroma (mean = 8.60, SD = 0.72), the strength of the aroma (mean = 8.47, SD = 0.81), and the ability of the aroma to stimulate appetite (mean = 8.53, SD = 0.65) were evaluated. The grand mean for aroma was 8.53 with a standard deviation of 0.63, reflecting that the participants *"like extremely"* the aroma of the macaroons, indicating a strong positive reception across the board.

The taste was assessed based on the sweet, wheaty flavor (mean = 8.43, SD = 0.74), overall deliciousness (mean = 8.62, SD = 0.71), and the balance of taste (mean = 8.58, SD = 0.74). The grand mean for taste was 8.54 with a standard deviation of 0.67, showing that participants *"like extremely"* the flavor profile of these macaroons, emphasizing their high palatability.

For texture, the evaluations considered the tenderness of the macaroons (mean = 8.47, SD = 0.81), their velvety and moist consistency (mean = 8.43, SD = 0.81), and their lightness, avoiding a compact or soggy feel (mean = 8.50, SD = 0.70). The grand mean for texture was 8.47 with a standard deviation of 0.70, indicating that participants *"like very much"* the textural qualities of these macaroons.

Overall, the banana blossom macaroons in Treatment 3 received exceptionally high ratings across all sensory attributes. The grand means suggest that participants generally *"like extremely"* the macaroons in terms of aroma and taste, while they "like very much" the appearance and texture. These results indicate a strong positive reception and high acceptability of the banana blossom macaroons.

Table 10. The level of acceptability of Banana Blossom Fortified with Sagip Nutri-Pack In Macaroon Production of 800g in terms of appearance/color, aroma, taste, and texture

Treatment 4 Banana Blossom Macaroon	Mean	Standard Deviation	Description
Appearance/Color			
a. Pleasing combination of colors and forms.	8.52	0.62	Like Extremely
b. Even, golden brown.	8.68	0.60	Like Extremely
c.The macaroon looks delicious.	8.63	0.58	Like Extremely
Grand Mean	8.61	0.51	Like Extremely
Aroma			
a. The blossom macaroon had a distinct aroma.	8.52	0.77	Like Extremely
b. A strong aroma emanates from the blossom macaroon.	8.50	0.75	Like Extremely
c.The blossom macaroon stimulates appetite.	8.55	0.67	Like Extremely
Grand Mean	8.52	0.64	Like Extremely
Taste			

a. The blossom macaroon had a sweet, wheaty flavor.	8.55	0.65	Like Extremely
b. The blossom macaroon is delicious.	8.65	0.61	Like Extremely
c. The taste of the blossom macaroon is just right.	8.58	0.67	Like Extremely
Grand Mean	8.59	0.54	Like Extremely
Texture			
a. The blossom macaroon is tender.	8.58	0.62	Like Extremely
b. The blossom macaroon is velvety and moist.	8.42	0.74	Like Very Much
c. The blossom macaroon is light, not compact or soggy.	8.57	0.70	Like Extremely
Grand Mean	8.52	0.60	Like Extremely

Table 10 shows the sensory evaluation of the banana blossom macaroon in **Treatment 4** showed highly favorable results across all assessed attributes: appearance, aroma, taste, and texture. The means and standard deviations indicate a consistently high level of acceptability.

For appearance, the macaroons were rated on the pleasing combination of colors and forms (mean = 8.52, SD = 0.62), evenness of the golden-brown color (mean = 8.68, SD = 0.60), and their overall visual appeal and deliciousness (mean = 8.63, SD = 0.58). The grand mean for appearance was 8.61 with a standard deviation of 0.51, suggesting participants *"like extremely"* the visual presentation of the macaroons.

Regarding aroma, the macaroons were evaluated based on the distinctness of the aroma (mean = 8.52, SD = 0.77), the strength of the aroma (mean = 8.50, SD = 0.75), and their ability to stimulate appetite (mean = 8.55, SD = 0.67). The grand mean for aroma was 8.52 with a standard deviation of 0.64, indicating that participants "like extremely" the aromatic qualities of the macaroons.

For taste, the macaroons were assessed on their sweet, wheaty flavor (mean = 8.55, SD = 0.65), overall deliciousness (mean = 8.65, SD = 0.61), and the balance of taste (mean = 8.58, SD = 0.67). The grand mean for taste was 8.59 with a standard deviation of 0.54, reflecting that the participants *"like extremely"* the flavor profile, suggesting the macaroons are highly palatable.

The texture of the macaroons was evaluated based on their tenderness (mean = 8.58, SD = 0.62), velvety and moist consistency (mean = 8.42, SD = 0.74), and their lightness, avoiding a compact or soggy feel (mean = 8.57, SD = 0.70). The grand mean for texture was 8.52 with a standard deviation of 0.60, showing that participants generally *"like extremely"* the textural qualities of the macaroons, although the moist consistency received a slightly lower rating of *"like very much."*

Overall, the banana blossom macaroons in Treatment 4 achieved exceptionally high ratings across all sensory attributes, with grand means indicating that participants

"like extremely" the appearance, aroma, taste, and texture of these macaroons. This suggests a very strong positive reception and high acceptability for this treatment.

Table 11. The level of acceptability of Banana Blossom Fortified with Sagip Nutri-Pack In Macaroon Production of 700g in terms of appearance/color, aroma, taste, and texture

Treatment 5 Banana Blossom Macaroon	Mean	Standard Deviation	Description
Appearance/Color			
a. Pleasing combination of colors and forms.	8.78	0.45	Like Extremely
b. Even, golden brown.	8.62	0.55	Like Extremely
c. The macaroon looks delicious.	8.68	0.50	Like Extremely
Grand Mean	8.69	0.39	Like Extremely
Aroma			
a. The blossom macaroon had a distinct aroma.	8.67	0.63	Like Extremely
b. A strong aroma emanates from the blossom macaroon.	8.70	0.59	Like Extremely
c. The blossom macaroon stimulates appetite.	8.80	0.55	Like Extremely
Grand Mean	8.72	0.52	Like Extremely
Taste			
a. The blossom macaroon had a sweet, wheaty flavor.	8.73	0.55	Like Extremely
b. The blossom macaroon is delicious.	8.78	0.52	Like Extremely
c. The taste of the blossom macaroon is just right.	8.70	0.56	Like Extremely
Grand Mean	8.74	0.48	Like Extremely
Texture			
a. The blossom macaroon is tender.	8.60	0.64	Like Extremely
b. The blossom macaroon is velvety and moist.	8.67	0.60	Like Extremely
c. The blossom macaroon is light, not compact or soggy.	8.75	0.60	Like Extremely
Grand Mean	8.67	0.55	Like Extremely

Table 11 presents the evaluation of the banana blossom macaroon in **Treatment 5** revealing an exceptionally high level of acceptability across all sensory attributes: appearance, aroma, taste, and texture. The results, reflected through mean scores and standard deviations, demonstrate that participants *"like extremely"* this variant of macaroons.

For appearance, the macaroons were assessed on the pleasing combination of colors and forms (mean = 8.78, SD = 0.45), evenness of the golden-brown color (mean = 8.62, SD = 0.55), and their overall visual appeal and deliciousness (mean = 8.68, SD =

0.50). The grand mean for appearance was 8.69 with a standard deviation of 0.39, indicating a strong preference for the visual presentation of these macaroons.

Regarding aroma, the evaluations considered the distinctness of the aroma (mean = 8.67, SD = 0.63), the strength of the aroma (mean = 8.70, SD = 0.59), and their ability to stimulate appetite (mean = 8.80, SD = 0.55). The grand mean for aroma was 8.72 with a standard deviation of 0.52, showing that participants *"like extremely"* the aromatic qualities of the macaroons, with very consistent ratings across different aspects of aroma.

In terms of taste, the macaroons were judged based on their sweet, wheaty flavor (mean = 8.73, SD = 0.55), overall deliciousness (mean = 8.78, SD = 0.52), and the balance of taste (mean = 8.70, SD = 0.56). The grand mean for taste was 8.74 with a standard deviation of 0.48, reflecting that the participants *"like extremely"* the flavor profile of these macaroons, with a slightly higher mean for deliciousness.

For texture, the macaroons were evaluated on their tenderness (mean = 8.60, SD = 0.64), their velvety and moist consistency (mean = 8.67, SD = 0.60), and their lightness, avoiding a compact or soggy feel (mean = 8.75, SD = 0.60). The grand mean for texture was 8.67 with a standard deviation of 0.55, indicating that participants "like extremely" the textural qualities of these macaroons.

Overall, the banana blossom macaroons in Treatment 5 received the highest ratings across all sensory attributes among the treatments, with grand means consistently indicating that participants *"like extremely"* the appearance, aroma, taste, and texture. These results demonstrate an exceptionally strong positive reception and very high acceptability for this treatment of banana blossom macaroons.

Comparison in the Level of Acceptability of Banana Blossom with Corn-based Sagip Nutri-pack for Macaroon Production as Evaluated by Groups of Respondents

Table 5 reflects the evaluation of the banana blossom with corn-based Sagip Nutri-pack for macaroon production, assessed by food experts, food technology students, and consumers, revealing several significant differences across various sensory criteria and treatment variants.

Is there a significant difference in the evaluation of the food experts, food technology students, and consumers on the prepared banana blossom with corn-based Sagip Nutri-pack for macaroon production with different ratios?

Table 12. Comparison in the level of acceptability of banana blossom with corn-based Sagip Nutri-pack for Macaroon production in different treatments across groups of respondents

Variant	Criteria	F-value	p-value	Comparison	Decision	Remark
T1	Appearance	6.31	0.00	p-value< 0.05	Reject Ho	Significant
	Aroma	7.25	0.00	p-value< 0.05	Reject Ho	Significant
	Taste	3.31	0.04	p-value< 0.05	Reject Ho	Significant
	Texture	8.60	0.00	p-value< 0.05	Reject Ho	Significant
T2	Appearance	7.86	0.00	p-value< 0.05	Reject Ho	Significant
	Aroma	1.09	0.34	p-value > 0.05	Accept Ho	not significant
	Taste	8.76	0.00	p-value< 0.05	Reject Ho	Significant
	Texture	6.52	0.00	p-value< 0.05	Reject Ho	Significant
T3	Appearance	3.05	0.05	p-value = 0.05	Accept Ho	not significant
	Aroma	4.92	0.01	p-value< 0.05	Reject Ho	Significant
	Taste	4.37	0.02	p-value< 0.05	Reject Ho	Significant
	Texture	6.15	0.00	p-value< 0.05	Reject Ho	Significant
T4	Appearance	2.76	0.07	p-value > 0.05	Accept Ho	not significant
	Aroma	5.79	0.00	p-value< 0.05	Reject Ho	Significant
	Taste	4.86	0.01	p-value< 0.05	Reject Ho	Significant
	Texture	6.75	0.00	p-value< 0.05	Reject Ho	Significant
T5	Appearance	1.20	0.31	p-value > 0.05	Accept Ho	not significant
	Aroma	3.71	0.03	p-value< 0.05	Reject Ho	Significant
	Taste	2.58	0.08	p-value > 0.05	Accept Ho	not significant
	Texture	1.54	0.22	p-value > 0.05	Accept Ho	not significant

The evaluation of the banana blossom with corn-based Sagip Nutri-pack for macaroon production, assessed by food experts, food technology students, and consumers, revealed several significant differences across various sensory criteria and treatment variants.

In Treatment 1, all sensory criteria—appearance (F-value = 6.31, p-value = 0.00), aroma (F-value = 7.25, p-value = 0.00), taste (F-value = 3.31, p-value = 0.04), and texture (F-value = 8.60, p-value = 0.00)—showed significant differences, indicating varied perceptions among the evaluators.

For Treatment 2, significant differences were noted in appearance (F-value = 7.86, p-value = 0.00), taste (F-value = 8.76, p-value = 0.00), and texture (F-value = 6.52, p-value = 0.00), but not in aroma (F-value = 1.09, p-value = 0.34), suggesting consistent ratings for aroma among the different groups.

Treatment 3 showed significant differences in aroma (F-value = 4.92, p-value = 0.01), taste (F-value = 4.37, p-value = 0.02), and texture (F-value = 6.15, p-value = 0.00), but not in appearance (F-value = 3.05, p-value = 0.05), highlighting that the visual aspect was uniformly rated while other attributes varied.

In Treatment 4, significant differences were found in aroma (F-value = 5.79, p-value = 0.00), taste (F-value = 4.86, p-value = 0.01), and texture (F-value = 6.75, p-value = 0.00), whereas appearance (F-value = 2.76, p-value = 0.07) did not show significant variation, indicating uniformity in the visual appeal among the evaluators.

Lastly, Treatment 5 exhibited a significant difference only in aroma (F-value = 3.71, p-value = 0.03), with no significant differences in appearance (F-value = 1.20, p-value = 0.31), taste (F-value = 2.58, p-value = 0.08), or texture (F-value = 1.54, p-value = 0.22), suggesting that while the aroma was perceived differently, other attributes were consistently rated across the groups.

These findings demonstrate that while some sensory attributes are consistently rated similarly across different groups, others, such as aroma and texture, can vary significantly, influencing the overall acceptability of the banana blossom macaroons.

Cost and Return Analysis of Banana Blossom with Corn-Based Sagip Nutri-Pack for Macaroon Production

Table 13. Summary of Cost and Return Analysis of Banana Blossom with Corn-Based Sagip Nutri-Pack for Macaroon Production

Ingredients	**Measurement**	**TREATMENTS**				
		T1	**T2**	**T3**	**T4**	**T5**
Corn Based Sagip Nutri-Pack	13 g		3.25	3.25	3.25	3.25
All-Purpose Flour	125 g	6.625	6.625	6.625	6.625	6.625
Desiccated Coconut	125 g	8.75				
Boiled and chopped Banana Blossom/	125g, 113g, 100 g, 88 g		5	5	5	5
Butter	85 g	19.125	19.125	19.125	19.125	19.125
Eggs	120 g	16	16	16	16	16
Granulated Sugar	102 g	7.65	7.65	7.65	7.65	7.65
Condensed milk	237 g	25.122	25.122	25.122	25.122	25.122
Vanilla	2.5 g	2	2	2	2	2
Additional Expenses						

Microwavable Container	30	30	30	30	30
Macaroon liner	5	5	5	5	5
Label	5	5	5	5	5
Other Operating Expenses					
Electricity	15	15	15	15	15
Fare	20	20	20	20	20
TOTAL UNIT COST (Php)	160.272	159.772	159.292	158.772	158.292

As shown in Table 13, the costed and estimated recipe was a 1/8 ratio of the original recipe, and the cost of the Corn-Based Sagip Nutri-Pack used in fortifying the four treatments differed. The amount of Sagip Nutri-Pack Powder in treatments 2, 3, 4, and 5 is Php 3.25.

The same amount of the other ingredients was alloyed for the five treatments; All-purpose flour, Php 6.625; Butter, Php 19.125; Eggs, Php 16.00; Granulated Sugar, Php 7.65; Condensed milk, Php 25.122; Vanilla, Php 2.00.

Treatment 1 used a desiccated coconut that cost Php 8.75, while treatments 2, 3, 4, and 5 used a Boiled and chopped Banana Blossom costing Php 5.00 for each treatment.

Additional Expenses

Additional expenses for all treatments amounted to Php 40.00 which includes Macaroon Liner, Php 5.00; Packaging Material Microwavable Container Php 30.00, and the Label at Php 5.00. In addition, other operating expenses such as Electricity at Php 15.00 and fares at Php 20.00 totaled Php 35.00.

Summing up all of the above expenses, the cost incurred in producing the products amounted to Php 160.272, Php 159.772, Php 159.292, Php 158.772, and Php 158.292, for T1; T2, T3, and T5, respectively.

Table 19 presents the summary computation of return on investment. It reveals that the ROI for all treatments was nearly identical, at 40%.

Table 14. Summary Computation of Return and Investment

PARTICULARS	Treatments				
	T1	T2	T3	T4	T5
Total Production Cost (Php)	160.272	159.772	159.292	158.772	158.292
Unit Cost (*Total Production Yield (7 boxes of macaroon x 12 pcs*)	160.272	159.772	159.292	158.772	158.292
Selling Price (*Unit Cost x 40% + Unit Cost*)	224.38	223.68	223	222.28	221.60
Total Sale (*Selling Price x yield (1 box of macaroon*)	224.38	223.68	223	222.28	221.60
Income (*Total Sales production*)	64.108	63.908	63.708	63.508	63.308
ROI (*Income x 100/Total Production Cost*)	**40.00%**	**40.00%**	**40.00%**	**40.00%**	**40.00%**

Shelf-life of the Banana Blossom with Corn-Based Sagip Nutri-Pack for Macaroon Production in Room Temperature

After production, the banana blossom macaroon was stored at room temperature between 25°C and 30°C. Furthermore, the following table displays the observation:

a. Shelf-Life of treatment 1 coconut macaroon at room temperature

Table 15. Shelf-Life of treatment 1 coconut macaroon

Days of Observation	Observation Results
First day	The coconut macaroon was nicely colored, smelled toffy, tasted sweet, and had a texture that was chewy, soft, and tender.
Second day	The coconut macaroon had the same observations as the first day: it was attractive in color and appearance, smelled toffy, tasted sweet, and had a texture that was chewy, soft, and tender.
Third day	The second day's observations were the same: the coconut macaroon had a nice color and appearance, a toffy aroma, a sweet and toffy flavor, and a soft, tender, chewy texture.
Fourth day	Similar observations were made on the third day: the coconut macaroon had a nice color and appearance, a toffy aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture.
Fifth day	coconut macaroon had a nice look and color, a toffy aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the fourth day.
Sixth day	The coconut macaroon was nicely colored, smelled toffy, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Seventh day	The coconut macaroon had the same observations on the sixth day: it was attractive in color, smelled toffy, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.

Eighth day	The coconut macaroon had a nice look and color, a toffy aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the seventh day.
Ninth day	The coconut macaroon had the same observations on the eighth day: it was attractive in color, smelled toffy, tasted sweet and toffy, and had a texture that was chewy, soft, and chewy.
Tenth day	The coconut macaroon was soft, tender, and chewy on the tenth day, and it tasted sweet and toffy. It also had a nice color and appearance.

b. Shelf-Life of treatment 2 banana blossom macaroon fortified with Sagip Nutri-pack at room temperature

Table 16. Shelf-Life of treatment 2 banana blossom macaroon fortified with Sagip nutri-pack

Days of Observation	Observation Results
First day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Second day	The banana blossom macaroon had the same observations as the first day: it was attractive in color and appearance, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Third day	The second day's observations were the same: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, chewy texture.
Fourth day	Similar observations were made on the third day: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture.
Fifth day	banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the fourth day.
Sixth day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Seventh day	The banana blossom macaroon had the same observations on the sixth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Eighth day	The banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the seventh day.
Ninth day	The banana blossom macaroon had the same observations on the eighth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and chewy.
Tenth day	The banana blossom macaroon was soft, tender, and chewy on the tenth day, and it tasted sweet and toffy. It also had a nice color and appearance.

c. Shelf-Life of treatment 3 banana blossom macaroon fortified with Sagip Nutri-pack at room temperature

Table 17. Shelf-Life of treatment 3 banana blossom macaroon fortified with Sagip nutri-pack

Days of Observation	Observation Results
First day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Second day	The banana blossom macaroon had the same observations as the first day: it was attractive in color and appearance, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Third day	The second day's observations were the same: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, chewy texture.
Fourth day	Similar observations were made on the third day: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture.
Fifth day	banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the fourth day.
Sixth day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Seventh day	The banana blossom macaroon had the same observations on the sixth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Eighth day	The banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the seventh day.
Ninth day	The banana blossom macaroon had the same observations on the eighth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and chewy.
Tenth day	The banana blossom macaroon was soft, tender, and chewy on the tenth day, and it tasted sweet and toffy. It also had a nice color and appearance.

d. Shelf-Life of treatment 4 banana blossom macaroon fortified with Sagip Nutri-pack at room temperature

Table 18. Shelf-Life of treatment 4 banana blossom macaroon fortified with Sagip nutri-pack

Days of Observation	Observation Results
First day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Second day	The banana blossom macaroon had the same observations as the first day: it was attractive in color and appearance, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Third day	The second day's observations were the same: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, chewy texture.
Fourth day	Similar observations were made on the third day: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture.
Fifth day	banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the fourth day.
Sixth day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Seventh day	The banana blossom macaroon had the same observations on the sixth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Eighth day	The banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the seventh day.
Ninth day	The banana blossom macaroon had the same observations on the eighth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and chewy.
Tenth day	The banana blossom macaroon was soft, tender, and chewy on the tenth day, and it tasted sweet and toffy. It also had a nice color and appearance.

e. Shelf-Life of treatment 5 banana blossom macaroon fortified with Sagip Nutri-pack at room temperature

Table 19. Shelf-Life of treatment 5 banana blossom macaroon fortified with Sagip nutri-pack

Days of Observation	Observation Results
First day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Second day	The banana blossom macaroon had the same observations as the first day: it was attractive in color and appearance, smelled bonbon, tasted sweet, and had a texture that was chewy, soft, and tender.
Third day	The second day's observations were the same: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, chewy texture.
Fourth day	Similar observations were made on the third day: the banana blossom macaroon had a nice color and appearance, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture.
Fifth day	banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the fourth day.
Sixth day	The banana blossom macaroon was nicely colored, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Seventh day	The banana blossom macaroon had the same observations on the sixth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and tender.
Eighth day	The banana blossom macaroon had a nice look and color, a bonbon aroma, a sweet and toffy flavor, and a soft, tender, and chewy texture. These observations were made on the seventh day.
Ninth day	The banana blossom macaroon had the same observations on the eighth day: it was attractive in color, smelled bonbon, tasted sweet and toffy, and had a texture that was chewy, soft, and chewy.
Tenth day	The banana blossom macaroon was soft, tender, and chewy on the tenth day, and it tasted sweet and toffy. It also had a nice color and appearance.

Shelf-Life of treatment 1 coconut macaroon and treatment 2, 3, 4, and 5 banana blossom macaroon fortified with Sagip Nutri-pack at room temperature will last for ten (10) days and at Refrigerated chiller temperature will last for one month or thirty (30) days. Refrigerated macaroons will have a longer shelf-life than room temperature. However, the chewiness and soft texture of the macaroon will be affected.

Conclusions

Based on the comprehensive study conducted on the development, nutritional analysis, sensory evaluation, cost and return analysis, and shelf-life assessment of Banana Blossom with Fortified Sagip Nutri-Pack for Macaroon Production, it can be

concluded that the incorporation of banana blossom in macaroon production is a promising innovation. The results indicate that banana blossom macaroons fortified with Sagip Nutri-Pack are not only nutritious, with significant levels of dietary fiber and essential amino acids, but also highly acceptable in terms of appearance, aroma, taste, and texture. The cost and return analysis show a consistent return on investment of 40% across all treatments, highlighting the economic viability of this product. Furthermore, the shelf-life study reveals that these macaroons can maintain their quality for up to ten days at room temperature and up to a month when refrigerated, underscoring their potential for commercial production and distribution. Overall, the study demonstrates the feasibility, nutritional value, sensory appeal, economic viability, and shelf-stability of Banana Blossom Macaroons with Sagip Nutri-Pack, suggesting a promising future for this innovative product in the food industry.

Recommendations

Based on the foregoing findings and conclusions, the study recommends the following:

1. The creation of new products is highly encouraged. It is necessary to continuously innovate and improve the recipes for banana blossoms supplemented with Sagip Nutri-pack in macaroon production to meet changing dietary requirements and consumer preferences. Experimenting with diverse flavors, textures, and nutritional profiles may be necessary to expand the product line and attract a larger customer base.

2. Marketing efforts and educational materials should be used to specifically educate consumers about the nutritional advantages and adaptability of Banana Blossom baked goods. The distinct nutrient profiles of banana blossoms enhanced with Sagip Nutri-pack during macaroon production have to be emphasized to enable customers to make well-informed decisions depending on their dietary needs.

3. To increase customer pleasure and acceptability, more work needs to be done on refining the sensory aspects of banana blossom macaroons, such as appearance, aroma, taste, and texture. It is strongly advised to carry out sensory analyses and customer feedback sessions to pinpoint problem areas and adjust product formulas appropriately.

4. Adapted marketing tactics and product offers should be made to cater to the demands and preferences of various consumer categories. For instance, marketing aimed at consumers and culinary specialists should highlight the nutritional benefits and visual appeal of Banana blossom macaroons, to incorporate a more generic message for wider customer demographics. Therefore, collaboration with government organizations such as Outreach Programs in Barangay, the Department of Agriculture, the Department of Science and Technology (DOST), and the Department of Trade and Industry (DTI) is required.

5. It is strongly advised to use banana blossom fortified with Sagip nutri-pack for macaroon production as it offers a higher return on investment than commercial coconut macaroons

and can be found locally in the markets of the City of Ilagan and neighboring towns like Benito Soliven.

6. To increase the shelf life of banana blossoms in baked goods and decrease waste, it is recommended to utilize effective distribution and storage strategies. Ensuring that products get to clients in optimal condition may require investing in packaging technologies that extend shelf life, managing storage conditions, and establishing efficient distribution networks. Collaborating with the Department of Trade and Industry (DTI) is recommended.

7. It is recommended that funds be set aside for further research and development projects that will investigate the possible uses of banana blossoms in the creation of baked goods. Working together with dietitians, food scientists, and culinary specialists, new Banana blossom bake goods that cater to changing customer tastes and trends may result from this. It is necessary to work with the DOST, the DTI, and the school's Research and Development Unit.

Compliance with Ethical Standards

As the main author of this research, I affirm my adherence to the highest ethical standards in conducting this study and preparing the manuscript, ensuring the originality of the work, and rigorously avoiding plagiarism by appropriately citing all sources. I confirm that ethical approval was obtained where necessary, with all procedures involving human participants conducted following ethical guidelines, including informed consent and confidentiality. I have disclosed any potential conflicts of interest that may influence the interpretation of my research. Furthermore, all listed authors have significantly contributed to the research and preparation of the manuscript, and there are no undisclosed individuals who contributed to the work. This statement serves as my commitment to integrity, responsibility, and ethical compliance in academic research.

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EXPLORING THE CHALLENGES OF THE TEACHERS IN THE INTEGRATION OF TECHNOLOGY IN EARLY CHILDHOOD CLASSROOM

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ABSTRACT

The integration of technology in early childhood education is increasingly recognized as essential for fostering foundational skills in young learners. This phenomenological study explores the challenges faced by teachers in the North President Quirino District Division of Sultan Kudarat as they incorporate technology into early childhood classrooms. The objectives are to identify specific barriers, understand the impact of these challenges on teaching practices, and provide recommendations for effective technology integration. Methodologically, this study employs a qualitative approach, utilizing in-depth interviews with 20 early childhood educators selected through purposive sampling. Data were analyzed using thematic analysis to capture the essence of teachers' experiences and perceptions. Findings reveal several significant challenges: limited access to technological resources, inadequate training and professional development, resistance to change among educators, and difficulties in maintaining student engagement with technological tools. These barriers hinder the effective use of technology, leading to inconsistent implementation and varying educational outcomes. Conclusions drawn from the study highlight the need for comprehensive support systems, including enhanced access to resources, ongoing professional development programs tailored to early childhood educators, and initiatives to foster a positive attitude towards technological integration. Addressing these challenges is crucial for optimizing the benefits of technology in early childhood education and ensuring that young learners are equipped with the necessary skills for the digital age.

Keywords: *Early Childhood Education, Technology Integration, Teacher Challenges, Phenomenological Study*

INTRODUCTION

Incorporating technology can be difficult since there are "plenty of models to choose from; the problem is not that a useful model cannot be found, but that deciding upon a model can be a complex task" (Kimmons & Hall, 2018, p.29). When incorporating technology into the classroom, educators may encounter barriers that prevent or limit the use of technology. This article will be presented topically, with a study of integration models and the challenges that arise when implementing technology.

In the situated of President Quirino School especially, in the rural areas some of the schools are lack of equipment and poor children or students development because in the rural areas student doesn't have technology in home like TV, computers and even a cellphone to have access in any technology concern sometimes teachers barriers are poor connection or low speed internet that would interrupt the class also teachers cannot give more integration of technology to the class presentation because the early childhood are very sensitive of about technology.

The use of technology in classrooms has increased over the previous two decades, including in early childhood education (Tang et al., 2016). Effective technology integration with purpose and meaning can have numerous positive effects on younger kids (Bowen & Watson, 2017; Mustola et al., 2018; Quesenberry et al., 2015; Tang et al., 2016). It can be extremely effective, helping to boost both student accomplishment and student engagement in even the youngest students (Bowen & Watson, 2017; O'Byrne & Pytash, 2017; Tang et al., 2016).

The purpose of this study is to explore how and why early childhood teachers chose technology activities to integrate into their instruction, this study is influential because barriers that early childhood educators encounter when choosing the most appropriate technology activities to implement in the classroom were discovered. Also, this study has the potential to bring about positive social change in the students by informing early childhood educators about effective applications of technology that could contribute to student achievement.

While there are multiple benefits to deliberate and meaningful technology integration (Bowen & Watson, 2017; O'Bryne & Pytash, 2017; Tang et al., 2016), many early childhood educators do not use technology effectively. Rather than using technology to support or enhance instruction and encourage higher order thinking, many early childhood educators use it to digitally display information or have students work on computer programs for a set period of time (Smith et al., 2016). Furthermore, there is little research on how early childhood instructors perceive and use technology in their classrooms, or whether meaningful and purposeful technology practices are used (Smith et al., 2016).

This study explored the challenges faced by early childhood educators and identified coping mechanisms by completing in these gaps. This research intends to aid in the creation of useful strategies and interventions that might strengthen early childhood educators in the classroom based on the connectivist. The aim of this thesis that scholars George Siemens and Stephen Downes presented in 2005. The foundation of connectivism, also known as connectivist learning theory, is the notion that digital technology fosters interpersonal connections and opens up opportunities for learning.

Research Questions

This study aimed to determine the coping mechanisms of the Teachers challenges in the Integration of Technology in Early childhood classroom in the District of North President Quirino.

This research sought to provide valuable insight and recommendation to support, here are some ways of question to be answer:

1. What are the specific challenges faced by teachers when integrating technology in early childhood classrooms?

2. What are strategies do teachers use to ensure that technology is developmentally appropriate to young learners?

3. As a teacher in early childhood how do you defined Traditional methods and technology integration?

METHODOLOGY

Research Design

This study is qualitative research design, specifically phenomenological in nature of research. Qualitative research concerned with establishing answers to how is the phenomenon in question.

The Phenomenology is both a philosophical movement and a family of qualitative research methodologies. The term phenomenology refers to the study of phenomena, where a phenomenon is anything that appears to someone in their conscious, experience (Creswell, 2013). Phenomenology is to address a range of research questions. It elaborates on a series of guidelines to support researchers in selecting one type that is opposite to their needs. It is the study that explores what was experienced and focuses on their experience it allows to track the empathy and recognition of both the researchers and the participant subjectivity.

Participants of the Study

The Participants of this study were the teachers of North President Quirino, Division of Sultan Kudarat, Criteria have been established to select individuals who have significant experiences, particularly in the thirteen (13) schools handling Early Childhood Education (kinder).

The participants who met the researcher's specified inclusion criteria based on the study of Ngag (2023) where he considered experts who served as informants and source of data. By this way, he established the generalizability and reliability of the selectiion.

Sampling Technique

The researcher used a purposive sampling technique in the selection of the respondents. This technique will be non-parametric sampling in nature because the researcher will choose participants based on convenience.

Purposive sampling (also known as judgment, selective, or subjective sampling) is a sampling technique in which the researcher relies on his or her judgment when choosing members or participants of the study. Further, purposive sampling is used to select respondents who are most likely to yield appropriate and useful information (Kelly, 2010).

Data Gathering Instrument

The study employed a self-structure survey questionnaire crafted upon reading, thesis, and dissertations. The questionnaires are conducted through recording and Interviews.

In addition, self -structure questionnaires will be evaluated by experts in the District office such as the teachers holding Master Teacher items or supervisors in function in the field such as school heads and academic coordinators. The instrument will finally approved by the members of the panel before the researcher administers to the participants.

Upon approval by the evaluation panels and validation through the East-West Mindanao College Inc. validation tool, the researcher was authorized to administer the developed survey. Before data collection, ethical clearance was sought from the East-West Research Ethics Committee (EREC) to ensure that the research adhered to ethical standards, including participant consent, confidentiality, and protection of participant rights.

Data Gathering Procedure

The researcher sent a letter to the Dean of the Graduate School asking permission to conduct the study or approval of the chairperson of the graduate school. Then, a letter to the school division Superintendent, Supervisors, Principals, and participants of the study, before the survey questionnaires will be administered to the schools.

During the interviews, the researcher used video and audio recordings to capture the participants' responses accurately, ensuring that every detail was documented for subsequent analysis. The use of video and audio recordings allowed the researcher to focus on the conversation and engage more fully with the participants, ensuring that the data reflected the true sentiments and insights shared by the participants. This careful and systematic approach to data collection ensured the reliability and validity of the research findings.

Data Analysis

Thematic analysis was utilized to analyze the qualitative data collected from the participants, comprising interviews and focus group transcripts it involves the identification and reporting of patterns in a data set, which are then interpreted for their inherent meaning.enabling a deeper understanding of the participants' in Technology Integration in childhood classroom (Braun & Clark, 2006).

Thematic analysis, as outlined by Braun and Clarke (2006), is a method for identifying, analyzing, and reporting patterns (themes) within qualitative data. The process begins with data familiarization, where researchers immerse themselves in the data by reading and re-reading transcripts while noting initial ideas. This is followed by generating initial codes, where key features of the data are systematically labeled across the entire data set.

The next step involves searching for themes by collating codes into potential themes, then reviewing themes to ensure they accurately represent the data and are coherent. After refining the themes, each theme is defined and named to capture its essence and distinct aspects.

Finally, the themes are reported in a detailed and coherent manner, often illustrated with data extracts, to provide a rich, insightful narrative that addresses the research questions. This method allows for a flexible, systematic, and rigorous analysis of qualitative data.

Following data collection, the transcripts were systematically reviewed to identify common themes and patterns emerging from the participants' responses which patterened after the study of Ngag (2023). Through an iterative process of coding and

categorization, key themes were identified, reflecting the participants' perceptions, concerns, and insights regarding the agenda.

Themes were identified based on their frequency, relevance, and significance to the research objectives, ensuring that the analysis captured the essence of the participants' experiences and perspectives.

Scope and Limitations

This study was limited to the experiences of the early childhood teachers in remote area on how and what to use in terms of strategies. This study focus on Teachers concern in dealing pupils with integration of technology in school year 2024-2025. The Teachers participants are those teachers handling early childhood.

RESULTS and DISCUSSIONS

Challenges Faced by Teachers

Teachers face several challenges when integrating technology in early childhood classrooms.

First, many teachers may lack sufficient training and confidence in using technology effectively, which can impede their ability to incorporate digital tools into their teaching practices.

Second, unequal access to devices and internet connectivity among students can hinder equitable learning opportunities, creating a digital divide.

Third, balancing screen time with other developmental activities and ensuring that the content is age-appropriate are ongoing challenges that require careful consideration and planning.

Lastly, adapting technology to suit diverse learning styles and integrating it seamlessly into existing curriculum frameworks can be complex, requiring teachers to continuously develop and refine their instructional strategies.

Strategies Used by Teachers:

To ensure that technology is developmentally appropriate for young learners, teachers employ various strategies. They select educational apps, games, and multimedia that align with early childhood developmental milestones, ensuring that the content is suitable for the children's age and learning stage.

Teachers also monitor and guide children's interactions with technology to maximize learning outcomes and minimize distractions, providing support and direction as needed. Additionally, they incorporate hands-on, tactile experiences alongside digital interactions to reinforce concepts and skills, blending traditional and technological approaches to create a balanced learning environment.

Engaging parents and caregivers in discussions about responsible digital use and extending learning beyond the classroom is another critical strategy, fostering a collaborative approach to children's digital literacy and overall development.

Definition of Traditional Methods and Technology Integration:

In early childhood education, traditional methods encompass a variety of hands-on activities, including storytelling, music, art, and physical play. These methods focus on sensory experiences and social interactions to nurture holistic development, emphasizing the importance of direct engagement and experiential learning. In contrast, technology integration involves incorporating digital tools such as tablets, computers, educational apps, and interactive media into classroom activities.

The goal of technology integration is to enhance learning experiences, promote digital literacy, and prepare children for future technological environments. By combining traditional methods with digital tools, educators aim to create a comprehensive educational experience that supports both foundational skills and modern competencies.

Conclusions

In the light of the findings of the study, the following were concluded:

From the research, it is evident that while technology offers immense potential in early childhood education, its integration poses challenges related to teacher preparedness, access, and pedagogical alignment.

However, strategic approaches such as careful content selection, active supervision, and balanced use of technology alongside traditional methods can effectively mitigate these challenges and maximize learning benefits for young learners.

Recommendations

Based on the results, and conclusions, the following were recommended:

1. DepEd may provide comprehensive training and ongoing professional development opportunities for teachers to enhance their digital literacy skills and pedagogical strategies for technology integration. Ensure equitable access to technology resources and internet connectivity across all early childhood education settings to minimize disparities in learning opportunities.

2. Curriculum Developers may design digital resources and curricula that align with early childhood developmental stages, ensuring age-appropriateness and educational value. Provide clear guidelines and frameworks for integrating technology into early childhood curricula, emphasizing the importance of hands-on learning and play-based activities.

3. Teachers may continue integrating technology in ways that support diverse learning styles and developmental needs, while maintaining a balanced approach with traditional methods. Foster partnerships with parents and caregivers to promote responsible digital use at home and extend learning experiences beyond the classroom.

4. Future Researchers may conduct longitudinal studies to track the impact of technology integration on early childhood development over time, considering both short-term outcomes and long-term effects. Explore innovative pedagogical approaches that combine technology with traditional methods to optimize learning experiences and outcomes for young children.

Compliance with Ethical Standards

Informed consent will be diligently obtained from all school heads part of this study. They must possess a comprehensive understanding of the research objectives. Methodologies, potential risks, and benefits. Further, participation will remain entirely voluntary, and have the right to withdraw from the study at any juncture without encountering any consequences.

Anonymity and confidentiality to safeguard the personal identities of the teachers' responses, rigorous measures will be enacted to ensure safety and confidentiality. Rather than using the actual name, pseudonyms or codes will be used to ensure the privacy of the participants. The gathered data will be securely stored with access restricted solely to the research team.

Avoiding Harm Delicate subjects, such as the challenges inherent in their roles, will be explained with meticulous consideration for the potential emotional and psychological impact on the participants. The approach will be put to minimize distress and the support system will be readily available to guide participants should the need arise.

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To her classmates and friends, for the friendship, unforgettable experiences, and funny memories together during the journey of learning which motivated her; To her Husband, Parents and Siblings, for the undying love, guidance and support that made this intellectual endeavor more bearable, Above all, to ALLAH (SWT), for endless blessings and guidance on us in realizing this research paper. SUKRAN AND W A S S A L A M .

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EXPLORING THE DYNAMICS OF HUMAN- ROBOT INTERACTION(HRI): A MULTIDISCIPLINARY INVESTIGATION

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ABSTRACT

This study explores the dynamics of human-robot interaction (HRI) by integrating insights from cognitive science, robotics engineering, sociology, psychology, and ethics. The research aims to understand the factors influencing human perception and acceptance of robots, as well as the implications for individuals, communities, and broader societal structures. The study employs a descriptive research methodology, gathering data through questionnaires and direct perception from 30 respondents. The results highlight the importance of multidisciplinary approaches in enhancing HRI, including design, engineering, psychology, sociology, and ethics. Key findings include the prioritization of physical appearance, facial expressions, and gestures in designing socially interactive robots. The study concludes by recommending further research in understanding human perception, emotion, and behavior in HRI, as well as advances in AI, ML, and natural language processing for improving human-robot communication.

Keywords: *HRI, Robotics engineering, multidisciplinary*

INTRODUCTION

In the realm of technological advancement, human-robot interaction (HRI) stands as a frontier where innovation converges with human experience (Feil-Seifer, Matarić & Meyers, 2009). The fusion of human cognitive capabilities with robotic functionalities

has ushered in an era of unprecedented possibilities, reshaping industries, societies, and the very fabric of our daily lives (Šabanović & Jenkins, 2022). As we navigate this dynamic landscape, it becomes imperative to delve deeper into the intricacies of these interactions, understanding not only the technical aspects but also the profound psychological, social, and ethical dimensions they entail.

This study embarks on a multidisciplinary exploration into the dynamics of human-robot interaction, aiming to unravel the complex interplay between humans and robots across various contexts. Drawing upon insights from cognitive science, robotics engineering, sociology, psychology, and ethics, it endeavors to illuminate the mechanisms underlying HRI and shed light on the implications for individuals, communities, and broader societal structures (Dautenhahn, 2007).

Through a comprehensive synthesis of theoretical frameworks, empirical research, and practical applications, this study seeks to address fundamental questions surrounding HRI (Goodrich & Schultz, 2008). What factors influence human perception and acceptance of robots? How do cultural norms and societal expectations shape these interactions? What ethical considerations arise as robots become increasingly integrated into human environments (Chatzoglou et al, 2023)? By grappling with these inquiries, we aspire to foster a deeper understanding of HRI dynamics, paving the way for more informed design practices, policy frameworks, and societal dialogue (Mingfei, Zhenjie & Xiaojuan, 2017).

Ultimately, this study aspires to contribute to the burgeoning field of human-robot interaction, offering valuable insights that not only advance our knowledge but also empower us to harness the potential of robotics in ways that are ethical, equitable, and beneficial for all (Goodrich & Schultz, 2007).

Research Questions

1. What is the profile of the respondents in terms of gender?
2. How frequently do you interact with robots in daily life?
3. On a scale of 1 to 5, how comfortable are you interacting with robots?
4. What multidisciplinary approaches, combining fields like psychology, engineering, and design, could enhance human-robot interaction
5. What features or characteristics would you prioritize in the design of a socially interactive robot?

METHODOLOGY

The study utilizes the descriptive type of research. In the study, it will attempt to identify multi-disciplinary approaches such as Psychology, Engineering Design, Ethics, Sociology, to Human-Robot Interaction (Jevtić et al, 2012). The study also Include features and characteristics that would be used in designing socially interactive robots.

Participants

The study will involve 30 respondents, equally distributed across three groups:

1. **College Students (10)**: Students from various disciplines will be selected to participate in the study.
2. **College Teachers (10)**: Faculty members from different departments will be included to provide a diverse perspective.
3. **Administrative Staff (10)**: Staff members from various administrative departments will participate to represent the university's administrative side.

Data Collection Methods

The study will employ a combination of methods to collect data:

1. **Questionnaires**: Pre-developed questionnaires will be used to assess participants' attitudes, perceptions, and experiences with HRI. The questionnaires will be designed to capture both quantitative and qualitative data.
2. **Focus Groups**: Focus groups will be conducted with each participant group to gather more in-depth information about their experiences and opinions on HRI.
3. **Observations**: Observations of participants interacting with robots will be conducted to capture behavioral data and analyze the dynamics of HRI.
4. **Video Analysis**: Video recordings of the interactions will be analyzed to identify patterns and trends in HRI.

Procedure

1. **Recruitment**: Participants will be recruited through announcements on the university's social media platforms, email notifications, and flyers posted around campus.
2. **Pre-Testing**: Participants will be asked to complete a pre-test questionnaire to assess their initial attitudes and perceptions about HRI.
3. **Robot Interaction**: Participants will be introduced to a humanoid robot designed for HRI research. They will be asked to interact with the robot for a set period, and their interactions will be recorded.
4. **Post-Testing**: Participants will complete a post-test questionnaire to assess their attitudes and perceptions after interacting with the robot.
5. **Focus Groups**: Focus groups will be conducted with each participant group to gather more in-depth information about their experiences and opinions on HRI.

RESULTS AND DISCUSSION

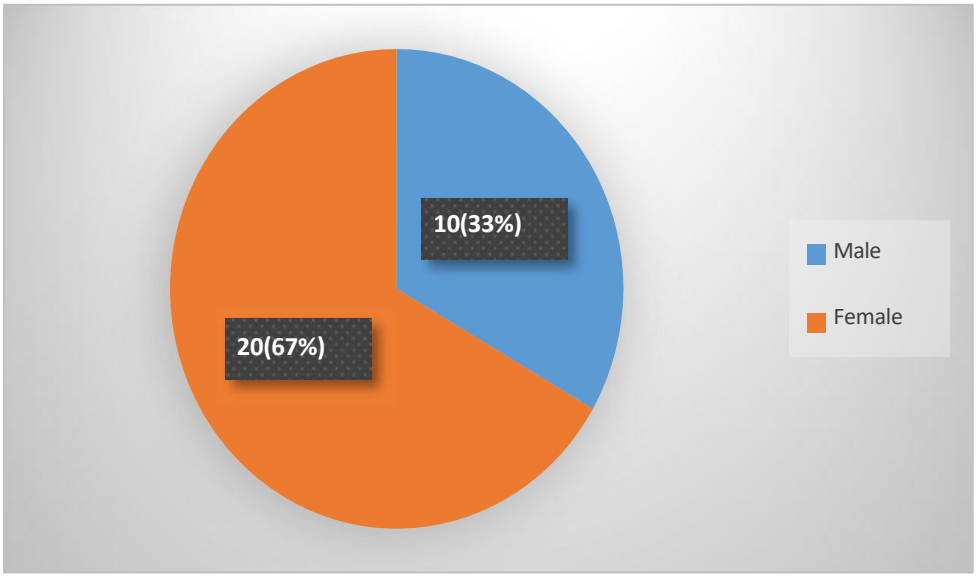


Figure 1. Demographic Profile of Respondents According to Gender

Figure 1 show that there are 20 female students, which is approximately 66.67% of the total students, and 10 male students, which is approximately 33.33% of the total students.

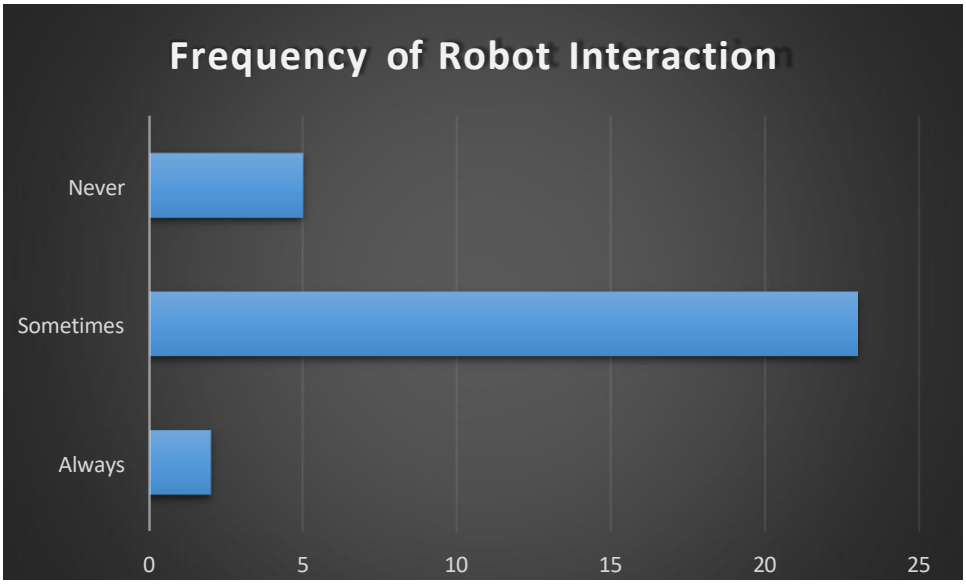


Figure 2. Frequency of Robot Interaction

Figure 2 results show that the majority of respondents (67%) has sometimes human-robot encounter, whereas 16.67% has always and another 16.67% has no robot encounter in their everyday living.

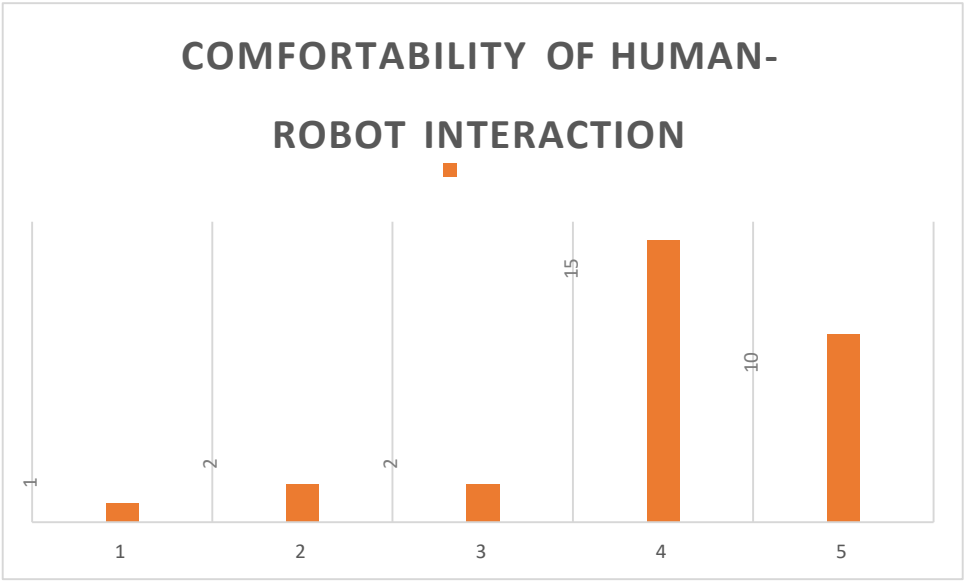


Figure 3. Robot Interaction

In Figure 3, the majority of the respondents (50%) said that on the comfortability of interacting with robots has a rating of 4, 33% with a rating of 5, 6.67% with a rating of 2 and 3 and 3.33% with lowest 1 rating.

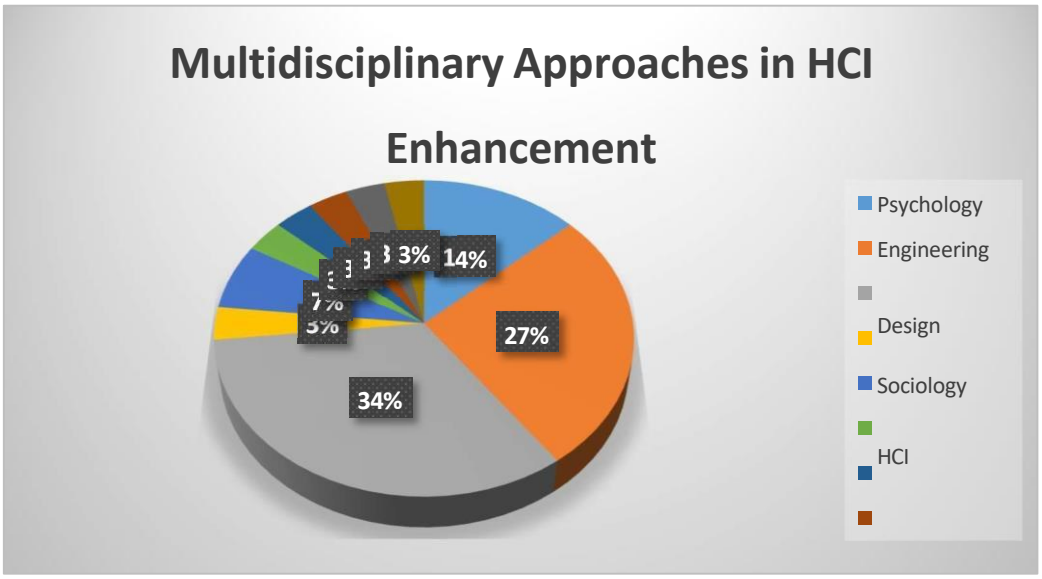


Figure 4. HCI Multidisciplinary Approaches

In Figure 4, among the multidisciplinary approaches, Design was given the highest priority (34%), next is Engineering (27%), Psychology (14%), Sociology (7%) the rest having 3% each in order to enhance HCI.

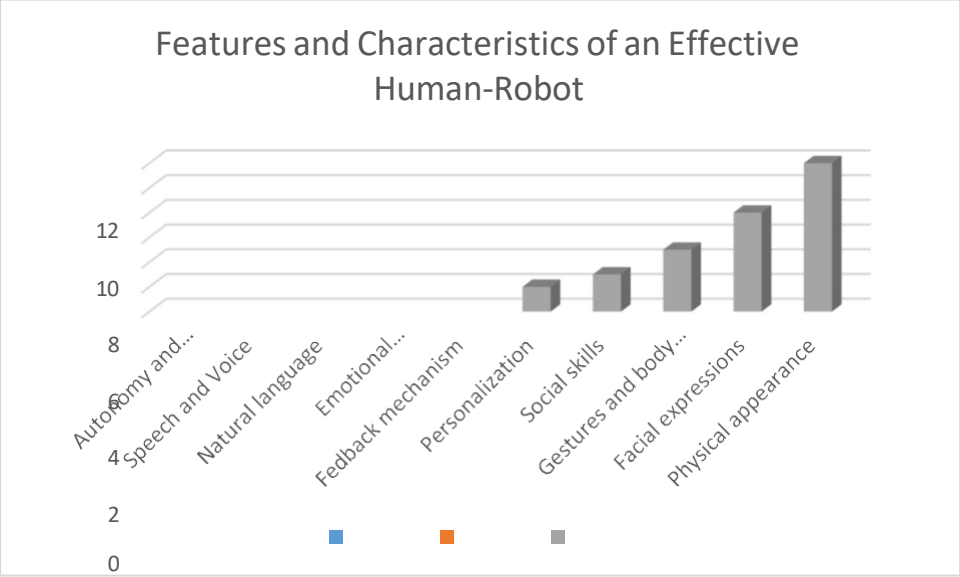


Figure 5. Features and Characteristics of an Effective Human Robot

In Figure 5, among the features and characteristics of an effective Human-Robot according to respondents the highest priority is given to physical appearance (40%), facial expression (27%) next, Gestures and body language (17%), Social skills (10%) and Personalization (6%).

Multidisciplinary approaches that could enhance human-robot interaction include:

1. Psychology: Understanding human cognition, emotions, and behavior to design robots that are more intuitive and responsive to human needs (Lench, Darbor & Berg, 2013).

2. Engineering: Integrating advanced sensors, actuators, and AI algorithms to improve the physical capabilities and autonomy of robots (Firouzeh et al, 2013).

3. Design: Incorporating principles of user-centered design and human factors engineering to create robots that are visually appealing, easy to use, and non-intimidating.

4. Ethics: Addressing ethical considerations related to privacy, safety, and the impact of automation on employment and societal norms.

5. Sociology: Studying the social dynamics and cultural factors that influence human-robot interaction, such as trust, power dynamics, and cultural norms.

6. Human-Computer Interaction (HCI): Leveraging insights from HCI

research to design intuitive interfaces and interaction modalities for human-robot communication (Berg & Lu, 2020).

7. Neuroscience: Exploring brain-computer interfaces and neurofeedback techniques to enable more direct and natural communication between humans and robots (Javaid, 2013).

8. Anthropology: Examining historical and cultural perspectives on technology adoption and human-machine relationships to inform the design of culturally sensitive robots (Steers, Meyer & Sanchez, 2008).

9. Linguistics: Developing natural language processing algorithms and speech recognition capabilities to enable seamless verbal communication between humans and robots.

10. Education: Integrating robotics into educational curricula to foster greater understanding and acceptance of robots among future generations (Foucault, 2010).

Designing socially interactive robots involves incorporating various features and characteristics to facilitate effective human-robot interaction. Here are some key considerations:

1. Physical Appearance: The robot's appearance should be appealing and non-threatening, with design elements that evoke familiarity and approachability.

2. Facial Expressions: The robot should be able to display a range of facial expressions to convey emotions and intentions, enabling more natural communication with users.

3. Gestures and Body Language: Incorporating gestures and body language helps the robot express itself and understand human cues, enhancing communication and engagement.

4. Speech and Voice Recognition: The ability to understand and respond to spoken commands and questions improves the robot's usability and interactivity.

5. Natural Language Processing: Advanced language understanding capabilities enable the robot to engage in meaningful conversations, comprehend context, and provide relevant responses.

6. Emotional Intelligence: By detecting and responding to human emotions, the robot can adapt its behavior and responses to better meet users' needs and preferences.

7. Personalization: Customization options allow users to tailor the robot's

behavior, appearance, and interactions to suit their preferences and personality.

8. Social Skills: Teaching the robot social norms and etiquette helps it navigate social interactions smoothly and respectfully, fostering positive experiences for users.

9. Feedback Mechanisms: Providing feedback to users about the robot's actions, intentions, and understanding enhances transparency and trust in the interaction.

10. Autonomy and Proactiveness: Giving the robot some degree of autonomy and proactiveness enables it to initiate interactions, offer assistance, and anticipate users' needs, enhancing its usefulness and effectiveness in social settings.

These features and characteristics work together to create socially interactive robots that can engage with users in meaningful ways, whether as companions, assistants, or collaborator.

Conclusions

The study highlights the importance of multidisciplinary approaches in enhancing human-robot interaction (HRI). The findings indicate that a majority of respondents have had some form of human-robot encounter, and the comfortability of interacting with robots is a significant factor in determining the effectiveness of HRI. The study also emphasizes the need for robots to possess certain features and characteristics, such as physical appearance, facial expressions, gestures, and social skills, to facilitate effective communication and interaction.

The multidisciplinary approaches identified as crucial for enhancing HRI include psychology, engineering, design, ethics, sociology, human-computer interaction, neuroscience, anthropology, linguistics, and education. These approaches can help in understanding human cognition, emotions, and behavior, integrating advanced sensors and AI algorithms, incorporating user-centered design principles, addressing ethical considerations, studying social dynamics, and leveraging insights from HCI research.

The study concludes that designing socially interactive robots requires incorporating various features and characteristics, such as physical appearance, facial expressions, gestures, speech and voice recognition, natural language processing, emotional intelligence, personalization, social skills, feedback mechanisms, and autonomy and proactiveness. These features and characteristics work together to create robots that can engage with users in meaningful ways, whether as companions, assistants, or collaborators.

Overall, the study underscores the importance of a multidisciplinary approach in enhancing HRI, and the need for robots to possess certain features and characteristics to facilitate effective communication and interaction.

Recommendations

In the light of foregoing findings, the following are recommended across multiple disciplines:

1. In Psychology and Cognitive Science, understanding human perception, emotion and behaviour in the context of interacting with robots.
2. Further studies must be conducted on empathy, trust and social bonding with robots.
3. Advances in AI, machine learning (ML) and natural language processing for improving human-robot communication.
4. Development of algorithms for autonomous and semi-autonomous robot behaviour
5. Designing user-friendly interfaces and ensuring safety in human-robot collaborations.
6. Designing aesthetically pleasing and functional robots.

Compliance with Ethical Standards

This study adheres to ethical standards set by the institutional and/or national research ethics committee. Informed consent was obtained from all participants involved in the study. The authors declare no potential conflicts of interest and ensure transparency by providing detailed information about the research methods, data collection, and analysis procedures. The study maintains the privacy and confidentiality of information obtained and adheres to the highest standards of ethical, professional, and personal behavior in performing their duties.

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EXPLORING THE IMPACT OF SOCIAL MEDIA ON POLITICAL DISCOURSE: A COMPARATIVE ANALYSIS OF MASS MEDIA COMMUNICATION STRATEGIES

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ABSTRACT

In today's rapidly evolving media landscape, the influence of social media on political discourse has become a topic of increasing importance. This research explores the impact of social media on political discourse through a comparative analysis of mass media communication strategies. By examining how political actors utilize social media platforms in comparison to traditional mass media channels, this study aims to uncover the dynamics shaping contemporary political communication. Employing a mixed-methods approach, qualitative content analysis and quantitative data analysis were conducted to examine the content, tone, reach, engagement, and impact of political communication on both social media platforms and traditional mass media channels. The findings reveal significant differences in communication strategies employed across different media channels, highlighting the unique affordances and challenges presented by social media in shaping political discourse. This research contributes to a deeper understanding of the evolving role of social media in political communication and provides insights for policymakers, practitioners, and scholars working in the fields of media, communication, and politics.

Keywords: *Social Media, Political Discourse, Mass Media, Communication Strategies, Political Communication, Media Influence, Traditional Media, News Dissemination*

INTRODUCTION

In contemporary society, the pervasive influence of social media on political discourse is an undeniable force shaping public opinion, political narratives, and communication dynamics (Robertson et al, 2013). The emergence and widespread adoption of various social media platforms have revolutionized the landscape of information dissemination, altered traditional mass media communication strategies and profoundly impacted the political sphere (Subekti, Mutiarin & Nurmandi, 2023). As a result, understanding the intricacies of these digital communication channels and their influence on political discourse has become an area of critical importance for scholars, analysts, and policymakers.

The rise of social media platforms has revolutionized the communication landscape, significantly altering the dynamics of political discourse and information dissemination (De Choudhury & Sundaram, 2011). This transformation has been instrumental in shaping public opinion, political narratives, and the engagement of citizens in the democratic process. The pervasive use of social media as a powerful tool for communication, persuasion, and information sharing has redefined the traditional roles of mass media in political messaging and public engagement (Lane, Overbye-Thompson & Gagrčin, 2023).

As the world becomes increasingly interconnected through digital platforms, political communication has transcended the limitations of traditional media, enabling rapid and widespread dissemination of information, opinions, and narratives (Campos-Domínguez & Díez-Garrido, 2023). Citizens are now active participants in shaping the political landscape, with social media serving as a catalyst for public discourse, activism, and engagement with political issues.

However, the meteoric rise of social media in political communication has not been without challenges (Lane et al, 2019). Concerns about misinformation, echo chambers, the influence of algorithm-driven content, and the polarization of public opinion have surfaced as critical issues in contemporary political discourse (Barberá, 2020). Moreover, the speed at which information spreads across social media platforms often outpaces the verification processes, leading to the rapid circulation of unverified or misleading content (Muhammed & Mathew, 2022).

This study aims to navigate these complexities by conducting a thorough comparative analysis of traditional mass media communication strategies and the evolving landscape of social media platforms in the realm of political discourse. Understanding the interplay between these communication channels is essential to comprehend the nuances of how political information is disseminated, received, and interpreted in contemporary society. The investigation will explore the impact of these communication strategies on public opinion, civic engagement, and the overall democratic process, striving to shed light on the evolving nature of political communication in the digital age.

Research Questions

The research titled "Exploring the Impact of Social Media on Political Discourse: A Comparative Analysis of Mass Media Communication Strategies" aims to address several critical issues:

1. Transformation of Political Communication Dynamics.
   1.1 How has the shift from traditional mass media to social media altered the dynamics of political communication?
2. Influence on Public Opinion and Engagement.
   2.1 What are the comparative impacts of traditional mass media and social media on public opinion formation and political engagement?
3. Role of Gatekeeping and Information Control.
   3.1 How does the role of gatekeeping differ between traditional mass media and social media, and what are the implications for the quality and accuracy of political information?
4. Speed and Reach of Political Messages.
   4.1 How do the speed and reach of political messages on social media compare to those on traditional mass media, and what are the implications for political discourse?
5. Misinformation and Polarization.
   5.1 To what extent does social media contribute to the spread of misinformation and political polarization compared to traditional mass media?
6. Effectiveness of Communication Strategies.
   6.1 How effective are the communication strategies employed on social media compared to those used in traditional mass media, and what are the ethical considerations involved?

METHODOLOGY

Research Design

For the study titled "Exploring the Impact of Social Media on Political Discourse: A Comparative Analysis of Mass Media Communication Strategies," a mixed-methods approach will be employed to gather and analyze data. This approach will involve both qualitative and quantitative methods to provide a comprehensive understanding of the research topic. Qualitative Method: Qualitative data will be collected through content analysis of political communication on social media platforms and traditional mass media channels (Gondwe, 2020). This will involve examining the content, tone, themes, and strategies employed by political actors across different media channels. Qualitative analysis will allow for in-depth exploration of the nuances and dynamics shaping contemporary political communication. Quantitative Method: Quantitative data will be collected to measure the reach, engagement, and impact of political content on social media platforms and traditional mass media channels. This will involve gathering metrics such as the number of followers, likes, shares, comments, viewership, and readership

numbers. Quantitative analysis will enable the comparison of communication strategies across different media channels and provide statistical insights into the effectiveness of political communication efforts (Paatelainen, Kannasto & Isotalus, 2022). This study also utilizes a comparative research design to examine the impact of social media on political discourse. It involves comparing the communication strategies employed by mass media platforms with those utilized on social media platforms.

Respondents of the study

The respondents for the study consist of various stakeholders involved in political communication across different media channels. These respondents will be selected based on their roles, expertise, and involvement in political campaigns, government agencies, news organizations, and other relevant entities. The selection of respondents will aim to capture diverse perspectives and experiences related to political discourse and mass media communication strategies.

Political Campaign Teams:

Members of political campaign teams, including campaign managers, communication directors, social media managers, and strategists, will be invited to participate in the study. These respondents will provide insights into the development and implementation of communication strategies on social media platforms and traditional mass media channels during political campaigns.

Government Officials and Public Servants:

Government officials, policymakers, and public servants involved in political communication and public affairs will be included as respondents. These individuals may include elected officials, government spokespersons, and communication officers responsible for disseminating information and engaging with the public through various media channels.

Journalists and Media Professionals:

Journalists, editors, and media professionals working in traditional mass media outlets such as newspapers, television, radio, and online news platforms will be invited to participate in the study. These respondents will offer insights into the production, dissemination, and reception of political news and information in the media landscape.

Social Media Influencers and Content Creators:

Social media influencers, content creators, and digital media experts with expertise in political communication will be included as respondents. These individuals may have

significant followings on social media platforms and play a role in shaping public discourse and opinion through their content and engagement with audiences.

Academic Experts and Researchers:

Academic experts, scholars, and researchers specializing in media studies, political communication, and digital politics will be invited to participate in the study. These respondents will provide theoretical insights, methodological expertise, and critical perspectives on the impact of social media on political discourse and mass media communication strategies.

The selection of respondents will be guided by the research objectives and the need to capture diverse viewpoints and experiences relevant to the study.

Sampling Technique

Respondents may be contacted through purposive sampling techniques, professional networks, and snowball sampling methods to ensure the representation of key stakeholders in the field of political communication and media studies. Ethical considerations, including informed consent and confidentiality, will be followed in the recruitment and engagement of research respondents.

Research Instrument

The researcher utilized a questionnaire in the form of a checklist as the main instrument that was sent thru Google Forms. Also, it used the a 5-point Likert scale:1- Strongly Disagree 2-Disagree 3- Neutral 4- Agree 5- Strongly Agree for the second and last part of the questionnaire as the indicators in the checklist.

Data Gathering Procedures

The researcher follows the following data gathering procedures. Selection of Mass Media and Social Media Platforms: Identify a diverse range of mass media outlets representing various political affiliations and geographic regions. Select prominent social media platforms known for their influence on political discourse, ensuring representation across different demographics and political ideologies.

Content Collection from Mass Media: Gather a comprehensive sample of content (e.g., news articles, opinion pieces, editorial segments) from selected mass media outlets. Utilize digital archives, online databases, and content aggregation tools to access historical and current media coverage of political topics. *Content Collection from social media*: Employ social media monitoring tools to track conversations, trends, and interactions related to political discourse on selected platforms. Collect data using keyword searches, hashtag tracking, and user mentions to capture a wide range of content shared by users, political figures, and media organizations. *Survey Administration*: Develop a structured survey instrument to assess public perceptions and behaviors regarding political discourse on mass media and social media platforms. Ensure the survey is designed to capture demographic information, media consumption

habits, attitudes towards political content, and engagement with social media platforms. *Interviews with Key Stakeholders*: Identify and recruit key stakeholders such as politicians, journalists, social media influencers, and communication experts for in-depth interviews. Conduct semi-structured interviews to explore perceptions, experiences, and strategies related to political communication across different media channels. Use purposive sampling to ensure representation from diverse perspectives and roles within the political and media landscape. *Social Network Analysis:* Extract data from social media APIs to construct networks of political discourse, including connections between users, content, and communities. Analyze network topology, user interactions, and information flow dynamics to understand the structure and influence of political conversations on social media. *Data Management and Quality Assurance*: Establish protocols for data collection, storage, and validation to maintain data integrity throughout the research process. Implement measures to ensure compliance with data privacy regulations and ethical guidelines governing the handling of sensitive information. *Pilot Testing and Refinement:* Pilot test data gathering procedures with a small sample of participants to evaluate the feasibility, clarity, and effectiveness of data collection methods. Solicit feedback from participants and research team members to identify areas for improvement and refine data gathering protocols before full-scale implementation. Adjust sampling techniques, survey questions, and interview protocols based on pilot test results to enhance the reliability and validity of data collected for the study.

Statistical Treatment of Data

The information collected through survey questionnaires was checked, organized, examined, and understood by means of the subsequent numerical tools. In the research several types of statistical treatment of data can be employed to analyze the relationship between social media usage, mass media communication strategies, and political discourse. The most potential statistical treatment is *Comparative Analysis*: Compare means or proportions across different groups, such as comparing the level of political engagement between social media users and non-users. Compare the effectiveness of different mass media communication strategies in shaping public opinion and political discourse. One of the commonly used statistical measures for comparative analysis is the effect size. Effect size quantifies the magnitude of the difference between two groups or conditions. It provides valuable information about the practical significance of the observed differences, irrespective of sample size. One widely used effect size measure for comparing means between two groups is *Cohen's d*, which is defined as the difference between the means of the two groups divided by the pooled standard deviation. The formula for Cohen's d is:d=X¯1−X¯2/Spooled_Where:X¯1 and X¯2 are the means of the two groups being compared spooled is the pooled standard deviation calculated as: spooled=n1+n2−2(n1−1) s12+(n2−1) s22.Cohen's d provides a standardized measure of the difference between group means, allowing for comparisons across different studies and contexts. Typically, effect sizes of 0.2, 0.5, and 0.8 are considered small, medium, and large, respectively, although interpretations may vary depending on the field of study and research objectives.

In the context of comparative analysis in your research on the impact of social media on political discourse, Cohen's d can be used to quantify the magnitude of differences in

outcomes (e.g., attitudes towards political discourse) between groups exposed to different communication strategies (e.g., mass media vs. social media).

RESULTS & DISCUSSION

Quantitative research

Participants were asked to rate their agreement with statements related to each research question on a 5-point Likert scale:

1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree

Cohen's d was used to measure the effect size, indicating the magnitude of differences between traditional mass media and social media.

1. **Transformation of Political Communication Dynamics**

1.1 How has the shift from traditional mass media to social media altered the dynamics of political communication?

Table 1: Perceptions on the Shift from Traditional to Social Media.

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Social media has made political communication more immediate.	5	10	13	40	32	3.84	3.12	0.67
Social media has made political communication more accessible.	4	8	15	38	35	3.92	3.18	0.73
Engagement with political content is higher on social media.	6	9	20	30	35	3.79	3.25	0.55

Interpretation: The results indicate that participants generally agree that social media has made political communication more immediate and accessible, with higher engagement levels compared to traditional mass media. The Cohen's d values (ranging from 0.55 to 0.73) suggest a medium to large effect size, highlighting significant differences in perceptions between the two media types.

2. **Influence on Public Opinion and Engagement.**

2.1 What are the comparative impacts of traditional mass media and social media on public opinion formation and political engagement?

Table 2: Impact on Public Opinion Formation and Engagement.

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Social media has a stronger impact on shaping political views.	8	12	22	35	23	3.53	2.95	0.59
Social media increases political engagement more than traditional media.	7	11	20	36	26	3.63	3.00	0.62

Interpretation: Participants perceive social media to have a stronger impact on shaping political views and increasing political engagement compared to traditional mass media. The Cohen's d values (0.59 and 0.62) indicate a medium effect size, reflecting moderate differences in the perceived influence of the two media on public opinion and engagement.

3. Role of Gatekeeping and Information Control.

3.1 How does the role of gatekeeping differ between traditional mass media and social media, and what are the implications for the quality and accuracy of political information?

Table 3: Perceptions on Gatekeeping and Information Control

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Traditional media content is more reliable due to editorial gatekeeping.	5	15	20	35	25	3.60	3.10	0.50
Social media lacks adequate gatekeeping, affecting information quality.	6	12	18	40	24	3.64	3.00	0.64

Interpretation: The findings suggest that participants believe traditional mass media to be more reliable due to its editorial gatekeeping, whereas social media is perceived to lack adequate gatekeeping, affecting information quality. Cohen's d values (0.50 and 0.64) indicate small to medium effect sizes, signifying some differences in perceptions about gatekeeping and information control between the two media.

4. Speed and Reach of Political Messages.

4.1 How do the speed and reach of political messages on social media compare to those on traditional mass media, and what are the implications for political discourse?

Table 4: Perceptions on Speed and Reach.

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Political messages spread faster on social media than traditional media.	4	10	16	40	30	3.82	3.25	0.57

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Social media accelerates the spread of political information.	5	8	17	42	28	3.80	3.20	0.60

Interpretation: Participants generally agree that political messages spread faster and the spread of political information is accelerated on social media compared to traditional mass media. The Cohen's d values (0.57 and 0.60) indicate medium effect sizes, pointing to significant differences in the perceived speed and reach of political messages between the two media.

5. Misinformation and Polarization.

5.1 To what extent does social media contribute to the spread of misinformation and political polarization compared to traditional mass media?

Table 5: Perceptions on Misinformation and Polarization.

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Social media contributes more to the spread of misinformation.	5	12	20	35	28	3.69	3.00	0.69
Social media creates echo chambers leading to political polarization.	6	11	19	40	24	3.65	3.05	0.60

Interpretation: The results suggest that participants believe social media contributes more to the spread of misinformation and political polarization compared to traditional mass

media. The Cohen's d values (0.69 and 0.60) indicate medium to large effect sizes, highlighting notable differences in the perceptions of misinformation and polarization between the two media.

6. Effectiveness of Communication Strategies.

6.1 How effective are the communication strategies employed on social media compared to those used in traditional mass media, and what are the ethical considerations involved?

Table 6: Perceptions on Communication Strategies Effectiveness and Ethics.

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (Social Media)	Mean (Traditional Media)	Cohen's d
Social media campaigns have higher engagement rates than traditional media.	5	10	18	40	27	3.74	3.10	0.64
There are significant ethical concerns with social media communication strategies.	4	11	20	37	28	3.74	3.00	0.74

Interpretation: Participants perceive social media campaigns to have higher engagement rates than those in traditional media, and there are significant ethical concerns with social media communication strategies. The Cohen's d values (0.64 and 0.74) indicate medium to large effect sizes, showing substantial differences in the perceived effectiveness and ethical considerations of communication strategies between social media and traditional mass media.

These tables and figures summarize the quantitative findings of the research using Likert scale responses and Cohen's d to illustrate the differences and implications of political communication strategies across traditional mass media and social media. The interpretations provide insights into the perceptions of participants regarding the transformation of political communication dynamics, the impact on public opinion and engagement, the role of gatekeeping and information control, the speed and reach of

political messages, misinformation and polarization, and the effectiveness of communication strategies.

Qualitative research

This study explores the various dimensions of this transformation by examining how social media differs from traditional mass media in influencing political discourse, public opinion, gatekeeping, and the spread of information. Through qualitative methods, including in-depth interviews and content analysis, this research presents narratives that illuminate the shifts and their implications for contemporary political communication.

1. **Transformation of Political Communication Dynamics**

1.1 *How has the shift from traditional mass media to social media altered the dynamics of political communication?*

The shift from traditional mass media to social media has democratized political communication, allowing for more direct and immediate interactions between political figures and the public. Interviewees, including politicians and communication strategists, noted that social media platforms have become essential tools for campaigning and public engagement. Unlike traditional media, which operates on a one-to-many broadcast model, social media enables a many-to-many communication dynamic. This shift has empowered individual voices, facilitated grassroots movements, and allowed for rapid dissemination of political messages. However, it has also created challenges in maintaining message consistency and controlling the narrative.

2. Influence on Public Opinion and Engagement

2.1 What are the comparative impacts of traditional mass media and social media on public opinion formation and political engagement?

Participants in the study highlighted that social media significantly enhances political engagement by providing platforms for discussion, debate, and mobilization. While traditional mass media remains influential in setting the agenda and framing issues, social media's interactive nature allows users to actively participate in shaping public opinion. Social media's impact on public opinion is multifaceted; it fosters a sense of community and engagement among users but also risks creating echo chambers where users are exposed primarily to like-minded views. This dynamic can reinforce existing beliefs and contribute to polarization.

3. Role of Gatekeeping and Information Control

3.1 *How does the role of gatekeeping differ between traditional mass media and social media, and what are the implications for the quality and accuracy of political information?*

Gatekeeping in traditional mass media involves editorial oversight, which ensures a level of quality control and factual accuracy. Journalists and editors curate content, often adhering to professional standards and ethical guidelines. In contrast, social media

operates with minimal gatekeeping, relying on algorithms and user-generated content to filter information. Interviewees expressed concerns that this lack of oversight can lead to the proliferation of misinformation and low-quality content. While social media platforms have introduced measures to combat misinformation, the effectiveness of these measures is still debated, and the responsibility for information accuracy often falls on the users themselves.

4. Speed and Reach of Political Messages

4.1 *How do the speed and reach of political messages on social media compare to those on traditional mass media, and what are the implications for political discourse?*

Social media's speed and reach surpass those of traditional mass media, enabling instantaneous dissemination of political messages to a global audience. Politicians and campaign managers interviewed for this study emphasized the strategic advantage of being able to respond in real-time to events and issues. This immediacy can enhance political discourse by allowing for timely and relevant communication. However, the rapid spread of information also means that false or misleading content can quickly gain traction before it can be corrected, potentially disrupting the discourse and influencing public opinion based on inaccuracies.

5. Misinformation and Polarization

5.1 *To what extent does social media contribute to the spread of misinformation and political polarization compared to traditional mass media?*

The study found that social media significantly contributes to the spread of misinformation and political polarization. Participants pointed out that the algorithmic nature of social media platforms often prioritizes sensational or emotionally charged content, which can include misleading or false information. This content is more likely to be shared and go viral, exacerbating misinformation spread. Additionally, the personalized nature of social media feeds can create filter bubbles, where users are predominantly exposed to content that reinforces their existing views, leading to greater political polarization. Traditional mass media, with its editorial processes, generally provides more balanced and verified information, though it is not immune to biases and misinformation.

6. Effectiveness of Communication Strategies

6.1 *How effective are the communication strategies employed on social media compared to those used in traditional mass media, and what are the ethical considerations involved?*

Communication strategies on social media are highly effective in terms of engagement and reach. Politicians and strategists noted that social media allows for targeted messaging, real-time interaction, and a personalized approach to audience engagement. However, these strategies often involve ethical considerations, such as the use of personal data for micro-targeting and the potential for manipulation through misinformation. Traditional mass media strategies, while less interactive, are perceived as more credible and authoritative. Ethical considerations in traditional media revolve

around journalistic integrity and the balance between editorial judgment and audience influence.

Conclusions

1. Transformation of Political Communication Dynamics.

The shift from traditional mass media to social media has fundamentally transformed political communication. Social media platforms provide a more direct and immediate interaction between political actors and the public, democratizing political discourse and allowing for real-time engagement. This has empowered individual voices and facilitated grassroots movements, though it has also introduced challenges in maintaining message consistency and controlling the narrative.

2. Influence on Public Opinion and Engagement.

Social media has a profound impact on public opinion formation and political engagement compared to traditional mass media. While traditional media continues to set the agenda and frame issues, social media's interactive nature allows users to actively participate in shaping public opinion. This engagement fosters community and activism but can also lead to echo chambers and reinforce existing beliefs, contributing to political polarization.

3. Role of Gatekeeping and Information Control

Gatekeeping roles differ significantly between traditional mass media and social media. Traditional media relies on editorial oversight to ensure quality and accuracy, whereas social media depends on algorithms and user-generated content, often resulting in the proliferation of misinformation. This lack of gatekeeping on social media has serious implications for the quality and accuracy of political information, emphasizing the need for improved measures to combat misinformation.

4. Speed and Reach of Political Messages

Social media's speed and reach far surpass those of traditional mass media, enabling the rapid dissemination of political messages to a global audience. This immediacy enhances political discourse by allowing timely communication but also increases the risk of spreading false or misleading content before it can be corrected, potentially disrupting the discourse and influencing public opinion based on inaccuracies.

5. Misinformation and Polarization

Social media significantly contributes to the spread of misinformation and political polarization. The algorithmic prioritization of sensational content and the creation of filter bubbles amplify these issues, leading to greater political division. Traditional mass media,

with its editorial standards, generally provides more balanced and verified information, though it is not immune to biases.

6. Effectiveness of Communication Strategies

Communication strategies on social media are highly effective in engagement and reach, allowing for targeted messaging and real-time interaction. However, these strategies raise ethical concerns, such as data privacy and the potential for manipulation through misinformation. Traditional mass media strategies, while less interactive, are perceived as more credible and authoritative, highlighting the need for a balanced approach to political communication.

Recommendations

Enhancing Media Literacy: To address the challenges posed by the shift to social media, it is essential to enhance media literacy among the public. Educating users on how to critically evaluate information sources can help mitigate the spread of misinformation and reduce the impact of echo chambers.

Strengthening Fact-Checking Mechanisms: Social media platforms should invest in robust fact-checking mechanisms and collaborate with independent fact-checking organizations to ensure the accuracy of political information. This can help maintain the quality and credibility of information disseminated on these platforms.

Promoting Ethical Communication Practices: Political actors and communication strategists should adopt ethical communication practices that prioritize transparency, accountability, and respect for user privacy. This includes avoiding manipulative tactics and ensuring that political messages are based on accurate and reliable information.

Encouraging Balanced Discourse: Efforts should be made to encourage balanced and inclusive political discourse on social media. Platforms can promote diverse viewpoints and create spaces for constructive dialogue to reduce polarization and foster a more informed public.

Regulatory Frameworks: Governments and policymakers should consider developing regulatory frameworks that address the unique challenges of social media while preserving freedom of expression. These frameworks could include guidelines for transparency in political advertising, measures to combat misinformation, and protections for user data privacy.

Leveraging Traditional Media's Strengths: While embracing the benefits of social media, political actors should not overlook the strengths of traditional mass media. Combining the reach and engagement of social media with the credibility and authority of traditional media can create a more comprehensive and effective communication strategy.

Compliance with Ethical Standards

The authors of this study adhere to the highest ethical standards in their exploration of the impact of social media on political discourse. The study ensures transparency in its methodology, including the selection of participants, data collection procedures, and data analysis methods. The authors provide detailed descriptions of their methods and results, allowing readers to replicate the study or evaluate its findings. The study respects the privacy and autonomy of participants, ensuring that all data collected is kept confidential and protected. The authors also consider the ethical implications of their research, avoiding any potential harm or exploitation of participants and ensuring that they are not coerced into participating. The study complies with institutional review board (IRB) guidelines and regulations, ensuring that the research is conducted in accordance with ethical standards and that the IRB has approved the study protocol.

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EXPLORING THE POTENTIAL OF MUSTARD LEAVES *(Brassica juncea)* AND RADISH *(Raphanus sativus)* AS FOOD FORTIFICATION IN NOODLE MAKING

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ABSTRACT

This study explores the potential of mustard leaves *(Brassica juncea)* and radish *(Raphanus sativus)* as fortification agents in noodle making. By incorporating pureed mustard leaves and radish into traditional noodle recipes, the research aimed to enhance the nutritional profile and sensory appeal of the noodles. The methodology included the preparation of mustard and radish purees, their incorporation into noodle dough, and the subsequent evaluation of the developed products through sensory assessments and nutritional analysis. Sensory evaluations, conducted with 120 respondents across various age groups, indicated high acceptability of the fortified noodles in both pancit guisado and pancit lomi dishes, with consistently high ratings in aroma, color, texture, and taste. Nutritional analysis revealed that the fortified noodles had favorable levels of crude fiber, protein, and fat, suggesting potential health benefits. Marketability assessments highlighted strong consumer demand, sufficient supply availability, and manageable production costs. The findings suggest that mustard leaves and radish can effectively enhance the nutritional value and acceptability of noodles, presenting significant opportunities for commercialization and further culinary innovation. Recommendations include commercial production, expansion of recipe applications, nutritional labeling, supply chain partnerships, and ongoing consumer feedback integration to ensure the product's success in the market.

Keywords: *Food fortification, noodle making, sensory evaluation, nutritional value, mustard leaves, radish*

INTRODUCTION

"As creatures with a body, we should all be peculiarly solicitous with the quality of air, water, and food that we permit into our bodily vehicles" - Bryant Mcgill.

Consumers are critical evaluators of food, driven by a desire for products that meet their personal preferences and satisfaction. From aroma to appearance, taste, and texture, every aspect of food is scrutinized. One significant issue impacting individuals of all ages today is nutrient deficiency, which slowly deteriorates the immune system, leading to an increased risk of illnesses (World Health Organization, 2020). Concurrently, the evolution of instant or pre-cooked foods has gained popularity, especially among time-conscious individuals. However, efforts are being made to counter the potential negative implications of consuming foods with minimal or lacking nutrients through food fortification.

Food fortification, defined as the addition of key vitamins and minerals to staple foods, is viewed as the most effective and sustainable strategy to increase the nutrient contents of food (Solon, n.d.). This approach is particularly crucial in addressing the micronutrient deficiencies that affect a significant portion of the global population.

Noodles, a staple food in many Asian countries, have gained international recognition, with global consumption on the rise. Researchers are exploring the potential of noodle fortification as a public health intervention to enhance their nutritional characteristics. Attributes such as taste, nutrition, convenience, safety, longer shelf life, and reasonable price have contributed to the popularity of noodles (Hou, 2010).

Noodles originated in China as early as 5000 BC and subsequently spread to other Asian countries such as Japan, Thailand, Korea, and Malaysia (Lee et al., 2008). Wheat flour noodles are a significant part of the diet for many Asians and are favored by many people of all ages (Afalla, 2010).

Modern consumers worldwide face increased risks of various diseases such as diabetes, high cholesterol, cardiovascular diseases, high blood pressure, and irregular blood sugar levels. These risk factors are often associated with diets low in essential nutrients like dietary fiber, phytochemicals, and antioxidants. Functional foods, which provide health benefits and help prevent diseases by incorporating essential nutrients, have become increasingly important (Suman & Rajinder, 2015).

In the Philippines, noodles are a staple food for many families, often consumed throughout the day. Working individuals, in particular, favor noodles due to their convenience and quick preparation, requiring only 2-3 minutes of boiling or rehydration with boiling water. This practice has contributed to the Philippines ranking in the top 7 for instant noodle consumption worldwide (World Instant Noodles Association, 2019). However, nutritionists caution that instant noodles do not meet the body's nutritional requirements (Bhat et al., 2010). Consequently, food manufacturers are responding to consumer demands for higher fiber content by developing products with high-fiber

ingredients. Dietary fiber can also enhance foods' functional properties, such as increasing water-holding capacity, oil-holding capacity, emulsification, and gel formation (Nelson, 2001).

Mustard leaves, primarily grown for their seeds and known for their medicinal properties, belong to annual herbaceous plants with long, branched stems and clusters of yellow flowers (Couplan, 2012). Radish, a significant root and leafy vegetable, is used in salads, as fresh vegetables, cooked, canned, pickled, or eaten raw. Its leaves and sprouts are also consumed in salads or cooked. In traditional medicine, radishes are used to treat coughs, cancer, whooping cough, gastric discomfort, liver disorders, constipation, dyspepsia, gallbladder disorders, arthritis, gallstones, and kidney stones (Adams, 2008).

Given the universal appeal of wheat flour noodles, especially among younger ages, this study aims to find alternative nutrient sources by incorporating mustard leaves and radish into noodles. Noodles fortified with mustard leaves and radish are anticipated to provide Filipinos with nutritious food alternatives rich in fiber, potentially addressing various diseases. Additionally, the development of this fortified food product could offer economic benefits to consumers, farmers, and entrepreneurs.

Research Questions

This study was conducted to determine the acceptability of mustard leaves and radish as food fortification in noodle making. Specifically, this study sought to answer the following questions:

1. What are the processes involved in the preparation of mustard leaves and radish as main ingredients in noodle making?
2. What are the nutritional and physico-chemical analysis results of the developed fortified food products?
3. What is the level of acceptability of the developed mustard leaves and radish noodles in pancit guisado dishes and lomi dishes as evaluated by the Food Technology Students, Food Experts, and Consumers? In terms of (a) aroma; (b) color/appearance; (c) texture; and (d) taste?
4. Is there a significant difference among the evaluation of the groups of respondents on fortified food products?
5. What is the level of marketability of mustard leaves and radish noodles as perceived by the groups of respondents
    a. consumer demands
    b. supply availability of radish and mustard
    c. production cost

METHODOLOGY

This developmental research used materials and ingredients described in the tables below.

Materials

Table 3. Tools and equipment used to prepare Mustard Leaves and Radish in Noodle Recipes.

Descriptions					
Preparatory Tools	**Measuring Tools**	**Mixing Tools**	**Cutting Tools**	**Cooking Tools**	**Equipment**
Kneading Table	Measuring Cups	Mixing Bowls	Knife	Gas Range	Pasta Maker
Utility Tray	Measuring Spoons	Wooden Spoon	Peeler	Frying Pan	Blender
Spatula	Weighing Scale	Whisk	Chopping Board	Laddle	Dough Roller & Noodle Maker
Flour Sifter					
Rolling Pin					
Serving Bowl					
Serving Plate					

Table 4. Ingredients of Mustard Leaves and Radish Noodle.

Sample 1	Sample 2	Sample 3
1000 grams All – purpose flour 60 grams mustard pureed 60 grams radish pureed 1 piece egg 2.5 grams salt 50 grams water	800 grams All – purpose flour 70 grams mustard pureed 70 grams radish pureed 1 piece egg 2.5 grams salt 30 grams water	700 grams All – purpose flour 90 grams mustard pureed 90 grams radish pureed 1 piece egg 2.5 grams salt

Data Gathering Instrument

The study employed a sensorial evaluation questionnaire to assess the respondents' perception of the developed noodles. This instrument was chosen for its effectiveness in measuring the acceptability of the products in terms of aroma, color, texture, and taste.

Data Gathering Procedure

The respondents, comprising children, teenagers, adults, and food experts, were asked to perform a sensory evaluation of the developed noodle products. After obtaining permission, the questionnaires were distributed to the evaluators. The researcher

provided instructions on how to complete the questionnaires, ensuring that all respondents understood the process. Once the questionnaires were filled out, they were collected for further analysis. The sensory assessment questionnaire checklist was utilized to compile data on the acceptability of the mustard leaves and radish noodles.

Sensory Evaluation

The finished products were subjected to sensory evaluation by a diverse group of 120 evaluators, who were selected and briefed on how to assess the products using a scorecard with sample codes. Evaluators tasted samples from each dish and provided feedback on appearance/color, aroma, texture, taste, and general acceptability. The collected data were then decoded and analyzed statistically.

The instrument for data gathering included a score sheet using a qualitative analysis method to determine the acceptability of the food products. Responses regarding the level of acceptability of mustard leaves and radish noodle dishes in terms of appearance/color, aroma, texture, and taste were gathered using a Five-point Likert Scale, with the following weight assignments:

Scale	Numerical Rating	Descriptive Rating
5	4.50 – 5.00	Like very much
4	3.50 – 4.49	Like moderately
3	2.50 – 3.49	Like slightly
2	1.50 – 2.49	Neither like
1	1.00 – 1.49	Dislike

This scale allowed for a structured and quantifiable assessment of the sensory attributes of the noodle products, facilitating a comprehensive analysis of their acceptability among the different respondent groups

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RESULTS

Product Development

The development of noodle recipes involved several transformative stages, starting from the use of whole mustard leaves and radish to their conversion into purees. Initially, mustard leaves were processed into a smooth mustard puree, while radish underwent a similar process to become radish puree. These purees were then combined to create a unique noodle product. To test the efficacy and appeal of these new noodles, they were incorporated into six different noodle recipes. Specifically, three samples of mustard leaves and radish were used in pancit guisado, a stir-fried noodle dish, and three samples in pancit lomi, a thick noodle soup. Throughout this development, meticulous

observation and analysis were conducted to refine the mustard leaves and radish noodle products, ensuring they met the desired standards.

Procedure

The developmental procedure commenced with the preparation of mustard leaves and radish, which involved washing, chopping, and pureeing the mustard leaves and cleaning, peeling, and pureeing the radish. These purees were then blended into all-purpose flour to form a dough, ensuring an even distribution of the pureed vegetables throughout. This dough was subsequently rolled out and cut into noodles, which were cooked and utilized as the primary ingredients in the prepared noodle recipes. By following this detailed procedure, mustard and radish noodles were successfully created and integrated into traditional Filipino dishes, enhancing their nutritional value and flavor profile.

Preparation of Mustard leaves puree and Radish puree

To prepare mustard leaves puree, first, harvest the mustard leaves from the garden, ensuring they are fresh. Wash the leaves thoroughly under running water to remove any dirt or impurities, and then drain them. Chop the mustard leaves thinly and blend them into a smooth puree using a blender. For the radish puree, wash the radish top root under running water, peel it, and cut it thinly. Puree the radish slices using a blender.

Preparation for Incorporating Mustard Leaves (Brassica juncea) and Radish (Raphanus sativus) in Noodles as Nutritional Fortification

For utilizing mustard leaves (Brassica Juncea) and radish (Raphanus Sativus) as food fortification in noodles, begin with *mise-en-place*, organizing all the necessary ingredients and equipment. Measure the ingredients for the noodle dough and combine them in a large mixing bowl according to the standard proportions. Mix the ingredients with your fingertips to form a ball of dough. Place the dough on a lightly floured surface, flatten it slightly, and knead for about 5 minutes until smooth and elastic, adding more flour if needed to prevent sticking. Let the dough rest until it is slightly dry but still pliable. Lightly flour the dough circle and prepare the noodle maker. Insert the dough into the noodle maker, gently press it, and cut it into strips of the desired width. Carefully unfold the strips, sprinkle them with a small amount of flour to prevent sticking, and the noodles are ready for cooking with your desired recipe.



Figure 1. Kneading the dough for about 5 minutes until smooth and elastic

Preparation of Mustard and Radish Noodle Recipes

Pancit Guisado

For Mustard Leaves and Radish Pancit Guisado, begin by sautéing garlic and onion in a pan. Add chicken breast and liver, seasoning with salt and pepper, and cook for 10-15 minutes. Add soy sauce and chicken stock, letting the mixture boil. Incorporate the mustard leaves noodles into the mixture. Add carrots, cabbage, and celery, simmering until the noodles and vegetables are cooked but not overcooked. Transfer the dish to a serving plate, top with hard-boiled eggs and *embutido*, and serve hot.



Figure 2. Pancit Guisado

Pancit Lomi

For Mustard Leaves and Radish Pancit Lomi, start by bringing a pot of water to a boil and blanch the noodles for about 1 minute. Drain and rinse them in cold water. In a pan, heat about 1 tablespoon of oil over medium heat, cook the liver until just done, then remove it and keep warm. In a large pot, heat the remaining tablespoon of oil, add onions and garlic, and cook until softened. Add chicken and cook until lightly browned, then add fish sauce and cook for another minute. Pour in 8 cups of water and bring to a boil. Lower the heat and simmer until the chicken is cooked through. Add the mustard leaves noodles and cook for about 3 to 5 minutes until tender but firm to bite. Add the liver and cook for about 1-2 minutes. Add carrots and cook for about 1 minute, then add cabbage and continue cooking for another minute or until the vegetables are tender but crisp. Combine cornstarch with 1/2 cup cold water, stir to dissolve, and add to the pot, stirring until slightly thickened. Slowly add eggs in a thin stream, allowing them to slightly set before stirring. Serve hot.



Figure 3. Pancit Lomi

Product Evaluation

Evaluation of the products developed by the groups of respondents is shown in the following tables.

Nutritive Value of Mustard Leaves and Uncooked Radish Noodles

Table 5. Nutritive Value of Mustard Leaves and Uncooked Radish Noodles

Lab. No	Sample Description	Crude Protein	Crude Fiber	Crude Fat	Moisture	Ash
		%	%	%	%	%
FT-24-0025	Noodles w/ Mustard & Radish as Food Fortification	9.12	0.13	0.47	38.34	0.56

The table above summarizes the nutritive values of the developed mustard leaves and radish noodles from the Department of Agriculture, Regional Field Office No. 02, Tuguegarao City, Cagayan. The developed mustard leaves and radish noodles have a high crude fiber content of 9.12%, a crude protein content is 0.13%, crude fat content of 0.47%, these noodles are a healthy option for those looking to reduce fat intake. The moisture content is moderately high at 38.34%, which may affect texture and shelf life,

necessitating proper storage. The ash content of 0.56% indicates the presence of beneficial minerals, contributing to the overall nutritional value of the noodles.

Acceptability of Mustard Leaves and Radish Noodles in Two Recipes

Table 6. Level of acceptability of the developed mustard leaves and radish noodles in pancit guisado dishes as evaluated by children, teenagers, adults and noodle experts in terms of aroma, color, texture, and taste.

Product	Criteria	Mean	Standard Deviation	Description
Sample 1 Pancit Guisado	Aroma	4.6833	0.56484	Like very much
	Color	4.6667	0.55509	Like very much
	Texture	4.6833	0.56484	Like very much
	Taste	4.6833	0.53426	Like very much
	Average	**4.6792**	**0.31786**	**Like very much**
Sample 2 Pancit Guisado	Aroma	4.8000	0.47809	Like very much
	Color	4.8000	0.46018	Like very much
	Texture	4.8333	0.37424	Like very much
	Taste	4.8667	0.34136	Like very much
	Average	**4.8250**	**0.20395**	**Like very much**
Sample 3 Pancit Guisado	Aroma	4.6750	0.55250	Like very much
	Color	4.6750	0.55250	Like very much
	Texture	4.7750	0.49302	Like very much
	Taste	4.7583	0.44901	Like very much
	Average	**4.7208**	**0.27915**	**Like very much**

Table 6 provides a detailed evaluation of the acceptability of developed mustard leaves and radish noodles in "pancit guisado" dishes as assessed by the respondents. The criteria for evaluation include aroma, color, texture, and taste. Each criterion is rated on a scale where a mean score near 5 indicates a high level of acceptability, and the standard deviation measures the consistency of the ratings.

For "Sample 1 Pancit Guisado," the mean scores for aroma, color, texture, and taste are all approximately 4.68, with standard deviations around 0.56, indicating a high and consistent level of acceptance as participants "like very much" this sample in all aspects. The overall average score is 4.6792 with a standard deviation of 0.31786.

"Sample 2 Pancit Guisado" received even higher scores, with means for each criterion ranging from 4.80 to 4.87 and smaller standard deviations (around 0.34 to 0.48), suggesting strong and consistent approval. The average score is 4.8250 with a standard deviation of 0.20395, the lowest among all samples, indicating the highest consistency.

"Sample 3 Pancit Guisado" also scored well, with means between 4.6750 and 4.7750 and standard deviations ranging from 0.44901 to 0.55250, reflecting a high but slightly less consistent level of acceptance compared to Sample 2. The overall average is 4.7208 with a standard deviation of 0.27915.

This implies that mustard leaves and radish noodles can be successfully incorporated into "pancit guisado" with high acceptability and consistency. This has significant implications for enhancing the nutritional value of traditional dishes, opening new culinary avenues, and offering potential market opportunities.

Table 7. Level of acceptability of the developed mustard leaves and radish noodles in *Lomi* dishes was evaluated by children, teenagers, adults, and noodle experts in terms of aroma, color, texture, and taste.

Product	Criteria	Mean	Standard Deviation	Description
Sample 1 Lomi	Aroma	4.6583	0.57242	Like very much
	Color	4.6250	0.58068	Like very much
	Texture	4.6833	0.56484	Like very much
	Taste	4.6667	0.55509	Like very much
	Average	**4.6583**	**0.34746**	**Like very much**
Sample 2 Lomi	Aroma	4.8167	0.44878	Like very much
	Color	4.8417	0.42989	Like very much
	Texture	4.8333	0.37424	Like very much
	Taste	4.8667	0.36515	Like very much
	Average	**4.8396**	**0.21202**	**Like very much**
Sample 3 Lomi	Aroma	4.7083	0.54071	Like very much
	Color	4.6750	0.56750	Like very much
	Texture	4.7750	0.49302	Like very much
	Taste	4.7667	0.44407	Like very much
	Average	**4.7312**	**0.25139**	**Like very much**

The table provides a detailed evaluation of the acceptability of developed mustard leaves and radish noodles in "pancit lomi" dishes as assessed by food technology students, food experts, and consumers. The criteria for evaluation include aroma, color, texture, and taste. Each criterion is rated on a scale where a mean score near 5 indicates a high level of acceptability, and the standard deviation measures the consistency of the ratings.

For "Sample 1 Lomi," the mean scores for aroma, color, texture, and taste rated 4.6250 to 4.6833, and standard deviations around 0.55 to 0.58, indicating a high level of

acceptance with good consistency. The overall average is 4.6583 with a standard deviation of 0.34746.

"Sample 2 Lomi" achieved the highest ratings overall, with mean scores for each criterion between 4.8333 and 4.8667 and low standard deviations (around 0.37 to 0.45), suggesting very strong and consistent approval. The average score is 4.8396 with a standard deviation of 0.21202.

Lastly, "Sample 3 Lomi" showed mean scores from 4.6750 to 4.7750 with standard deviations around 0.44 to 0.57, reflecting a high but slightly less consistent level of acceptance compared to Sample 2. The overall average is 4.7312 with a standard deviation of 0.25139.

In summary, all samples of lomi using mustard leaves and radish noodles were rated highly, with mean scores indicating that they were "liked very much" across all criteria. Sample 2 generally received the highest and most consistent ratings, which had the highest average scores and the lowest standard deviations, indicating it was the most preferred and consistently liked sample

.

Comparison in the Level of Acceptability of Mustard and Radish Noodles Used in Two Recipes across Groups of Respondents

Table 8. Comparison in the level of acceptability of mustard and radish noodles as perceived by the evaluators according to their age group.

Products	F-value	p-value	Comparison	Decision	Remark
Sample 1 Pancit Guisado	1.29	0.28	p-value > 0.05	accept Ho	no significant difference
Sample 2 Pancit Guisado	0.33	0.85	p-value > 0.05	accept Ho	no significant difference
Sample 3 Pancit Guisado	2.64	0.05	p-value = 0.05	accept Ho	no significant difference
Sample 1 Pancit Lomi	1.12	0.34	p-value > 0.05	accept Ho	no significant difference
Sample 2 Pancit Lomi	0.13	0.94	p-value > 0.05	accept Ho	no significant difference
Sample 3 Pancit Lomi	2.13	0.10	p-value > 0.05	accept Ho	no significant difference

The table summarizes the results of the statistical analysis used to determine if there is a significant difference in the evaluations of the fortified food products by different groups of respondents. The analysis uses the F-value and p-value to compare the groups, with a p-value threshold of 0.05 for significance.

For "Sample 1 Pancit Guisado," the F-value is 1.29 with a p-value of 0.28. Since the p-value is greater than 0.05, the null hypothesis (Ho) is accepted, indicating no significant difference in evaluations among the groups

.

For "Sample 2 Pancit Guisado," the F-value is 0.33 with a p-value of 0.85. Again, the p-value exceeds 0.05, leading to the acceptance of the null hypothesis and suggesting no significant difference in the groups' evaluations.

For "Sample 3 Pancit Guisado," the F-value is 2.64 with a p-value of 0.05. Although the p-value is exactly 0.05, it still falls at the threshold, meaning the null hypothesis is accepted, indicating no significant difference.

Regarding "Sample 1 Lomi," the F-value is 1.12 with a p-value of 0.34. The p-value is above 0.05, resulting in the acceptance of the null hypothesis and showing no significant difference in evaluations among the groups.

For "Sample 2 Lomi," the F-value is 0.13 with a p-value of 0.94. The high p-value means the null hypothesis is accepted, indicating no significant difference in evaluations among the groups.

For "Sample 3 Lomi," the F-value is 2.13 with a p-value of 0.10. As the p-value is greater than 0.05, the null hypothesis is accepted, and there is no significant difference in evaluations among the groups.

In summary, the analysis shows that for all samples of "pancit guisado" and "lomi," there are no significant differences in the evaluations by the different groups of respondents. This conclusion is drawn from p-values that are all greater than 0.05, leading to the acceptance of the null hypothesis in each case. Thus, the evaluations of the fortified food products are consistent across the different groups, indicating a generally uniform acceptance level among food technology, food experts, and consumers.

Level of Marketability of Mustard Leaves and Radish Noodles

Table 9. Level of marketability of mustard leaves and radish noodles as perceived by children, teenagers, adults, and food experts in terms of consumer demands, supply availability of radish mustard, and production cost.

Category	Respondents	Mean	Standard Deviation	Description
Consumer Demand	Children	4.92	0.18	Strongly Agree
	Teenager	4.82	0.29	Strongly Agree
	Adult	4.77	0.23	Strongly Agree

	Food experts	4.84	0.24	Strongly Agree
Supply Availability	Children	4.84	0.29	Strongly Agree
	Teenager	4.69	0.29	Strongly Agree
	Adult	4.75	0.26	Strongly Agree
	Food experts	4.87	0.22	Strongly Agree
Production Cost	Children	4.84	0.23	Strongly Agree
	Teenager	4.82	0.24	Strongly Agree
	Adult	4.81	0.24	Strongly Agree
	Food experts	4.84	0.23	Strongly Agree

The table evaluates the marketability of mustard leaves and radish noodles based on the perceptions of different respondent groups concerning consumer demand, supply availability of radish and mustard, and production cost. Each category is assessed using mean scores and standard deviations.

For “consumer demand”, the mean scores are consistently high across all respondent groups, indicating a strong consensus that there is high consumer demand for these products. Children have the highest mean score of 4.92 with a standard deviation of 0.18, suggesting a very strong agreement and low variability in responses. Teenager follows with a mean of 4.82 and a standard deviation of 0.29, while adult has a mean of 4.77 and a standard deviation of 0.23. Food experts' mean is 4.84 with a standard deviation of 0.24. All these means fall into the "Strongly Agree" category, signifying that all groups believe consumer demand for the product is very high.

Regarding “supply availability”, the scores also indicate strong agreement across all groups that the supply of radish and mustard is sufficient. Children’s mean is 4.84 with a standard deviation of 0.29, showing strong agreement. Teenager has a slightly lower mean of 4.69 but maintains a similar standard deviation of 0.29. Adult's mean is 4.75 with a standard deviation of 0.26, and Food experts 's mean is the highest at 4.87 with a standard deviation of 0.22. Again, all groups fall within the "Strongly Agree" category, reflecting confidence in the availability of necessary supplies.

For “production cost”, the respondent groups also show strong agreement that the production cost is manageable. Children and Food Expert both have a mean of 4.84 with a standard deviation of 0.23, indicating a very strong consensus. Teenager has a mean of 4.82 and a standard deviation of 0.24, while Adult has a mean of 4.81 with a standard deviation of 0.24. The means for production cost across all groups fall into the "Strongly Agree" category, suggesting that respondents believe the production cost is favorable for marketability.

In summary, the perceived marketability of mustard leaves and radish noodles is very high among the respondent groups. They strongly agree on the high consumer demand, adequate supply availability, and favorable production costs. The consistently high mean scores across all categories and groups, coupled with low standard deviations, indicate a strong, unanimous perception that these products are highly marketable.

Conclusions

Based on the findings of the study, it can be concluded that mustard leaves *(Brassica juncea)* and radish *(Raphanus sativus)* hold significant promise as food fortification agents in noodle making. The product development process, which involved transforming these vegetables into purees and incorporating them into noodle recipes, resulted in a unique and nutritious noodle product. Sensory evaluations, including aroma, color, texture, and taste, consistently indicated high acceptability across different age groups and expertise levels, particularly in pancit guisado and pancit lomi dishes. Furthermore, the nutritional analysis revealed favorable levels of crude fiber, protein, and fat, indicating potential health benefits. Marketability assessments also highlighted strong consumer demand, ample supply availability, and manageable production costs, further supporting the feasibility of commercialization. Overall, this study highlights the potential of mustard leaves and radish as nutritional fortification agents in noodles, paving the way for future exploration and adoption in the food industry.

Recommendations

In consideration of the findings and conclusions of the study, the following are forwarded as recommendations:

1. Given the high acceptability and positive nutritional profile, manufacturers should consider commercializing mustard leaves and radish-fortified noodles. This could include

marketing campaigns highlighting their health benefits and unique flavors to attract health-conscious consumers.

2. The range of recipes should be expanded incorporating mustard leaves and radish noodles beyond traditional Filipino dishes like pancit guisado and pancit lomi. Experiment with other popular dishes and cuisines to broaden market appeal.

3. Nutritional content should be clearly labeled on the packaging to inform consumers about the benefits of these fortified noodles. Educational campaigns can help raise awareness about the importance of fiber, protein, and reduced fat content in daily diets.

4. A consistent supply of fresh mustard leaves and radishes should be ensured by partnering with local farmers. This can help maintain the quality of the noodles and support the agricultural community.

5. Further research should be conducted on the shelf life and optimal storage conditions of these noodles to enhance their texture and longevity, given their high moisture content.

6. Extensive market testing should be conducted in various demographic segments to gather more detailed consumer feedback. Use this feedback to refine the product further and improve its marketability.

7. Cost-effective production methods should be explored to keep the noodles affordable while maintaining quality. This includes optimizing the puree-to-flour ratio and streamlining the production process.

8. Collaboration with health and wellness organizations like the DOST, and FDA should be done to promote noodles as a healthy food option. This can help build credibility and expand the product's reach.

9. Innovative and eco-friendly packaging solutions should be invested to highlight the product's nutritional benefits and appeal to environmentally conscious consumers.

Compliance with Ethical Standards

The researcher hereby assures that the study was conducted in strict adherence to research ethical standards, ensuring that participants provided informed consent, had the freedom to withdraw from the study at any time, their anonymity was preserved, their well-being was protected, no conflict of interest influenced the study, plagiarism was

rigorously avoided, findings were interpreted without bias, and the results were used exclusively for research purposes.

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EXPLORING THE RELATIONSHIP BETWEEN MATHEMATICAL ANXIETY AND SELF-EFFICACY

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ABSTRACT

This descriptive-correlational research aimed to investigate the relationship between mathematical anxiety and self-efficacy among 62 Grade 10 students at Mulapula National High School. Simple random sampling was used to determine the participants of the study. Data collection involved the use of the ERUNT for self-efficacy assessment and a 25-item survey questionnaire for mathematical anxiety. This 25-item researchers-made questionnaire underwent validation and item analysis. Independent variables included sex and sections, while dependent variables comprised mathematical anxiety and self-efficacy levels. Descriptive statistics such as frequency, mean, and standard deviation were utilized, along with inferential statistics like the T-test and Pearson's r, with a significance level set at 0.05. Results revealed variations in mathematical anxiety and self-efficacy concerning sex and sections. Male exhibited higher mathematical anxiety levels than females, and section A students reported lower anxiety levels than section B counterparts. Conversely, self-efficacy levels were higher among females compared to males, with section A students surpassing those in section B. The study concluded a significant relationship between mathematical anxiety and self-efficacy. Based on the discoveries presented, the subsequent suggestions and recommendations are proposed with the intention of creating a supportive setting for students to overcome mathematical anxiety and boost their self-efficacy.

Keywords: *Mathematical Anxiety, Self-efficacy*

INTRODUCTION

Mathematics is often challenging for many students, leading to mathematics anxiety. Yet, there is limited research on its relationship with self-efficacy. As stated in PISA (2018), the Philippines ranked low in math and science education quality, with students struggling to comprehend questions. This is evidenced by below-target National Achievement Test (NAT) scores and low average scores in Mathematical Literacy compared to OECD countries. High levels of math anxiety were noted even among top-performing students, impacting their performance from an early age.

Math anxiety involves feelings of fear, tension, and apprehension specific to math tasks. It is consistent across various mathematical contexts and prevalent in both K-12 and tertiary education. This anxiety can diminish academic performance and self-efficacy, which is a person's belief in their ability to complete tasks and achieve goals. Factors like these suggest a need for focused research and interventions to help students manage anxiety and build confidence in their mathematical abilities (Luttenberger et al, 2019).

The study aimed to provide insights and recommendations to create a supportive environment for Grade 10 students at Mulapula National High School to overcome math anxiety and enhance self-efficacy. By examining the relationship between these factors, the researchers hope to contribute to improved academic performance and positive attitudes toward mathematics among students, thus aiding in the advancement of math education in the Philippines.

Research Questions

This study aims to determine the level between mathematical anxiety and self-efficacy of the students.

Specifically, the study sought answers to the following questions:

1. What is the profile of the respondents when taken as a whole and when classified as to sex and sections?
2. What is the level of mathematical anxiety of the respondents as an entire group and when classified as to sex and sections?
3. What is the level of self-efficacy of the respondents as an entire group and when classified as to sex and sections?
4. Is there a significant difference in the level of the mathematical anxiety of the respondents when classified as to sex and sections?
5. Is there a significant difference in the level of self-efficacy of the respondents when classified as to sex and sections?
6. Is there a significant relationship between mathematical anxiety and self-efficacy of the respondents?

METHODOLOGY

This study used a quantitative research method with an emphasis on the descriptive-correlational design. A descriptive correlational design is a research method that examines the relationship between two or more variables without manipulating them (Baht, 2023).

Descriptive-correlational research design was used to determine the level of mathematics anxiety and self-efficacy of Grade 10 students of Mulapula National High School for the academic year 2023-2024. The researcher chose sixty-two Grade 10 students from Mulapula National High School for the school year 2023-2024 as the respondents.

In this study, the researchers were able to randomly choose the respondents from the population of Grade 10 students through simple random sampling. The researchers aimed to assess the Mathematical Anxiety and Self-Efficacy of Grade 10 students, using a questionnaire adapted from the Department of Education's Electronic Regional Unified Numeracy Test (E-RUNT) results. The data-gathering instrument utilized for the study consisted of a researcher-made and expertly validated survey questionnaire checklist for Mathematical Anxiety and an adapted E-RUNT results for Self-Efficacy to collect necessary data for Grade 10 students during the academic year 2023-2024. The researchers developed a 25-item survey questionnaire checklist for the Mathematical Anxiety of Grade 10 students, divided into two parts. The instrument underwent expert consultation and validation before being implemented for face-to-face testing with a randomly selected group of students.

Upon obtaining permission from the Dean of the School of Teacher Education to conduct research outside the school, the researchers sent a letter to the College President. After the letters were signed, the researchers sent a letter to the DepEd School Division Office of Passi City for pilot testing of the research instrument. The data was then sent to the statistician for a reliability test. After the statistician confirmed that the research instrument was reliable for the study, the researcher sent a letter to the principal of Mulapula National High School for the conduct of the study. A face-to-face implementation was observed for one day. The selected respondents of the study were chosen through simple random sampling, and the researchers distributed the questionnaire. The students were given 30 minutes to answer the questions included in the instrument. After conducting the study, the information will be gathered and checked by the assigned statistician for interpretation and analysis of the data.

RESULTS

Profile of the Respondents in Mulapula National High School. The table presents an overview of the respondent profile, comprising 62 respondents. Notably, there is a greater representation of females, accounting for 37 respondents (59.7%), compared to males, who constitute 25 respondents (40.3%). In terms of section distribution, an equal

participation rate is observed, with both Section A and Section B each having 31 respondents, representing 50% of the total respondents. These results confirm the study by Becker (2018) that women are more likely to respond to surveys and are also more likely to use support forums. Particularly for mail or web surveys, it is frequently found that women are more likely to respond than men.

Table 1.

Profile of the Respondents

Variable	Categories	Frequency	Percent
Sex	Male	25	40.3
	Female	37	59.7
	Total	**62**	**100.0**

Variable	Categories	Frequency	Percent
Section	A	31.0	50.0
	B	31.0	50.0
	Total	**62.0**	**100.0**

Level of Mathematical Anxiety by Gender and Section. The results show the level of mathematical anxiety among grade ten learners at Mulapula National High School as a whole (M=3.38, SD=0.54), which is interpreted as "High Mathematics Anxiety." When grouped by gender, males have a higher level (M=3.52, SD=0.66), also interpreted as "High Mathematics Anxiety," compared to females (M=3.28, SD=0.43). Furthermore, when respondents are grouped by section, Section B (M=3.40, SD=0.66) has a higher level than Section A (M=3.35, SD=0.40). These findings support a study by Homayouni et al. (2022) which showed that there are differences between males and females in math anxiety and learning mathematics. Males scored higher in math anxiety assessment and also scored higher in learning mathematics compared to females.

Table 2.

Level of Mathematical Anxiety as to Sex and Sections

Group	Categories	N	Mean	Std.	Description
As a whole		**62**	**3.38**	**0.54**	**High Mathematics Anxiety**
Sex					
	Male	25	3.52	0.66	High Mathematics Anxiety
	Female	37	3.28	0.43	High Mathematics Anxiety

Section					
	Section A	31	3.35	0.66	High Mathematics Anxiety
	Section B	31	3.40	0.40	High Mathematics Anxiety

Legend: 4.1-5.0- Severe Mathematics Anxiety; 3.1-4.0 High Mathematics Anxiety; 2.1-3.0-Moderate Mathematics Anxiety; 1.1-2.0-Low Mathematics Anxiety; 0-1.0-Non-Mathematics Anxiety

Level of Self-Efficacy of Learners. The results show the level of self-efficacy among grade ten learners at Mulapula National High School when taken as a whole (M=32.06, SD=5.65), which is interpreted as "High Self-efficacy." When grouped according to sex, males have a mean score of (M=31.04, SD=5.29), also interpreted as "High Self-efficacy," which is slightly lower than females (M=32.76, SD=5.29), also interpreted as "High Self-efficacy." Additionally, when respondents were grouped according to section, Section A (M=32.90, SD=4.79) had a higher mean score than Section B (M=31.23, SD=6.36). The results of the study support the study conducted by Ifdil, Apriani, Yendi, and Rangka (2016) indicating that male students have moderate self-efficacy while female students have high self-efficacy. Furthermore, the study highlights a significant difference in self-efficacy between male and female students, particularly among male students as their self-efficacy appears to be lower than that of female students.

Table 3
Level of Self-efficacy as to Sex and Sections

Group	Categories	N	Mean	Std.	Description
Sex					
	Male	25	31.04	6.11	*High Self-efficacy*
	Female	37	32.76	5.29	*High Self-efficacy*
	Total	**62**	**32.06**	**5.65**	*High Self-efficacy*
Section					
	Section A	31	32.90	4.79	*High Self-efficacy*
	Section B	31	31.23	6.36	*High Self-efficacy*
	Total	**62**	**32.06**	**5.65**	*High Self-efficacy*

Legend: 31.0-40.0-High Self-efficacy; 21.0-30.0- Moderate High Self-efficacy;11.0-20.0-Moderate Self-efficacy;1.0-10.0-Low Self-efficacy; 0-1.0-Very Low Self-efficacy

Difference in the Level of Mathematical Anxiety Among Learners as to Sex and Section. There is a study conducted to determine the difference in the level of mathematical anxiety among learners when classified according to their sex and section. Table 4 presents the T-test results, which reveal that there is no significant difference in the level of mathematical anxiety as to sex ($p=0.22$, $p<0.05$). Similarly, when considering the section, there is no significant difference in the level of mathematical anxiety ($p=0.74$, $p<0.05$). These findings support a study conducted by Lacia, Ben, and Elizar (2020), which investigated the mathematics anxiety score between males and females in the central part of the Philippines. The study found a significant difference between the anxiety levels of males and females, despite the very small difference in their magnitude. The mean score shows that male students are slightly higher than female students.

Table 4.
Difference Level of Mathematical Anxiety as to Sex and Section

Group	Mean	Mean Diff	df	T-value	Sig-value	Decision
Sex						
Male	3.52					
Female	3.28					
		0.24	97.7	3.27	0.22	Not Significant
Section						
A	3.36					
B	3.40					
		-.05	97.7	-.34	0.74	Not Significant

⁎Significant @ p<0.05

Difference in the Level of Self-Efficacy of Learners as to Sex and Section. There is a difference in the level of self-efficacy among the respondents when classified by sex and section. Table 5 shows that the T-test results revealed no significant difference in the level of self-efficacy as to sex ($p = 0.5$, $p < 0.05$). Similarly, there is no significant difference in the level of self-efficacy as to section ($p = 0.25$, $p < 0.05$). This study supports a study conducted by Bangga (2021), which revealed that both male and female students have a high level of self-efficacy. From the study of Baji (2020), it was found that there was no significant difference in academic self-efficacy between male and female students. However, the mean value of females indicates a higher level of self-efficacy than male students.

Table 5.
Difference Level of Self-efficacy as to Sex and Section

Group	Mean	Mean Diff.	Df	T-value	Sig-value	Decision
Sex						
Male	31.04					
Female	32.76					
		-1.72	106.56	-2.32	0.5	Not Significant
Section						
A	32.90					
B	331.23					
		1.68	115.74	1.17	0.25	Not Significant

**Significant @ p<0.05*

Relationship Between the Level of Mathematical Anxiety and Self-Efficacy. The table shows the relationship between the level of mathematical anxiety and self-efficacy of Grade 10 learners at Mulapula National High School. The results show that there is a significant negative correlation (r = -0.339) between mathematical anxiety and self-efficacy for the entire group. These findings are supported by the study of Khasawneh, Gosling, and Williams (2021), which confirmed that the paramedic student cohort's self-efficacy levels and math anxiety had a significant negative correlation. Math anxiety and self-efficacy are significantly influenced by gender. To improve math performance and reduce anxiety during calculation tasks, such as dose determinations, targeted education should be developed to improve math self-efficacy.

Table 6
Relationship between the level of mathematical anxiety and self-efficacy

	Mathematical anxiety r value	P value	Description
Self-efficacy	-.339	0.01	Significant

DISCUSSION

The study involved a diverse group of participants from Grade ten at Mulapula National High School, with both genders and sections adequately represented. The majority of respondents were females, while males made up a significant proportion. Both sections contributed equally to the overall participant, ensuring a balanced representation across the various groups in the study.

The overall level of mathematical anxiety among Grade ten learners at Mulapula National

High School revealed a consensus categorized as "High Mathematics Anxiety". Males generally displayed a higher level of mathematical anxiety than females, and within sections, students in Section B tended to express slightly higher mathematical anxiety compared to those in Section A.

The overall level of self-efficacy among Grade ten learners at Mulapula National High School was broadly characterized as "High Self-efficacy". Specifically, when considering both sex and section, females tended to exhibit a higher level of proficiency compared to males. Additionally, when examining sections, students in Section A demonstrated a slightly higher mean score, falling within the "High Self-efficacy" category, compared to those in Section B.

The analysis of mathematical anxiety among Grade ten learners at Mulapula National High School, concerning sex differences, revealed that there is no significant difference in their mathematical anxiety levels. Similarly, when examining the impact of the school section on mathematical anxiety, the results indicate that there is no statistically significant difference in the mathematical anxiety levels of Grade ten learners at Mulapula National High School.

The examination of self-efficacy levels among Grade ten learners at Mulapula National High School, considering sex differences, indicated that there is no significant difference in their self-efficacy levels. Similarly, when exploring the impact of school section on self-efficacy, the findings suggest that there is no significant difference in the self-efficacy levels of Grade ten learners at Mulapula National High School.

The results on the relationship between the level of mathematical anxiety and self-efficacy showed that mathematical anxiety and self-efficacy are negatively correlated.

Conclusions

Based on the findings from the study, researchers consistently found that more females participated as respondents to the study, and an equal distribution was maintained across the two sections, ensuring a balanced representation of both genders and sections in the overall sample of 62 respondents. These results confirm the study by Becker (2018) that women are more likely to respond to surveys and are also more likely to use support forums. Particularly for mail or web surveys, it is frequently found that women are more likely to respond than men.

It has been found in the study that the level of mathematical anxiety of grade ten learners at Mulapula National High for the school year 2022-2023. Students express agreement in experiencing negative emotions when confronted with mathematical problems, categorizing their overall level of mathematical anxiety as "High Mathematics Anxiety."

Moreover, the analysis indicates that males, on average, exhibit a higher level of mathematical anxiety compared to females. Additionally, when comparing the sections, it

was observed that respondents in Section A reported a lower mean, suggesting a slightly lower level of mathematical anxiety than their counterparts in Section B. These findings support a study by Homayouni et al. (2022) which showed that there are differences between males and females in math anxiety and learning mathematics. Males scored higher in math anxiety assessment and also scored higher in learning mathematics compared to females.

Furthermore, when the researchers examined the data based on sex and sections, the level of self-efficacy of Grade 10 learners at Mulapula National High School as a whole was "High Self-efficacy". Notably, females demonstrated a higher mean perception than males, indicating a more elevated level of self-efficacy among female students.

Similarly, when examining the sections, it was observed that respondents in Section A reported a higher mean compared to Section B. Consequently, these findings suggest that both females and students in Section A interpret their self-efficacy as "High Self-efficacy."

The results of the study support the study conducted by Ifdil, Apriani, Yendi, and Rangka (2016) indicating that male students have moderate self-efficacy while female students have high self-efficacy. Furthermore, the study highlights a significant difference in self-efficacy between male and female students, particularly among male students as their self-efficacy appears to be lower than that of female students.

The study reveals the difference in the level of mathematical anxiety as related to sex showed that there is no significant difference in the level of mathematical anxiety of grade ten learners at Mulapula National High School. It simply implies that males are more anxious than females.Similarly, the results also find that there is no significant difference in the section. Therefore, the study has found that the level of mathematical anxiety as a whole is "High Mathematics Anxiety". These findings support a study conducted by Lacia, Ben, and Elizar (2020), which investigated the mathematics anxiety score between males and females in the central part of the Philippines. The study found a significant difference between the anxiety levels of males and females, despite the very small difference in their magnitude. The mean score shows that male students are slightly higher than female students.

Moreover, the findings also reveal that there is no significant difference in the level of self-efficacy among the respondents according to sex and section. This simply implies that females have more numeracy foundational skills in learning all mathematical competencies than males. Therefore, as a whole and according to sex and section, the study states that it is interpreted as "High Self-efficacy". This study supports a study conducted by Bangga (2021), which revealed that both male and female students have a high level of self-efficacy. From the study of Baji (2020), it was found that there was no significant difference in academic self-efficacy between male and female students. However, the mean value of females indicates a higher level of self-efficacy than male students.

This study shows the results on the relationship between the level of mathematical anxiety and self-efficacy of Mulapula National High School. The results show that there is a negative correlation between Mathematical Anxiety and Self-efficacy. In essence, the results also show that there is a significant relationship between mathematical anxiety and self-efficacy.

Therefore, when considering the entire dataset and when classified by sex and sections, the interpretation remains consistent, categorizing the relationship between mathematical anxiety and self-efficacy as "High Mathematics Anxiety". These findings are supported by the study of Khasawneh, Gosling, and Williams (2021), which confirmed that the paramedic student cohort's self-efficacy levels and math anxiety had a significant negative correlation. Math anxiety and self-efficacy are significantly influenced by gender. To improve math performance and reduce anxiety during calculation tasks, such as dose determinations, targeted education should be developed to improve math self-efficacy.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are suggested:

1. For students, this study results highlight the impact of mathematical anxiety on students. It is recommended that students collaborate to identify the root causes of mathematical fear. Introduce relaxation techniques, mindfulness exercises, or other stress-reduction methods to alleviate anxiety related to mathematics.

2. For parents, understand and realize the vital role they play in the education of their children. Parents must create a supportive environment where children feel comfortable seeking help when facing math challenges. Celebrate their progress and efforts to boost their confidence in tackling mathematical problems.

3. For DepEd, would plan better ways and implement targeted interventions at Mulapula National High School to overcome mathematical anxiety and enhance self-efficacy of the students. Suggest incorporating personalized learning approaches, peer collaboration, mentorship program, and real-world applications to make the sessions engaging.

4. For teachers, since the level of Mathematical Anxiety is higher and it has high self-efficacy, teachers promote more student engagement and active involvement in math-related activities can enhance their confidence in the subject. To address anxiety and stress, educators should arrange extracurricular activities and offer suitable counseling support for students. Encourage teachers to support peer-to-peer tutoring so that both the tutor and tutee can enhance their communication skills through the tutoring process, a valuable skill in academics and beyond.

5. For future researchers, the outcomes of this study on the Relationship between Mathematical Anxiety and Self-efficacy among Grade 10 students at Mulapula National

High School can serve as a valuable foundation for future researchers. It provides a starting point for those interested in delving deeper into the critical issues of mathematics anxiety and self-efficacy within the school context. Building upon these findings, future researchers can refine interventions, expand this scope, and contribute to a more comprehensive understanding of how to address these significant concerns in education.

Compliance with Ethical Standards

In conducting this study, strict adherence to ethical standards was maintained throughout the research process. Informed consent was obtained from all respondents prior to their participation, ensuring they were fully aware of the study's purpose and procedures. Respondents were explicitly informed of their right to withdraw from the study at any time without any negative repercussions. Anonymity was rigorously upheld, with all personal identifiers removed to protect the identities of the participants. The well-being of the respondents was safeguarded at all times, ensuring that their participation did not cause any harm or distress. There were no conflicts of interest influencing the conduct of the study, and the researchers ensured that all findings were presented objectively without bias. Plagiarism was strictly avoided, with all sources and references appropriately cited. The results of the study were utilized solely for academic and research purposes, contributing to the understanding of the students. Through these measures, the researchers ensured the highest standards of ethical integrity in the study.

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EXPLORING TRANSPARENCY: POLICE OFFICERS' VIEW ON THE USE OF PNP BODY-WORN CAMERA

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ABSTRACT

This research aimed to describe the perception of the police officers assigned in operations units of the PNP as regards the use of Body-Worn Camera and Alternative Recording Devices (ARDs) during the conduct of operations in compliance with the Rules on Body-Worn Camera issued by the Supreme Court in August 2021. The focus of the research is to determine how the police officers perceive the policy on the use of BWCs and ARDs particularly its necessity, practicability, effectiveness and the level of complexity of the preparation of the documents required by the court to be submitted in relation to its use. The result of show overall positive perceptions among police officers as regards the use of BWCs and ARDs. Comparative analysis of the data shows that police officers agree that BWC and ARD are necessary, practical and effective tool in the conduct of police operations. Likewise, police officers agree that the level of complexity of court required document to be submitted is reasonable. Nevertheless, amendments to the policy on the use of BWCs and ARDs are necessary to maximize the benefits of the said technology for the betterment of police operations.

Keywords: *PNP Body-Worn Camera, Police Operations, Extrajudicial Killings, Service of Warrants, Supreme Court Rules on Body-Worn Camera*

INTRODUCTION

The Philippines, as a republican and democratic state, is duty-bound to ensure peace and order, protect life, liberty, and property and promote general welfare. It is in this light that the Constitution specifically mandates the State to maintain peace and order, administer justice, and to serve and protect the people.(1987 Philippine Constitution, Section 5, Article II, n.d.)

These primordial duties of the State are vital in the fulfilment of the purpose that the Constitution seeks to achieve as enunciated in the preamble --- *to build a just and humane society and establish a Government that shall embody our ideals and aspirations, promote the common good, conserve and develop our patrimony, and secure to ourselves and our posterity the blessings of independence and democracy under the rule of law and a regime of truth, justice, freedom, love, equality, and peace.*(1987 Constitution, Preamble, n.d.)

The maintenance of peace and order, proper administration of justice, protection of the people and promotion of general welfare necessarily carry with it the duty of the State to enforce the law. The law is vital because it serves as a guide as to what is accepted in a society, and without which, conflicts between and among citizens will arise. It shall be emphasized however that the law is useless if it will not be enforced. Thus, the enforcement of law is equally important as the existence of law.

To give life to law enforcement function of the State, the Constitution mandates the establishment and maintenance of *one police force, which shall be national in scope and civilian in character.*(1987 Constitution, Section 6, Article XVI, n.d.) In compliance to the said constitutional mandate, the Philippine National Police (PNP) was created under Republic Act 6975 otherwise known as the Department of the Interior and Local Government Act of 1990, and the PNP was subsequently placed under the control and supervision of the National Police Commission (NAPOLCOM) pursuant to Republic Act 8551 otherwise known as the Philippine National Police Reform and Reorganization Act of 1998.

Republic Act 6975 provides among others, that the PNP shall (1) enforce laws and ordinances relative to the protection of lives and properties, (2) maintain peace and order and take all necessary steps to ensure public safety, (3) investigate and prevent crimes, effect the arrest of criminal offenders, bring offenders to justice and assist in their prosecution, and (4) exercise general powers to make arrest, search and seizure in accordance with the Constitution and pertinent laws.(Republic Act 6975, Section 24, n.d.)

Primarily, the duty of the PNP is to enforce the law in order to maintain peace and order in the country. Concomitant to this duty is the obligation of the PNP to uphold the Constitution and obey legal orders of the duly-constituted authorities. The fulfilment of such solemn duty can only be carried out by safeguarding the constitutionally guaranteed rights of individual provided under the Bill of Rights. This Bill of Rights, particularly found in Article III of the 1987 Constitution, refers to the declaration and enumeration of

fundamental civil and political rights of a person which purpose is to protect him or her from the abuses committed by the government through its agent.(Villareal, 2017)

The Bill of Rights primarily mandates that *no person shall be deprived of life, liberty, or property without due process of law, nor shall any person be denied the equal protection of the laws.*(1987 Philippine Constitution, Section 1, Article III, n.d.)

The prohibition against the deprivation of life, liberty or property under the Bill of Rights is not absolute. In fact, a person may be deprived of his property, or liberty or even life, if found guilty beyond reasonable doubt of an offense or felony defined and penalized under the existing penal statutes. Nevertheless, this deprivation of liberty or life shall not take place unless due process was strictly observed, and that a speedy, impartial and public trial had been conducted.(1987 Philippine Constitution, Section 14, Article III, n.d.)

The Philippines, in compliance with the constitutional mandate to respect human rights and value the dignity of a person, is obliged to perform its duty to keep the community safe against lawless elements, and at the same time, regard full respect and observe the fundamental rights of all persons, including those arrested, suspected, and even convicted criminal offenders.

As eloquently explained by the Supreme Court of the Philippines, in the case of *People v. Sapla, citing the case of Tudtud,* to quote:

> "… the Bill of Rights is the bedrock of constitutional government. If people are stripped naked of their rights as human beings, democracy cannot survive and government becomes meaningless. This explains why the Bill of Rights, contained as it is in the Article III of the Constitution, occupies a position of primacy in the fundamental law way above the articles on governmental powers."(*People v. Sapla, G.R. No. 204045 (2020)*, n.d.)

The "freedom" and "equality" of the people, which the Bill of Rights seeks to protect, are sacrosanct concepts safeguarded by International Human Rights Law through the Universal Declaration of Human Rights. This Universal Declaration of Human Rights is document embodying the agreement of the countries on the freedoms and rights that deserve universal protection in order for every individual to live their lives freely, equally and in dignity.(Amnesty International, 2024)

The Universal Declaration of Human Rights, among others, provides that everyone *is entitled in full equity to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him.* (*Universal Declaration of Human Rights, Article 10*, n.d.)

As one of its obligations, the Philippines is bound to comply with the Universal Declaration of Human Rights as it is a generally accepted principle of international law, following the mandates of the Constitution that *the Philippines adopts the generally accepted principles of international law as part of the law of the land and adheres to the*

policy of peace, equality, justice, freedom, cooperation, and amity with all nations.(1987 Philippine Constitution, Section 2, Article II, n.d.)

With these constitutional duties, the State is burdened with the obligation to strictly observe due process requirements before a person may be legally deprived of his or her life, liberty or property. In the legal parlance, there is a definite process to effect deprivation of life or liberty, termed as Criminal Procedure. It is the method prescribed by law for the apprehension and prosecution of persons accused of a criminal offense, and their punishment in case of conviction.(Pamaran, 2012)

The due process requirement is strictly observed in Criminal Procedure. It has been said that a day in court is the touchstone of the right to due process. *Procedural due process is that which hears before it condemns, which proceeds upon inquiry and renders judgment only after trial. It contemplates notice and opportunity to be heard before judgment is rendered affecting one's person or property.*(*Macabingkil v. Yatco, et.al., G.R. No. L-23147 (1967)*, n.d.)

Subsequent to the prosecution and punishment of a person found liable for commission of a crime or offense is the correction and rehabilitation as an integral part of the Criminal Justice System. Criminal Justice System is the network of the government and private agencies intended to manage accused and convicted criminals. (Crowder & Turvey, 2013)

In an article entitled *The Role and Function of the Prosecution in the Philippine Criminal Justice System,* Criminal Justice System is defined as the *system or process in the community by which crimes are investigated, and the persons suspected thereof are taken into custody, prosecuted in court and punished, if found guilty, provisions being made for their correction and rehabilitation.*(Valle-Corpuz, n.d.)

The correction and rehabilitation of offenders are in line with the concept of Restorative Justice, focusing on the reparation and restitution of offender and resolution of issues arising from a crime. In Restorative Justice, the remorseful offenders accept the responsibility of their misconduct and thus, creates an obligation to make things right, by undertaking solutions which promote repair, reconciliation and reassurance. The Philippines, a member-country of the Commission on Crime Prevention and Criminal Justice, adopted the "Basic Principles on the Use of Restorative Justice Programmes in Criminal Matters". This is congruent with the goal of the Philippine Government to establish a humane correctional system that will promote the reformation of the offenders, and thus, will reduce the incidence of recidivism.(*Restorative Justice, Probation and Parole Administration*, n.d.)

The 1987 Constitution, United Nations Declaration on Human Rights, the Criminal Justice System and the Theory of Restorative Justice, among others, are legal instruments safeguarding individual's right to due process and prohibit human rights violations.

However, despite the existence of these legal instruments, deplorable acts of human rights violations committed by police force, military, and other security forces of the State have been an ordinary newscast. In an article entitled *Philippines: End Police Torture, Killings,* then President Aquino was urged to act decisively to punish the police and other state security forces who committed torture and extrajudicial killings. In the said article, it was emphasized that the progress in the justice system was overshadowed by failures to address other longstanding problems of human rights violations.(*Philippines: End Police Torture, Killings*, 2015)

Upon the assumption of office of the then President Rodrigo R. Duterte, the "War on Drugs" was implemented purposely to reduce the proliferation of dangerous drugs in the country. This campaign however was opposed by human rights groups claiming that this has led to the deaths of over 12,000 Filipinos, mostly urban poor. It was also alleged that at least 2,555 of the killings have been perpetrated by the PNP and worst, senior officials have instigated and incited the killings, which could amount to crime against humanity.(*Philippines' "War on Drugs,"* n.d.)

The killings related to the "War on Drugs" have been labelled as "Extrajudicial Killings". Extrajudicial killings, as defined by Black's Law Dictionary, are those killings done outside the course of a regular judicial proceedings.(*Black's Law Dictionary*, n.d.) As it is committed outside the bounds of the law, extrajudicial killing is considered as act of impunity and a violation of a person's right to due process. According to the United Nations Human Rights Special Rapporteur, extrajudicial, summary, or arbitrary executions, which referred to the deliberate killing of individuals outside of any legal framework, are a violation of the most fundamental right.(*United Nations Human Rights Special Rapporteur*, n.d.)

In 2019, then Senator Leila De Lima re-filed a bill which sought to strengthen the Commission on Human Rights, the National Bureau of Investigation and the PNP in investigating extrajudicial killings. More importantly, the bill sought to ensure that police officers will have the highest regard for human rights and rule of law in performing their sworn duties.(PhilStar, 2019)

It is not entirely correct however to condemn police officers in every operations involving death of a suspect. It is to be noted that not all extrajudicial killing is unlawful and an act of human rights violations. The Revised Penal Code provides for justifying circumstances that will absolve the police officer from criminal and civil liability, i.e., *Self-Defense* and *Fulfilment of a Lawful Duty.*

In Self-Defense, any person who acted in defense of himself or herself, or of his property, or of his or her relative, or of stranger does not incur any criminal liability provided that the three requisites are present, such as: Unlawful aggression, Reasonable necessity of the means employed to repel the aggression, and Lack of sufficient provocation on the part of the person defending himself or herself.(Revised Penal Code, Article 11 Paragraphs 1 to 3, n.d.) In Fulfillment of Lawful on the other hand, a public

officer acting in lawful exercise of duty or right of office is justified in case of injury or death that resulted therefrom.(Revised Penal Code, Article 11, Paragraph 5, n.d.)

The PNP Police Operational Procedure set forth guidelines on the use of force and firearms during police operations, in which, use of necessary force is allowed whenever necessary in enforcing law and maintaining peace and order, and also, use of firearms is allowed if the offender possess imminent danger of causing death or injury to the police officer or other persons.(*PNP Police Operational Procedures, RULES 7 and 8*, n.d.)

Most killings resulting from police operations, particularly during the height of the "War on Drugs", as claimed by police operatives, are result of either Self-Defense or Fulfillment of Duty. These narratives however, are widely disputed by Human Rights Groups, and resulted to the landmark step of the International Criminal Court --- the conduct of investigation in the killings relative to this government anti-illegal drug efforts.(McCarthy, 2021)

The predicament however, is that, in these police operations, more often than not, there were no disinterested eye-witness available to attest to the veracity of the claim of police officers of self-defense and lawful performance of duty. In 2017, a 26-year-old alleged drug suspect was arrested by police officers and thereafter killed in a claim of self-defense on the part of the police officers.(Gavilan, 2023)

In 2018, three police officers were convicted for the crime of Murder in relations to the death of a 17-year-old minor, during a drug sweep operation. The police officers claimed that the minor, who was a drug runner, drew a gun and fired at them, and hence, they returned fire in self-defense. To bolster their version of the incident, police officers showed official photograph of the crime scene with a gun and packets of methamphetamine next to victim's body. But the CCTV footage shows otherwise. The truth, as shown in the footage is, the three police officers dragged the minor into an alley, minutes before he was found dead. (Sullivan, 2018)

In an article published in Human Rights Watch, the narrations of police officers conducting drug raids are unreliable because these officers have been shown to manufacture evidence such as, planting of weapon and drugs, to justify the killing. (Conde, 2019)

In 2018, the PNP issued Memorandum Circular (MC) 2018-009, with subject *Operational Guidelines and Policies on the Use of Body Worn Camera.* This accordingly, is in recognition of the essential role of the trust and mutual respect of the law enforcement agencies and the community towards effective policing.

The Concept of Operation under PNP MC 2018-009 is consist of three phases, such as, the Pre-Operation Phase, Operations Phase, and Post Operations Phase.

The Pre-Operations Phase provides for the establishment of Command Center to properly record, monitor, oversee, evaluate and audit the actual police operations. It is

likewise provided that the trainings shall be conducted for the designated uniformed personnel and units on the proper care, maintenance and operations, and use of Body-Worn Camera (BWC). The Operation Phase provides among others, that the BWC shall be used in all planned operations and other law enforcement activities whenever possible and applicable. The Post Operations Phase on the other hand, provides that BWC shall be turned over to the team leader for submission to IT/BWC Custodian after operations for the downloading and storage of the data.(*PNP Memorandum Circular 2018-009*, n.d.)

Notwithstanding the fact that PNP MC 2018-009 provides administrative sanctions for its violation, in 2019 however, then PNP Chief Guillermo Eleazar said that police officers could not be forced to wear BWC. Accordingly, although Eleazar agrees that BWC could not be of help in promoting transparency amid questionable death linked to the war on drugs, still he claimed, that there is no law that requires the police officers to wear bodycams. (Balagtas-See, 2021)

Shortly after this claim, the Supreme Court issued Rules on the Use of Body Worn Camera in the Execution of Warrants. This issuance of the Supreme Court in effect amended the Rules on Criminal Procedure. Under this Rule, the police officers serving Warrant of Arrest and implementing Search Warrant, shall have one BWC and one Alternative Recording Device (ARD). In case of unavailability of BWC, there shall be a minimum of two ARDs. In cases of Warrantless Arrest, the use of BWC and ARDs shall be complied with insofar as it is practicable.(*A.M. No. 21-06-08-SC*, n.d.)

Pursuant to the Rules on BWC issued by the Supreme Court, failure to observe the rules during the implementation of Search Warrant shall render the evidence confiscated inadmissible, and the officers concerned shall be liable for contempt of court. On the other hand, the rule is different in service of Warrant of Arrest, or during Warrantless Arrest. Accordingly, failure to use BWC and ARDs during the service of Warrant of Arrest or during Warrantless Arrest shall not render the evidence confiscated inadmissible, provided that the non-compliance thereof can be justified by the operating officers. Nevertheless, deliberate failure of police officers to use BWC and ARD during service of Warrant of Arrest or conduct of Warrantless Arrest shall render the officer liable for contempt of court.

The Supreme Court further requires that the video recording from BWC and ARD shall be accompanied by an affidavit detailing the circumstances of the arrest or implementation of Search Warrant. It also provides for the Chain of Custody of the recordings as a measure to avoid improper access, review and tampering.

In an article published in Inquirer.Net, it was mentioned that the Supreme Court issued the Rules on Body-Worn Camera during implementation of Search Warrant and service of Warrant of Arrest in response to the calls from lawyers, human rights groups, and advocates due to the increasing incidents of extrajudicial killings. (Torres-Tupas, 2021)

According to Braga, et.al., (2018), police officers equipped with BWCs have fewer complaints and use of force reports than those officers without BWC. It was further found that officers with BWC made more arrests and issued more citations than those who were not equipped with BWC. The findings suggests that the use of BWCs resulted in the de-escalation of aggression, or have created a civilizing effect on the nature of police-citizen encounters. It is thus concluded that the reduction of complaints and use of force attributed to the use of BWCs is important in improving police-community relations.(Braga et al., 2018)

In 2021, Williams, et.al., claimed that BWCs can reduce police use of force incidents by 10% and civilian complaints against law enforcers by 15%. Based on the findings, BWC provides a considerable return on public investment and the benefits of its use outweighs its cost.(Williams, et al., 2021)

In an article entitled *Benefits and Barriers to Implementing Police Body-Worn Cameras,* the use of BWC was adopted by several police department across Canada and the United States purposely to utilize this new technology in an attempt to increase police transparency with certainty due to limited academic literature and pilot projects showing mixed results in its effectiveness in reducing excessing use of force by law enforcement officers. Accordingly, the use of force of police officers in line of duty is actually, an institution sub-culture. This institutional sub-culture is the collective mindset shaped by organizational procedures, incentives, management, and behaviors that plays a crucial role that explains the similar reaction of law enforcement officers to particular situations. Evidence suggests that the use of BWC can standardize the officer's reaction in various situations and this will lead to increased accountability that will continue even they are not equipped with BWCs, due to the increased levels of self-awareness and self-scrutiny brought about by the continuous use of BWC.(*Benefits and Barriers to Implementing Police Body-Worn Cameras*, n.d.)

On the contrary, Lee (2021) stated that BWC have little to no impact on policing, whether in preventing police violence or holding police accountable after the fact. Lee argued that the footage from BWC is being recorded from the officer's point of view, and worst, controlled by law enforcement. The footage taken from the BWC can be incomplete, and may be manipulated to bolster the narratives of the law enforcement officers.(Lee, 2021)

In the Philippines, the mandatory use of BWC by the PNP was sensationalized due to incident involving police officers assigned with Navotas Police Station who killed a 17-year-old boy, but the said police operation was not recorded in BWCs. The Chief of Police reasoned out that the police officers left their BWCs turned off during the operations as the devices run out of batteries. Due to this incident, Senator Sherwin Gatchalian filed Senate Bill 1057 or the proposed Police On-Body Cam Act which will require all law enforces to use on-body cameras and shall leave the same turned on and running until the termination of the operations. It was explained that the function of the on-body camera will be two-pronged: protect the public against police misconduct by improving law enforcement accountability and help protect our police men from false and uncorroborated accusations of abuse.(Chi, 2023)

In examining the perception of the police officers, the effectiveness of the use of BWC and ARDs during police operations to suppress extrajudicial killings and human rights violations committed by police officers will be assessed and evaluated to serve as basis to test the existing policy or develop a new one.

Research Questions

This study intends to describe the perception of the police officers in the use of BWC and ARDs as basis for recommendation or solution to address emerging issues in the conduct of police operations. Specifically, this aims to answer the following questions:

1. What is the profile of the respondents based on:
   a. Rank;
   b. Designation; and
   c. No. of years in the PNP service?

2. How do police officers perceive the use of BWC and ARDs in terms of the following:
   a. Necessity of the use of BWC and ARDs during police operations;
   b. Practicability of the use of BWC during police operations;
   c. Effectiveness of the use of BWC to prove proper conduct of police operations; and
   d. Level of complexity of documents to be submitted in Court in relation to BWC requirement?

3. From the point-of-view of the police officers, what measures or policy can be implemented in relation to the use of BWC and ARDs in terms of:
   a. Necessity;
   b. Practicality;
   c. Effectiveness; and
   d. Complexity of court required documents.

METHODOLOGY

The primary goal of this study is to determine the perception of the police officers in the use of BWC and ARDs as basis for recommendation or solution to address emerging issues in the conduct of police operations.

To achieve said objective, this study has adopted the Mixed-Method Triangulation Design. The Triangulation Design is the most common and well-known approach to mixing methods.(Creswell & Plano Clark, 2018) This design is utilized to obtain different but complementary data on the same topic in order to understand the research problem. By applying this design, the differing strengths and nonoverlapping weaknesses of quantitative methods and of qualitative methods are brought together.(Patton, 1990) This design was used considering that the study intends to directly compare and contrast

quantitative statistical results with qualitative findings, and to validate or expand quantitative results with qualitative data.

In particular, this study adopted the Concurrent Triangulation Research Design. The Concurrent Triangulation involves a single study containing qualitative and quantitative data collection which is conducted at the same time. The purpose of this type of investigation is to validation the findings generated by each method through evidence produced by the other. (Kroll & Neri, 2009)

The researchers based this study on the critical analysis of pertinent laws, rules and regulations, supplemented by survey and interview.

As to the Survey Questionnaire, the first part of which indicates respondents name, which the respondent has the option not to answer, designation, and the years of service in the PNP. The second part of the questionnaire is a checklist composed of 20 items, in which the respondents were asked to answer each question by encircling their responses using the scale: *1 – Strongly Disagree, 2 – Disagree, 3 – Undecided, 4 – Agree and 5 – Strongly Agree.* The results of the survey provide an approximation of the general perception as the respondents may have over or under assessed their answers.

The first part of the survey questionnaire is consistent with the details in the Personal Data Sheet (PDS) of the respondents. The researchers did not include the parts of the PDS that are not needed in this study.

The Content Validity Index is utilized to assess the suitability and clarity of various statements related to the necessity, practicality, effectiveness, and complexity of Court-required documents in utilizing BWC and ARD during police operations. Each aspect has a set of statements evaluated validators, who are content experts, indicating their agreement with the relevance of the statement.

The computed I-CVI (Item Content Validity Index) for all statements is 1, indicating full agreement among validators regarding the relevance of each statement. Similarly, the Scale Content Validity Index (S-CVI) and SCVI/UA (Universal Agreement) are also 1, indicating unanimous agreement among validators regarding the relevance of all statements in this aspect. This suggests a high level of agreement among validators that the use of BWC and ARD is essential for various police operations. Moreover, all tables who an Item-Level Face Validity Index (I-FVI) of 1, indicating complete agreement among validators regarding the clarity of each statement. The Scale-Level Face Validity Index/Average (S-FVI/Ave) is also 1, showing universal agreement across all statement. This suggests strong consensus among validators that the statements are clear and directly applicable to the context of the study.

The unanimous agreement among validators on both the content validity and face validity indices indicates a high level of consensus regarding the relevance and clarity of the statements, affirming the essential role of BWC and ARD in police operations, thus, necessitating the piloting of the study.

The reliability coefficients, as indicated by Cronbach alpha, offer valuable insights into the consistency and dependability of the measurement scales used in the assessment. In the domain **NECESSITY**, the coefficient stands impressively high at α = 0.910, reflecting an excellent level of internal consistency among the items assessing this aspect. This suggests that the items within this category consistently measure the intended construct with a high degree of reliability.

In contrast, the aspect of **PRACTICALITY** initially presents a somewhat lower coefficient of α = 0.687, indicating a level of reliability that could be improved. However, through the removal of certain items, notably item 4, the coefficient could be raised to α = 0.759, rendering it acceptable. Further refinement by eliminating items 5 and 6 could potentially elevate the reliability to 0.803, categorizing it as good, but it is not recommended.

In terms of **EFFECTIVENESS**, the coefficient is notably high at α = 0.918, indicating excellent internal consistency. Although there is a possibility of a slight improvement to 0.923 by removing item 3, this adjustment might not be necessary given the already excellent reliability.

Finally, the aspect of **COMPLEXITY OF COURT-REQUIRED DOCUMENTS**, demonstrates an outstanding level of reliability with a Cronbach alpha of α = 0.930, confirming the high internal consistency of the items within this domain.

Overall, these reliability coefficients provide valuable guidance for the refinement and interpretation of the assessment measure, enabling researchers to make informed decisions regarding their validity and reliability.

Likewise, a Structured Interview was conducted. The researchers prepared questions regarding respondents' view on how they perceive the use of BWC and ARDs during police operations, in terms of *necessity, practicability, effectiveness and the complexity of the Court-required documents,* and what measures or policy can be implemented to optimize the utilization of this technology for the betterment of the organization and for the benefit of the public.

The study covered 100 police officers-respondents, out of 225 police operatives from Mandaluyong City Police Station. However, during the retrieval of the Survey Questionnaire, only 90 responses were collated by the researchers. The respondents in this research were police officers in Sub-Stations (Sub-Station 1 to 9) of Mandaluyong City Police Station. The researcher used Purposive Sampling Technique. Purposive sampling involves an iterative process of selecting research subject rather than starting with a predetermined sampling frame.(Robinson, 2014)

The researchers conducted documentary analysis on the facts and information gathered from laws, rules and regulations, journals, studies, and researchers both from foreign and local origin pertaining to peace and order, human rights violations during

police operations and use of BWCs to deter police abuses and improve human rights-based policing.

The data gathered from the survey questionnaire for this study were collated, tabulated, analysed and interpreted in several tables using statistical methods, i.e., *frequency and percentage distribution, mean and standard deviation.*

RESULTS

Research Question 1. What is the profile of the respondents?

1.1. Rank

Table 1 shows the distribution of respondents according to rank. The largest group comprises Police Corporals (40.00%), followed by Patrolmen/Patrolwomen (37.78%), and Police Staff Sergeants (22.22%).

Table 1
Distribution of Respondents according to Rank

Rank	Frequency	Percent (%)
Patrolman / Patrolwoman	34	37.78
Police Corporal	36	40.00
Police Staff Sergeant	20	22.22
Total	90	100.00

1.2 Designation

Table 2 illustrates the distribution of respondents according to their designations. The majority of respondents are Patrollers (74.44%), followed by Shift Supervisors (10.00%), Desk Officers (8.89%), and Mobile Crew members (6.67%).

Table 2
Distribution of Respondents according to Designation

Designation	Frequency	Percent (%)
Desk Officer	8	8.89
Mobile Crew	6	6.67
Patroller	67	74.44
Shift Supervisor	9	10.00
Total	90	100.00

1.3. Number of years in the PNP service

Table 3 provides the distribution of respondents according to their years of service. Many respondents have 6 to 10 years of service (62.22%), while the remaining have up to 5 years of service (37.78%).

Table 3
Distribution of Respondents according to Years in Service

Years	Frequency	Percent (%)
5 years	34	37.78
6 to 10 years	56	62.22
Total	90	100.00

Research Question 2. How do police officers perceive the use of BWC and ARDs in terms of the following:

2.1. Necessity of the use of BWC and ARDs during police operations

The result in Table 4 provides valuable insights into the perceived necessity of body-worn cameras (BWC) and alternative recording devices (ARD) in various policing activities.

Table 4
Police Officers' Views on the Necessity of PNP Body-Worn Cameras (BWCs) and Alternative Recording Devices (ARDs)

Statements	Mean	SD	Verbal Interpretation
1. Service of Warrant of Arrest cannot be done properly without the use of BWC and ARD.	3.46	1.17	Agree
2. Warrantless Arrest cannot be done properly without the use of BWC and ARD.	2.91	1.25	Undecided
3. Implementation of Search Warrant cannot be done properly without the use of BWC and ARD.	3.51	1.16	Agree
4. Police operatives shall be equipped with BWC to ensure proper performance of duty.	3.83	0.94	Agree
5. The legitimacy operation can only be proven by the recordings in BWC and ARD.	3.73	1.04	Agree
Overall	3.49	0.32	Agree

2.2. Practicability of the use of BWC and ARDs during police operations

The data in Table 5 reveals a general agreement on the practicability of these technologies, albeit with some nuances in certain areas.

Table 5

Police Officers' Views on the Practicability of PNP Body-Worn Cameras (BWCs) and Alternative Recording Devices (ARDs)

Statements	Mean	SD	Verbal Interpretation
1. The rules on the use of BWC and ARD to be observed by police operatives are reasonable.	3.92	0.86	Agree
2. Police operatives strictly observe the rules without experiencing any challenge in logistics, and human resource.	3.50	1.02	Agree
3. The use of BWC and ARD aids the police operatives in the conduct of police operations.	3.77	1.04	Agree
4. There is sufficient number of BWC and ARD in the police stations/ units to be used by police officers in the conduct of police operations.	3.23	1.18	Undecided
5. Police operatives are trained to use and maintain PNP issued BWC and ARD.	3.62	0.97	Agree
6. Utilization and maintenance of BWC and ARD is cost-efficient.	3.71	0.93	Agree
Overall	3.63	0.22	Agree

2.3. Effectiveness of the use of BWC to prove proper conduct of police operations

The findings in Table 6 indicate a strong consensus on the positive impact of these technologies on various aspects of policing.

Table 6

Police Officers' Views on the Effectiveness of PNP Body-Worn Cameras (BWCs) and Alternative Recording Devices (ARDs)

Statements	Mean	SD	Verbal Interpretation
1. The use of BWC and ARD enhances the transparency and accountability of police officers.	4.04	0.72	Agree
2. The use of BWC and ARD provides an unbiased records of police encounters.	4.03	0.87	Agree
3. The use of BWC and ARD increased the performance of police officers in the conduct of police operations to suppress criminal activities.	3.88	0.93	Agree
4. The use of BWC and ARD aids the prosecution to secure conviction of arrested suspects during police operations.	4.02	0.81	Agree
5. The use of BWC and ARD aids the police officers in defending themselves in service-connected cases filed against them.	4.11	0.74	Agree
Overall	4.02	0.08	Agree

2.4. Level of complexity of documents to be submitted in Court in relation to BWC requirement.

The findings in Table 7 indicate a strong consensus among officers on their ability to manage these requirements effectively.

Table 7
Police Officers' Views on the Complexity of Court-Required Documents Related to the Use of PNP Body-Worn Cameras (BWCs) and Alternative Recording Devices (ARDs)

Statements	Mean	SD	Verbal Interpretation
1. Police operatives who utilized BWC and ARD are well-trained in preparation of documents/ affidavits to be submitted in court as required under the rules on BWC.	3.89	0.92	Agree
2. Police operatives who conducted police operations with BWC and ARD are able to submit in Court the required documents.	3.84	0.92	Agree
3. The documents/Affidavits to be submitted in Court is reasonable and can be complied with within the required period.	3.79	0.80	Agree
4. Police operatives strictly comply with the required Court compliance in relation to the use of BWC and ARD without experiencing any difficulty.	3.69	0.96	Agree
Overall	3.80	0.07	Agree

In sum, the result in Table 8 below presents a comparative analysis of body-worn cameras (BWC) and alternative recording devices (ARDs) based on four dimensions: **Necessity, Practicability, Effectiveness, and Complexity of Court-Required Documents**. The results show overall positive perceptions among police officers, as indicated by the mean scores in each category.

Table 8
Use of BWC and ARDs: Comparative Analysis

Statements	Mean	SD	Verbal Interpretation
Necessity	3.49	0.32	Agree
Practicability	3.63	0.22	Agree
Effectiveness	4.02	0.08	Agree
Complexity of Court Required Documents	3.80	0.07	Agree

Overall	3.74	0.20	Agree

Research Question 3. From the point-of-view of police officers, what measures or policy can be implemented in relation to the use of BWCs and ARDs in terms of:

6.4. **Necessity**

During the conduct of the interview, it was also pointed out that the BWCs and ARDs must be part of the uniform, hence, all police personnel must have an officially-issued BWC or ARD as the case may be. It is also necessary that the BWC and ARD are full-capable and technologically advanced in order to benefit from its full potential. Further, it was suggested that the training on the use and proper handling of BWC and ARD must be incorporated in the Basic Recruit Course of the PNP to enable the newly graduate police officers shall be equipped the moment that they will be deployed to their respective duties. Moreover, police officers-respondents pointed out that there shall be a system for storage and management of recorded data in order to maintain the integrity of the recordings and protect the privacy rights of the individuals arrested or subject of the police operations.

6.4. **Practicability**

In terms of practicability, the police officers-respondents emphasized that the BWC and the ARDs must be obligatory, only if BWC and ARD are available or issued to the police operatives. Also, police officers-respondents are of the view that the use of BWC and ARD shall only be used in overt police operations, and shall not be required in covert police activities. It was also highlighted that the police operatives shall have advanced and continuous training on the use and maintenance of BWC and ARD.

6.4. **Effectiveness**

As to the effectiveness, according to the police officers-respondents, the BWC and ARD to be procured shall be capable of recording comprehensive footage of events, i.e., clear video and audio recording, and long battery life. Also, there shall be a system to be implemented in order to monitor the compliance of the police operatives during operations. Likewise, some police officers-respondents suggested that the PNP shall raise awareness among citizens about the use and purpose of BWC and ARD.

6.4. **Complexity of Court-Required Documents**

With regard to the complexity of documents required in court, police officers-respondents are of the view that extensive training and seminars on the preparation of Affidavits of Arrest, Affidavits of Police Operatives, among others, shall be continuously conducted to all police operatives in order for them to efficiently comply with the requirements of the court.

DISCUSSION

The Profile of the Respondents

As to the profile of the respondents in terms of rank, Table 1 shows that the largest group comprises Police Corporals (40.00%), followed by Patrolmen/Patrolwomen (37.78%), and Police Staff Sergeants (22.22%). This distribution indicates a significant representation of lower and mid-level ranks, which can influence the overall perspective on BWCs and ARDs. Lower-ranking officers, such as Patrolmen/Patrolwomen, Police Corporal and Police Staff Sergeant, are typically more involved in direct, on-the-ground operation, where the practical benefits and challenges of BWCs and ARDs are most apparent. Their higher frequency suggests that the data reflects the experiences and views of those most frequently engaging with the public and potentially using BWC and ARD extensively.

As to the designation, Table 2 illustrates the distribution of respondents according to the particular police work they perform. The majority of the respondents are patrollers (74.44%), followed by Shift Supervisors (10.00%), Desk Officers (8.89%), and Mobile Crew members (6.67%). The predominance of patrollers, who are primarily responsible for field duties, highlights a focus on active policing roles. This group's significant representation suggests that the insights provided are deeply rooted in practical, operational experiences with BWCs and ARDs. Given their primary role in law enforcement activities, patrollers are likely to offer valuable feedback on the effectiveness and practicability of these technologies.

As to the number of years in the service, Table 3 above shows the distribution of respondents according to the years of their service with the PNP. Majority of the respondents have 6 to 10 years of service (62.22%), while the remaining were in the service for 5 years and below (37.78%). The distribution indicates a blend of relatively experienced officers alongside those who are newer to the police force. Officers with 6 to 10 years of experience likely have a well-rounded view of the traditional policing methods and the integration of new technologies like BWCs and ARDs. Their insights can provide a balanced perspective on how these devices impact policing practices over time, including adjustments in procedures and attitudes toward transparency and accountability.

Respondents' perspective on the use of BWC and ARDS as to its necessity during police operations

Table 4 above provides insights on the perceptions of the police officers-respondents on the necessity of BWCs and ARDs in various policing activities and operations. The data indicate that respondents agree on the importance of these technologies, although opinions vary depending on the context of their use.

In context of serving warrants of arrest, officers agree (M = 3.46, SD = 1.17) that BWCs and ARDs are essential. This agreement highlights the belief that these devices

enhance the accuracy and integrity of such operations, potentially reducing disputes about the conduct of arrests. Similarly, there is a strong consensus (M = 3.51, SD = 1.16) regarding the necessity of BWCs and ARDs during the implementation of search warrants, suggesting that officers recognize the value of recorded evidence in ensuring procedural compliance and protecting against misconduct allegations.

However, when it comes to warrantless arrests, the response is more ambivalent (M = 2.91, SD = 1.25). This undecided stance may stem from the spontaneous nature of such situations, where the practical challenges of using BWCs effectively come into play. Officers might be uncertain about the feasibility and immediate benefits of activating BWCs in high-pressure, unpredictable scenarios.

Despite this uncertainty, there is a strong agreement (M = 3.83, SD = 0.94) that police operatives should be equipped with BWCs to ensure proper performance of duty. This finding reflects a broad recognition among officers that BWCs can enhance their professionalism and accountability, likely leading to improved public trust. Furthermore, the belief that the legitimacy of operations can only be proven by recordings from BWCs and ARDs (M = 3.73, SD = 1.04) underscores the importance of these devices in documenting and verifying police actions, which can protect officers from false accusations and enhance the credibility of their operations.

The overall mean score of 3.49 (SD = 0.32) Indicates a general agreement on the necessity of BWCs and ARDs across different operational contexts. The relatively low standard deviation suggests a consistent belief among officers regarding the value of these technologies. This consensus aligns with existing literature, which shows that BWCs increase accountability by providing objective records of police encounters (Ariel et al., 2015). Officers may feel that BWCs protect them from unfounded complaints and legal issues by capturing comprehensive evidence.

The presence of BWCs can lead to behavioral changes among both police officers and civilians, often resulting in more professional conduct (Ariel et al., 2016). This might explain why officers believe BWCs are crucial for ensuring proper performance of duty. Additionally, research has shown that BWCs are associated with reductions in complaints against officers and use-of-force incidents (Jennings et al., 2015). This could be why officers see BWCs as necessary for proving the legitimacy of their operations and ensuring proper conduct during arrests and searches.

BWCs and ARDs also provide clear and unbiased accounts of police activities, which are invaluable in legal contexts (Lum et al., 2015). Officers' agreement on the necessity of BWCs for serving warrants and conducting searches likely stems from the desire to have indisputable evidence in court. However, the undecided response regarding warrantless arrests may reflect practical challenges, such as the spontaneity of such situations in which activating a BWC may not always be feasible (Harris, 2010) Concerns about privacy and the management of BWC and ARD data might also contribute to this uncertainty.

Respondents' perspective on the use of BWC and ARDS as to its practicability

Table 5 above reveals a general agreement on the practicability of these technologies, albeit with some nuances in certain areas. Officers agree that the rules governing the use of BWCs and ARDs are reasonable (M = 3.92, SD = 0.86). This high level of agreement suggests that the regulations are perceived as fair and achievable within the scope of their duties. The reasonable nature of these rules likely contributes to their effective implementation, as officers are more likely to adhere to guidelines they view as logical and manageable.

Similarly, there is a consensus that police operatives strictly observe the rules without experiencing significant logistical or human resource challenges (M = 3.50, SD = 1.02). This indicates that, for the most part, officers find it feasible to comply with the established protocols. The relatively higher standard deviation here, however, suggests that while many officers agree, there is some variability in experiences, possibly due to differences in resource availability or operational contexts.

The use of BWCs and ARDs Is also seen as beneficial in aiding police operations (M = 3.77, SD = 1.04). This agreement underscores the practical utility of these devices in everyday policing activities, enhancing the effectiveness and efficiency of law enforcement efforts. The data suggests that officers recognize the value added by BWCs in terms of operational support and evidentiary benefits.

However, there is some ambivalence regarding the sufficiency of BWCs and ARDs available in police stations (M = 3.23, SD = 1.18). This undecided stance may reflect varying levels of equipment distribution across different units, with some officers experiencing shortages while others have adequate supplies. The higher SD here points to significant disparities in equipment availability, which could impact the consistent use of these technologies across the board.

Training on the use and maintenance of BWCs and ARDs is positively viewed, with officers agreeing that they are adequately trained (M = 3.62, SD = 0.97). Proper training is crucial for the effective deployment and maintenance of technology, and this agreement suggests that the PNP has invested in preparing its personnel to utilize these tools effectively. Furthermore, officers agree that the utilization and maintenance of BWCs and ARDs are cost-efficient (M = 3.71, SD = 0.93). This perception of cost efficiency is important for the sustainability of the BWC program, as it suggests that the benefits of using these devices outweigh the costs involved in their deployment and upkeep.

Overall, the mean score of 3.63 (SD = 0.22) indicates a general agreement on the practicability of BWCs and ARDs in police work. The low standard deviation suggests a consistent belief among officers regarding the practical benefits of these technologies.

The findings align with existing literature, which emphasizes the importance of clear and reasonable guidelines for the successful implementation of BWCs (Beller, 2021). Studies also highlight the need for adequate training to ensure that officers can

effectively use and maintain BWCs, which is reflected in the officers' agreement on training adequacy (White, 2014). The ambivalence about the sufficiency of BWCs and ARDs aligns with findings that resource distribution can be uneven, affecting the uniformity of technology implementation (Cubitt et al., 2017).

Respondents' perspective on the use of BWC and ARDS as to its effectiveness

Table 6 indicate a strong consensus on the positive impact of these technologies on various aspects of policing. Police officers overwhelmingly agree that the use of BWCs and ARDs enhances transparency and accountability (M = 4.04, SD = 0.72). This high level of agreement underscores the belief that recording devices provide a clear and objective account of police activities, which can increase public trust and ensure that officers adhere to professional standards. This finding is supported by existing literature, which highlights that BWCs can lead to significant improvements in police accountability *(Ariel, Farrar, & Sutherland, 2015)*.

The perception that BWCs and ARDs provide unbiased records of police encounters Is also strongly supported (M = 4.03, SD = 0.87). Officers recognize that these devices offer an impartial perspective that can be critical in evaluating the conduct of both police and civilians. This aligns with research suggesting that BWCs can serve as a neutral third party, offering credible evidence in disputes and investigations *(Lum, Koper, & Merola, 2015).*

Furthermore, officers agree that BWCs and ARDs have increased their performance in suppressing criminal activities (M = 3.88, SD = 0.93). The belief that these technologies improve operational efficiency and effectiveness is consistent with findings that suggest BWCs can enhance officer performance by encouraging adherence to procedures and reducing the likelihood of misconduct (A. Braga et al., 2017). The data also shows strong agreement that BWCs and ARDs aid in securing convictions during prosecutions (M = 4.02, SD = 0.81). This indicates that officers believe these recordings provide robust evidence that can substantiate their actions and support the prosecution's case. Literature supports this view, highlighting that video evidence from BWCs can be crucial in court, offering clear and compelling proof of events *(White, 2014).*

Additionally, officers agree that BWCs and ARDs help them defend themselves in service-connected cases (M = 4.11, SD = 0.74). This finding suggests that officers see these technologies as protective tools that can exonerate them from false accusations and demonstrate the legality of their actions. Research corroborates this perception, showing that BWCs can provide crucial exculpatory evidence that protects officers from unwarranted claims *(Harris, 2010).*

Overall, the mean score of 4.02 with a standard deviation of 0.08 indicates a strong and consistent agreement on the effectiveness of BWCs and ARDs. This low SD suggests a unified belief among officers regarding the benefits of these technologies in enhancing transparency, accountability, performance, and legal defense.

The findings align with existing literature, which emphasizes the multiple benefits of BWCs, including improved transparency, accountability, performance, and legal protection for officers *(Ariel et al., 2015; Lum et al., 2015; Jennings et al., 2015).* The high agreement on the effectiveness of BWCs in various aspects of policing indicates that these technologies are viewed as valuable tools that significantly contribute to the integrity and efficiency of police operations.

Respondents' perspective on the use of BWC and ARDS as to the level of complexity of documents required by the court

The results in Table 7 indicate a strong consensus among officers on their ability to manage these requirements effectively. Police officers agree that those who utilize BWCs and ARDs are well-trained in the preparation of documents and affidavits required by the court (M = 3.89, SD = 0.92). This agreement suggests that the training provided to officers is thorough and equips them with the necessary skills to handle legal documentation effectively. Such training is crucial because it ensures that the evidence captured by BWCs is presented in a manner that is acceptable in court, thereby enhancing the judicial process.

Additionally, officers agree that they are able to submit the required documents to the court following operations involving BWCs and ARDs (M = 3.84, SD = 0.92). This consistency indicates that the procedural requirements for submitting evidence are generally manageable and within the officers' capabilities. It reflects the officers' confidence in their ability to comply with legal standards, which is essential for the successful prosecution of cases.

The reasonableness of the document submission requirements Is also acknowledged, with officers agreeing that these can be complied with within the required period (M = 3.79, SD = 0.80). This suggests that the deadlines and expectations set by the court are perceived as fair and achievable, allowing officers to fulfill their duties without undue pressure. The relatively lower SD here implies a consistent perception across different officers, indicating a broadly shared view of the reasonableness of these requirements.

Furthermore, officers agree that they strictly comply with court requirements related to the use of BWCs and ARDs without experiencing significant difficulty (M = 3.69, SD = 0.96). These findings highlight that, while there might be occasional challenges, the overall process of compliance is seen as manageable. The slight increase in standard deviation suggests some variability in experiences, which could be due to differences in individual cases or the complexity of specific operations.

Overall, the mean score of 3.80 (SD = 0.07) indicates a general agreement on the officers' ability to handle the complexity of court-required documents when using BWCs and ARDs. The low standard deviation reflects a consistent belief among officers that the training and procedural requirements are adequate and manageable.

The findings align with existing literature, which emphasizes the importance of comprehensive training and clear procedural guidelines in the effective use of BWCs in legal contexts (International Association of Chiefs of Police, 2019). Proper training ensures that officers are not only capable of using the technology but also proficient in preparing and submitting the necessary legal documentation. This enhances the overall effectiveness of BWCs in supporting law enforcement and judicial processes *(White, 2014).*

The measures or policies to be Implemented In relation to the use of BWCs and ARDs In terms of necessity, practicability, effectiveness and as to the complexity of the court required documents

As to the necessity, the officers pointed out that the use of BWC and ARD shall be imposed and the same shall be part of the uniform of the PNP. With this, a fully-capable and technologically advanced devices shall be procured by the PNP to obtain its optimum potential. Considering that the use of BWC and ARD is necessary, officers are of the view that it shall be included in the training for Basic Recruit Course of the PNP so as to equip the newly recruited police officers. The officers further find it necessary that a system for storage and management of recorded data shall be developed in order to maintain the integrity of the recordings and uphold the right of the citizens subject of the arrest or police operations to privacy.

The view of the officers is rational since making the BWC and ARD part of the PNP uniform shall compel the police officers to carry the said devices for the entire duration of their duties. Also, the BWC and ARD shall be capable and advanced so as to use its full potential, such, it can provide audio recording, clear video, and can record the entire operation. The inclusion of the seminar or training to use BWC and ARD during the conduct of Basic Recruit Course will also prepare the police officers in their duties. With such, errors and mistakes in the use of BWC and ARD during actual police operations will be lessen. Also, the maintenance of a secured storage system for the recorded data is in line with the mandates of the Data Privacy Law. The Data Privacy Law protects the privacy of the individuals while ensuring free flow of information to promote innovation and growth, regulates the collection, recording, organization, storage, updating or modification, retrieval, consultation, use, consolidation, blocking, erasure or destruction of personal data, and ensures that the Philippines complies with international standards set for data protection through the National Privacy Commission.(Republic Act 10173, n.d.)

As to practicability of use, the officers emphasized that not all police operatives had their respective PNP-issued BWC or ARD. Hence, it shall not be obligatory considering that not all police stations have available devices. This sentiment of the officers is rooted from the fact that the BWC and ARD issued by the PNP are not sufficient for all police operatives. In an article written in 2021, the PNP commits to comply with the rules on BWC and ARD, although it acknowledged the fact that the organization does not have enough cameras for its personnel (Luna, 2021).

Police officers further pointed out that BWC and ARD shall only be used in overt police operations, and shall not be required in covert police activities, as it may compromise the operation, and worst, might put the life and safety of the officer conducting surveillance to imminent danger. It was also highlighted that the police operatives shall have advanced and continuous training on the use and maintenance of BWC and ARD in order to properly preserve its use and benefits.

In terms of effectiveness, the officers are of the view that in order for the use of BWC and ARD be effective in law enforcement activities, and to attain its objective, the devices to be procured shall be capable of recording comprehensive footage or video, the video as well as audio recording are clear, and the battery life of the device shall be long enough to cover the entire duration of the operation. This is consistent with the reality on the ground as displayed in one police operation in which the police officers reasoned out that the arrest that led to the death of a teenager was not recorded in BWC and ARD because said devices run out of batteries *(Chi, 2023)*. In addition, police officers strongly suggest that the PNP shall raise awareness among citizens regarding the use and purpose of BWC and ARD in order to avoid instances in which the subject to be arrested refused to give his or her consent in recording the arrest.

With regard to the level of complexity of the documents required by the court, majority of police officers can comply with the required submissions of the court. Accordingly, this compliance is prompted by the fact that failure on their part shall give rise to liability of contempt of court. Hence, although it may be difficult and complicated, police officers find a way to comply with those so as to avoid any disciplinary action. Nevertheless, police officers advocate that extensive trainings and seminars shall be conducted to all police operatives for them to be familiar and competent in preparing court documents required related to the use of BWC and ARD.

Conclusions

After a thorough evaluation of the related literatures, existing laws and issuances, and the results of survey and interview among police officers, it can be concluded that police officers agree that the BWC and ARDs are necessary in various policing activities. The perceived benefits of these technologies in enhancing accountability, transparency, and legitimacy are well-supported by existing literature. However, mixed perceptions about the use of BWC and ARDs suggest areas where further training or policy adjustments may be needed to address practical concerns and ensure the effective implementation of BWCs in all aspects of policing.

It is further concluded that police officers generally find the use of BWCs and ARDs practical and beneficial in their operations. While there are some concerns about equipment availability, the overall perception is positive, indicating that with adequate

resources and continued training, the use of these technologies can significantly enhance police transparency and effectiveness.

The findings of the research further lead to the conclusion that there is a strong consensus among police officers on the effectiveness of BWCs and ARDs. The perceived benefits in terms of transparency, accountability, performance, prosecution support, and legal defense are well-supported by existing literature. These findings highlight the critical role that BWCs and ARDs play in modern policing, providing clear and objective evidence that enhances the overall effectiveness of law enforcement activities.

The findings of the research further concluded that policies officers feel well-prepared and capable of managing the documentation requirements associated with the use of BWCs and ARDs. The perceived reasonableness of these requirements and the officers' ability to comply effectively contribute to the successful integration of these technologies into policing practices, ultimately supporting transparency and accountability.

Recommendations

1. Procurement of high-quality BWC and ARD to be issued to all police operatives.
2. Inclusion of use of BWC and ARD in Basic Recruit Course (BRC).
3. Provision of system for storage and management of recorded data.
4. BWC and ARD shall be used only for overt operations, and shall be optional in covert operations.
5. Conduct of continuous training for the maintenance of BWC and ARD.
6. Conduct of extensive and continuous trainings for the preparation of court-required documents.

Compliance with Ethical Standards

Research ethics is necessary for scientific integrity, human rights and dignity, and collaboration between science and society. This ensures that participation in studies is voluntary, informed and safe for research subjects. (Bhandari, 2021)

This study entitled, *Exploring Transparency: Police Officers' View on the Use of PNP Body-Worn Camera,* is the original work of the researchers and the latter further attest originality of this study and have cited all the references used.

Several ethical considerations were taken into account to ensure that this study was conducted in an appropriate manner. The participants had been informed of the purpose of the study and in turn, gave their verbal consent to the conduct of the survey and the roundtable discussion. The participants voluntarily participated in the survey and

they were assured that the information gathered will remain confidential and will be kept and be used for research purposes only.

The participants were further informed that they have the choice not to disclose their names in the survey form, and that they have been informed of their right to desist from participating as respondents in this study at any point. Permission from participants to take Minutes of the interview was likewise obtained.

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FACTORS INFLUENCING THE HABITUAL CONSUMPTION OF DISPOSABLE ELECTRONIC CIGARETTES AS PERCEIVED BY YOUNG ADULTS OF QUEZON CITY

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ABSTRACT

The prevalence of electronic cigarettes has grown rampant across recent years; establishing its demographic target among young adults and evolving within the market as a competitive trend capable of expanding its influences to launch newly improved variants — among these are Disposable Electronic Cigarettes. Promoted as a smoking cessation aid and embellished with desirable attributes, it became favorable among the youth, yet remained controversial due to vague health claims. This study aimed to assess factors that influence young adults' perceptions toward disposable electronic cigarettes and accompanying health risks upon habitual consumption. Designed as a quantitative descriptive research method, the chosen sampling design is non-probability purposive sampling to streamline respondents based on specific criteria. Using a survey platform, a self-made 35-item questionnaire was distributed to one hundred (100) identified respondents, aged 18-26 years old, within the vicinity of Quezon City. Accordingly, data was analyzed by statistical treatment, ranging from frequency and percentage, weighted mean to ANOVA test. Results of study indicated that factors according to demographic profile varied with significant differences, but majority of young adults chose to consume disposable electronic cigarette despite their awareness of the potential health risks. While in the perception on health risks of habitual consumption of disposable electronic cigarette, majority agreed it satisfies psychological demands. Accessibility and availability of the product in communities influenced habitual consumption, especially among male users. Recommendations include reinforcement in awareness of health promotion, such as participation in health-oriented programs, and the strict regulation of E-cigarette manufacturers advised for transparency of chemical properties.

Keywords: *Disposable Electronic Cigarette, Habitual Consumption, Young Adult, Health Risk, E-cigarette, Purposive Sampling, ANOVA, Quezon City*

INTRODUCTION

Acknowledged as a growing global health concern, the electronic cigarette became an epidemic phenomenon that has risen dramatically since its release; originally developed with the purpose to facilitate as a derivative smoking cessation aid. However, as it has exponentially established its prominence in the marketing industry, electronic cigarette transformed into a trend that expanded in size and variety to contend for profit and value against competing products, including tobacco cigarette – its primary subject of purpose.

The World Health Organization (2020) describes electronic cigarette as battery-powered device that heats liquid and turns into aerosol vapor for inhalation. Its basic components are comprised of an e-liquid, nicotine and flavoring, which are adeptly devised to enable customization of product preference and dosage control. Also, it is encompassed under the general category of *Electronic Nicotine Delivery System (ENDS),* which refers to the umbrella term for non-combustible vaping products (Kotewar et al., 2023). In spite of the marketable success of electronic cigarette, however, it has become an area of concern for generating controversy among the public and experts due to its vague health claims.

Among the available variants of this product, disposable e-cigarette has grown distinctly popular among young adult consumers largely for the convenience, affordability, variety of flavor, advertisement and marketing packaging (Sese, 2023). Disposables are single-use devices that come prefilled with e-liquid and equipped built-in coil and battery which serves as an all-in-one package. This, in conjunction with the various influencing factors have significantly encouraged susceptible young adults to seek sensory experience and immediate satisfaction; potentially risking the development of habitual consumption and nicotine dependence - which subsequently leads to instigation of perceived health risks.

Furthermore, the Department of Health cited a Global Youth Tobacco Survey, in which it showcased the prevalence of usage expansion of disposable electronic cigarette among the Filipino youth. The presented data shows there is an 110% increase in consumption of the disposable electronic cigarettes in four years from 11.7% in 2015 into 24.6% in 2021 (Mocon-Ciraco, 2023). Additionally, based on a recent foreign study, Tattan-Birch (2022) stated an 18% increase of vapers who consume disposable electronic cigarettes from January 2021 to April 2022, are mostly pronounced among the young adults as its primary demographic. Case in point, the percentage of 18 years old vapers consuming disposable e-cigarette rose from 0.4% to 54.8%, amassing large usage among youth. Expectedly, the disposable e-cigarettes sold in the international market have nearly tripled in nicotine strength, quintupled in e-liquid capacity and significantly dropped in price by nearly 70% between 2017 and 2022 as stated in a Truth Initiative (2023) study.

Statistics are expected to progressively rise due to the leniency of regulation imposed by local government and non-compliance of e-cigarettes companies. The vaping epidemic in the Philippines exemplifies how commercial influences and government policies can

exacerbate health issues as it confronts the rising usage of electronic nicotine delivery system among Filipino youth (Sese, 2023). As aforementioned, habitual consumption of disposable electronic cigarettes can lead to dependence, in which the pleasure caused by the interaction of nicotine properties with the reward circuit motivates user to reliantly consume nicotine, despite the awareness of potential health risks (National Institute on Drug Abuse, 2018). Jankowski et al. (2019) further reinforced nicotine withdrawal effect can occur after cessation of chronic nicotine consumption. Exposure may have adverse effect with postulated risk, like impaired memory, substance abuse or poor performance. Excessive consumption can also develop lung complications. In February 2020, Centers for Disease Control and Prevention confirmed 2,807 cases of e-cigarette use associated lung injury with damage to the lungs and 68 mortality were attributed (Vandelaer, 2023).

The researchers pursued this study as a feasible research subject to examine due to its relevance in the contemporary society, the recency of occurrence which requires further research contribution and the realness of the problem as growing health concern. Upon observation of the prevalence and health circumstances regarding disposable electronic cigarettes, the researchers sought to concentratedly establish their scope in determining factors that influence the habitual consumption of disposable electronic cigarettes and its perceived health risks. Accordingly, the result of the study will serve as a contribution to the involved individuals, notably young adults, and as a basis for research endeavors.

Research Questions

This study aims to assess the young adults' perceptions toward disposable electronic cigarettes, and the accompanying health risks upon habitual consumption. Specifically, it attempts to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
   1.1 Age
   1.2 Sex
   1.3 Educational Attainment
   1.4 Employment Status
   1.5 Weekly Allowance
   1.6 Monthly Salary

2. What are the factors that influence young adults to consume disposable electronic cigarettes?
   2.1 Interest
   2.2 Desirable Attributes
   2.3 Social Norms
   2.4 Knowledge

3. What are the perceived health risks of habitual consumption of disposable electronic cigarettes?
   3.1 Physical
   3.2 Psychological

3.3 sociocultural

4. Is there a significant difference in the factors that affect young adults to consume disposable electronic cigarette when grouped according to profile?

5. Is there a significant difference in the perception of respondents on health risks of the habitual consumption of disposable e-cigarette when grouped according to profile?

6. What health teachings can be disseminated to the respondents in relation to risks carried out by the habitual consumption of disposable electronic cigarettes?

METHODOLOGY

The researchers have employed a quantitative descriptive research method to assess the factors influencing the habitual consumption of disposable electronic cigarettes, and the perceived health risks. The data collection was assembled through an online survey questionnaire to derive the patterns and traits of the identified respondents. Moreover, it assessed the perception regarding the phenomenon of disposable electronic cigarettes; complementing the significance of Pender's Health Promotion Model (1982) framework.

The data gathering has been carried out in the vicinity of Quezon City, as the definitive location in assembling the respondents and optimizing the effectiveness and opportunity to acquire data. The chosen sampling design is a non-probability purposive sampling to streamline respondents based on specific criteria. Using the Google Form, a self-made 35-item questionnaire was distributed to one hundred (100) respondents, aged 18 to 26 years old, residents of Quezon City and an active consumer of the disposable electronic cigarette for more or less 3-6 months. The other demographic profile taken into account were their sex, educational attainment, employment status, weekly allowance and/or the monthly salary. An inclusion and exclusion criteria were employed for the identification of respondents displaying certain characteristics in order to achieve research objectives.

Additionally, the research adapted a 4-point Likert Scale format to interpret the gathered data, which consists of items that can be gauged according to respondents' perception. Prior to the survey distribution, the researchers undergone a validity testing to three (3) validators, all of whom confirmed that the research instrument is valid, appropriate and non-biased by evaluation. Revisions were advised for further improvements. Documents and permission letter necessary for the data collection have been managed. Thereafter, the researchers conducted a pilot testing in order to ascertain the feasibility of the study and identify weakness through a preliminary data measurement. The pilot test consisted of (10) ten respondents, which is ten percent sample size relative to its full-scale survey. After conducting the pilot testing, the researchers ran the reliability test using the data collected with the assistance of a statistician in the computation of the results. Using the Cronbach's Alpha formula, the value has indicated an internal consistency of 0.798 and with verbal interpretation of acceptable; confirming the reliability of research instrument.

The city-wide distribution of the questionnaire took place from the 8th to 10th of March 2024. Ethical considerations and provision of research context were properly addressed to the respondents beforehand. The researchers have formally sought assistance from Sangguniang Kabataan (SK) officers of the barangay to navigate the community and to introduce the potential residents. Provided that the survey questionnaire is answerable online, the researchers either handed their devices or requested that the respondents use theirs. Snack incentives were presented to the respondents as an appreciation for their efforts. After the researchers have completed conducting the survey, the gathered data were then analyzed through the application of the statistical treatment of data, such as Frequency and Percentage, Weighted Mean and Analysis of Variance, which were utilized to compute their respective research question with accompanying interpretation.

RESULTS

1. Demographic Profile of Respondents

Table 1.1 Frequency Distribution of Respondents in terms of Age

Age	Frequency	Percentage
24-26	44	44
21-23	44	44
18-20	12	12
Total	**100**	**100%**

Table 1.1 presents the frequency distribution of respondents in terms of their age. As indicated, there is an equal distribution between the age brackets 24-26 years old and 21-23 years old, constituting over 44% of the total, respectively. Followed by 18-20 years old, amounting to over 12% in the overall distribution of the respondents. These findings indicate that the majority of the respondents are between the age bracket of 21 to 26 years old.

Table 1.2 Frequency Distribution of Respondents in terms of Sex

Sex	Frequency	Percentage
Male	54	54
Female	46	46
Total	**100**	**100%**

Table 1.2 displays the frequency distribution of respondents in terms of sex. There are over fifty-four (54%) male and forty-six (46%) females who responded voluntarily in the researchers' survey questionnaire. The table interprets that there is marginal difference from the distribution of sexes, with the males being higher compared to the females.

Table 1.3 Frequency Distribution of Respondents in terms of Educational Attainment

Educational Attainment	Frequency	Percentage
Graduate Studies	2	2
College Graduate	29	29
College Undergraduate	53	53
Vocational Studies	3	3
High School Graduate	13	13
Total	**100**	**100%**

Table 1.3 presents the frequency distribution of respondents in terms of their educational attainment. Majority of the respondents are undergraduate college, accounting to over fifty three percent (53%). Following this, college graduates with over twenty-nine percent (29%). There are thirteen percent (13%) of the high school graduates and three percent (3%) of respondents have finished vocational studies. The least number of respondents were those pursuing graduate studies; constituting only two percent (2%). This implies young adult residents of Quezon City are diverse in terms of the educational attainment.

Table 1.4 Frequency Distribution of Respondents in terms of Employment Status

Status	Frequency	Percentage
Employed	35	35
Part-time	9	9
Student	47	47
Unemployed	9	9
Total	**100**	**100%**

Table 1.4 illustrates the frequency distribution of respondents in terms of employment status. Most of the respondents were students with forty-seven percent (47%), while employed respondents are over thirty-five percent (35%). Part-time and unemployed were of equal percent in sum of nine (9%). This suggested that students who are not employed made decisions to purchase disposable e-cigarettes using their allowances.

Table 1.5 Frequency Distribution of Respondents in terms of Weekly Allowance

Weekly Allowance	Frequency	Percentage
2,200-above php	26	26
1900-2100 php	2	2
1600-1800 php	4	4
1300-1500 php	12	12
1000-1200 php	16	16
700-900 php	5	5
400-600 php	10	10
100-300 php	7	7
Not Applicable	18	18
Total	**100**	**100%**

Table 1.5 shows the frequency distribution of respondents in terms of weekly allowance. The most frequent weekly allowance of respondents is 2,200php with over twenty six percent (26%). With the eighteen percent (18%), they said not applicable. Furthermore, sixteen percent (16%) of respondents have weekly allowances of 1,000-1,200php, and twelve percent (12%) with 1300-1500php. Seven percent (7%) of respondents have a weekly allowance of 100-300php, while five percent (5%) have 700-900php. Only four percent (4%) have 1600-1800php allowance, and two percent (2%) with 1900-2100php.

Table 1.6 Frequency Distribution of Respondents in terms of Monthly Salary

Monthly Salary	Frequency	Percentage
30,000 php and above	12	12
25,000-29,000 php	7	7
20,000-24000 php	5	5
15,000-19000 php	6	6
10,000-14,000 php	9	9
5,000-9,000 php	13	13
Not Applicable	48	48
Total	**100**	**100%**

Table 1.6 displays the frequency distribution of the respondents in terms of the monthly salary. Among the respondents, there is over forty eight percent (48%) that earned the most frequent response of "not applicable" when surveyed about monthly salary. This is assumed as the total number of full-time students and unemployed people who, by reasoning, do not receive a monthly salary, but still has the financial means to purchase and supply themselves with disposable electronic cigarettes. While the highest monthly earnings of more than 30,000php, 25,000–29,000php, and 20,000–24,000php went to twelve percent (12%), seven percent (7%), and five percent (5%) of respondents. Conversely, the least amount of monthly salaries is 15,000-19000php, which is six percent (6%) of the respondents. This is then followed by 10,000-14,000php, amounting to over nine percent (9%) respondents answers; and lastly, monthly salary of 5,000-9,000php belong to thirteen percent (13%) of respondents who were surveyed. Overall, the monthly salary is conditional and applicable only to respondents who are employed.

2. Factors that influence young adults to use disposable electronic cigarettes

Table 2.1 Computed Weighted Mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of Interest

Items	Weighted Mean	Verbal Interpretation
1. I started using disposable electronic cigarettes out of curiosity.	2.82	Agree
2. The media and public figures influenced me to use disposable electronic cigarettes.	2.48	Disagree
3. The advertisement appealed to me into using disposable electronic cigarettes.	2.44	Disagree

4. I use disposable electronic cigarettes to quit or reduce smoking.	2.77	Agree
5. I use disposable electronic cigarettes to compare its quality to tobacco cigarettes.	2.35	Disagree
Over all Computed Weighted Mean	**2.57**	**Agree** (With Impact)

Table 2.1 shows a computed weighted mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of their interest. With the highest weighted mean of 2.82, this indicates that majority of the young adults have started consuming disposable electronic cigarettes mainly out of curiosity. With a weighted mean of 2.77, they have also agreed to consuming disposable electronic cigarette in order quit or reduce smoking tobacco cigarette. Moreover, the respondents disagreed that both the media and public figures have influenced them to consume disposable electronic cigarette, with a weighted mean of 2.48. Additionally, they also did not think that advertisement of the product significantly appealed to them into using disposable electronic cigarette, with a weighted mean of 2.44. The respondents disagreed that they primarily use disposable electronic cigarettes to compare its quality to the tobacco cigarettes, with a weighted mean of 2.35. As a result, the overall weighted mean is 2.57 with verbal interpretation of “agree”. Thus, interest as a factor has impact in influencing the young adults to consume disposable electronic cigarettes in satisfying their curiosity.

Table 2.2 Computed Weighted Mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of Desirable Attributes

Items	Weighted Mean	Verbal Interpretation
1. I use disposable electronic cigarettes because they are affordable.	2.78	Agree
2. I use disposable electronic cigarettes because they offer a variety of flavors I like.	3.36	Strongly Agree
3. I use disposable electronic cigarettes because they are customizable for a more personalized experience.	3.05	Agree
4. I use disposable electronic cigarettes because they do not smell bad.	3.38	Strongly Agree
5. I use disposable electronic cigarettes because they are accessible in product design.	3.07	Agree
Over all Computed Weighted Mean	**3.11**	**Agree** (With Impact)

Table 2.2 shows a computed weighted mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of desirable attributes. With a weighted mean of 3.38, majority of the respondents use disposable electronic cigarettes because they do not smell bad. Secondly, with a weighted mean of 3.36, they use it because they offer a variety of flavors that fits their preferences in taste. Moreover, they approved that disposable electronic cigarettes are accessible in product design, such as using it in places where smoking is otherwise prohibited, and with the weighted mean of 3.07. Following this, respondents use it as they are customizable for personalized

experience and product design, with the weighted mean of 3.05. As for the lowest weighted mean of 2.78, they respondents consume disposable electronic cigarettes because they are affordable. The overall computed weighted is 3.11 with the verbal interpretation of agree. This concludes that the respondents indicated that consumption of disposable electronic cigarettes influenced by the desirable attributes has an impact.

Table 2.3 Computed Weighted Mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of Social Norms

Items	Weighted Mean	Verbal Interpretation
1. I use disposable electronic cigarettes because I feel pressured by my peers who engage in using it	1.97	Disagree
2. I use disposable electronic cigarettes because it is trendy and it makes me look cool.	1.99	Disagree
3. I use disposable electronic cigarettes because people close to me use them (e.g. family/friend).	2.30	Disagree
4. I feel a sense of belongingness in the vaping community.	2.24	Disagree
5. Disposable electronic cigarettes help me engage in social opportunities.	2.10	Disagree
Over all Computed Weighted Mean	**2.12**	**Disagree** (With Less Impact)

Table 2.3 illustrates the computed weighted mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of social norm. With the highest weighted mean of 2.30, the respondents disagreed that they use disposable electronic cigarettes because the people close to me use them. Next, with a weighted mean of a 2.24, they don't feel sense of belongingness in the vaping community. Correspondingly, the respondents don't think that disposable electronic cigarettes help engage in social opportunities, with weighted mean of 2.10. Furthermore, the lowest computed weighted mean of 1.97 denotes to respondents disagreeing feel pressured by my peers who use disposable electronic cigarettes. Holistically, the overall computed weighted mean results to a 2.12, which designates that social norms have a lesser impact compared to the other factors.

Table 2.4 Computed Weighted Mean on the factors that influence young adults to consume disposable electronic cigarettes in terms of Knowledge

Items	Weighted Mean	Verbal Interpretation
1. I am aware of the contents inside the disposable electronic cigarettes.	3.27	Strongly Agree
2. Disposable electronic cigarettes are promoted as an alternative to quit tobacco smoking	3.05	Agree
3. Disposable electronic cigarettes are healthier compared to smoking tobacco cigarettes.	2.46	Disagree

4. Disposable electronic cigarettes are less harmful to those around me compared to tobacco cigarettes	2.76	Agree
5. Disposable electronic cigarettes contain harmful chemicals that may cause long-term health effects.	3.14	Agree
Over all Computed Weighted Mean	**2.94**	**Agree** (With Impact)

Table 2.4 shows a computed weighted mean on the factors that influence young adults to consume disposable electronic cigarette in terms of knowledge. As shown, its highest weighted mean 3.27 indicates that the respondents are aware of the contents inside the disposable electronic cigarettes. With the weighted mean of 3.14, they agree that these contain harmful chemicals that may cause long-term health effect. Following this, the respondents agree that disposable electronic cigarettes are promoted as an alternative product in order to quit tobacco smoking, with the computed weighted mean of 3.05. Furthermore, with a weighted mean of 2.76, the respondents think disposable electronic cigarettes are less harmful to those around them compared to tobacco cigarettes. The lowest weighted mean of 2.46 indicates that the disposable electronic cigarettes are healthier compared to smoking tobacco cigarettes. Although they are perceived as less harmful, it still contains harmful chemicals, therefore making it an unhealthy choice. The overall computed weighted mean is 2.94; signifying that there is impact in respondents being knowledgeable about the harmful effects of consuming disposable e-cigarettes.

3. Perceived health risks of habitual consumption of disposable electronic cigarettes

Table 3.1 Computed Weighted Mean on the perceived health risks of habitual consumption of disposable electronic cigarettes in terms of Physical

Items	Weighted Mean	Verbal Interpretation
1. I noticed that coughing and wheezing has been frequent since I started vaping.	2.22	Disagree
2. My throat would feel dry and itchy after vaping.	2.38	Disagree
3. I experience headaches or dizziness after vaping	2.24	Disagree
4. I feel the urge to vomit after I vape.	1.79	Disagree
5. I experience heart palpitations when I vape.	1.95	Disagree
Over all Computed Weighted Mean	**2.12**	**Disagree** (With Less Impact)

Table 3.1 presents the computed weighted mean on perceived health risks of habitual consumption of disposable electronic cigarette in terms of physical. As indicated, the highest computed weighted mean of 2.38 interprets that the respondents disagree that their throats felt dry and itchy after vaping. Additionally, with a weighted mean of 2.24, they do not experience headaches or dizziness after vaping. Thirdly, they disagree that coughing and wheezing has been frequent since they started vaping with a weighted mean of 2.22. The respondents do not experience heart palpitation when they vape with

the weighted mean of 1.95. The lowest computed weighted mean of 1.79 states that the respondents don't feel the urge to vomit after they vape. The overall computed weighted mean was 2.12, which means that physical as a perceived health risk has lesser impact.

Table 3.2 Computed Weighted Mean on the perceived health risks of habitual consumption of disposable electronic cigarettes in terms of Psychological

Items	Weighted Mean	Verbal Interpretation
1. I frequently use disposable electronic cigarettes because it gives a sense of immediate satisfaction.	3.09	Agree
2. I often find myself reaching for my disposable electronic cigarette without thinking about it.	2.80	Agree
3. The urge to vape becomes stronger when I haven't done it within a few days.	2.64	Agree
4. I use disposable electronic cigarettes to relieve myself from emotional tension or stress.	3.19	Agree
5. I find myself to be easily irritated or uncomfortable when I cut vaping for a few days.	2.26	Disagree
Over all Computed Weighted Mean	**2.80**	**Agree** (With Impact)

Table 3.2 shows the computed weighted mean on perceived health risks of habitual consumption of disposable electronic cigarette in terms of psychological. The highest weighted mean of 3.19 indicates that respondents use disposable electronic cigarette to relieve themselves from emotional tension or stress. The respondents also noticed that frequently consuming disposable electronic cigarettes gave them a sense of immediate satisfaction, and with a weighted mean of 3.09.

Furthermore, they often find themselves reaching for disposable electronic cigarette without thinking about it, and has a weighted mean of 2.80 Moreover, the urge to vape becomes stronger when they have not done it within a few days, and it has a weighted mean of 2.64.

Meanwhile, the lowest weighted mean of 2.26 indicates that the respondents find themselves easily irritated or uncomfortable when they cut vaping for a few days. The overall computed weighted mean is a result of 2.80 implicating that the respondents agree that a psychological aspect has an impact.

Table 3.3 Computed Weighted Mean on the perceived health risks of habitual consumption of disposable electronic cigarettes in terms of Sociocultural

Items	Weighted Mean	Verbal Interpretation
1. I often impulsively spend money on disposable electronic cigarettes.	2.52	Agree

2. Poor family relations and lack of family affection significantly impact my tendency to vape.	1.99	Disagree
3. My attitude and awareness towards vaping is influenced by the community.	2.40	Disagree
4. The availability and accessibility of disposable electronic cigarettes in the community can affect my pattern of usage.	2.70	Agree
5. The bad impression related to smoking influences me to choose vaping as the perceived safer alternative.	2.56	Agree
Over all Computed Weighted Mean	**2.43**	**Disagree** (With Less Impact)

Table 3.3 presents the computed weighted mean on perceived health risks of habitual consumption of disposable electronic cigarette in terms of sociocultural. With a weighted mean of 2.70, the respondents agree that the availability and accessibility of disposable electronic cigarettes in the community affect the pattern of usage. Next, with a weighted mean of 2.56, they agree the bad impression related to smoking influences them to choose vaping as the perceived safer alternative.

Additionally, they agree that they often impulsively spend money on disposable electronic cigarettes, with weighted mean of 2.52. With a weighted mean of 2.40, they disagreed that the attitude and awareness towards vaping is influenced by the community. The respondents do not consider that poor family relations and lack of family affection significantly impact the tendency to vape, with 1.99 weighted mean. The overall computed weighted mean is 2.43 This suggests that the sociocultural aspect in the perceived health risk of habitual vaping has a lesser impact.

4. Significant difference in the factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile

Table 4.1 Test of Difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of Interest

Profile	Interest	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	9.48	15	0.63	1.465	0.138	Accept	Not Significant
	Within Groups	36.27	84	0.43				
	Total	45.76	99					
Sex	Between Groups	4.05	15	0.27	1.091	0.377	Accept	Not Significant
	Within Groups	20.79	84	0.248				
	Total	24.84	99					

Educational Attainment	Between Groups	11.68	15	0.779	0.858	0.612	Accept	Not Significant
	Within Groups	76.27	84	0.908				
	Total	87.96	99					
Employment Status	Between Groups	30.11	15	2.007	2.137	0.015	Reject	Significant
	Within Groups	78.89	84	0.939				
	Total	109.00	99					

Table 4.1 determines a test of the difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of interest. The F-values and significant values for the following: Age 1.465 and 0.138, Sex 1.091 and 0.377, Educational Attainment 0.858 and 0.612, Employment Status 2.137 and 0.015.

Since the computed significant value for status is 0.015, which is less than a 0.05, therefore the hypothesis was decidedly rejected. This signifies that there is a significant difference between factors that influence young adults to use disposable electronic cigarettes when grouped according to status in terms of interest.

This implies based on the research results that the status of the respondents matters in their interest, although majority of the respondents have started consuming disposable electronic cigarettes out of curiosity and then later developed into habitual consumption. Meanwhile, the respondents who were employed and earned their own money can allot weekly allowance for the purchase of disposable electronic cigarettes for satisfaction.

Table 4.2 Test of Difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of Desirable Attributes

Profile	Desirable Attributes	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	6.91	12	0.58	1.289	0.239	Accept	Not Significant
	Within Groups	38.85	87	0.45				
	Total	45.76	99					
Sex	Between Groups	4.46	12	0.372	1.588	0.11	Accept	Not Significant
	Within Groups	20.38	87	0.234				
	Total	24.84	99					
Educational Attainment	Between Groups	5.30	12	0.441	0.465	0.93	Accept	Not Significant

	Within Groups	82.66	87	0.95				
	Total	87.96	99					
Employment Status	Between Groups	6.71	12	0.56	0.476	0.924	Accept	Not Significant
	Within Groups	102.29	87	1.176				
	Total	109.00	99					

Table 4.2 determines the test of difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of desirable attributes. The F-values and significant value for the following: Age 1.289 and 0.239, Sex 1.588 and 0.11, Educational Attainment 0.465 and 0.93, Employment Status 0.476 and 0.924, respectively.

Since the computed significant value for the age, sex, educational attainment and the employment status is greater than 0.05, the decision is to accept the hypothesis which denotes that there is no significant difference between the factors that influence young adults to use disposable electronic cigarettes when grouped according to profile in terms of desirable attributes.

This implies that based on the research results, the profile of the respondents has no significant difference in regards to determining the factors that influence young adults to consume disposable electronic cigarettes in terms of the desirable attribute. Regardless of the selected demographic profile of the respondents, there is a comparable pattern that the majority of the young adults who consume disposable electronic cigarettes would share similar perceptions that the desirable attributes of the product can influence the act of vaping among young adults.

Table 4.3 Test of Difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of Social Norms

Profile	Social Norms	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	4.04	14	0.29	0.588	0.867	Accept	Not Significant
	Within Groups	41.72	85	0.49				
	Total	45.76	99					
Sex	Between Groups	7.67	14	0.548	2.711	0.002	Reject	Significant
	Within Groups	17.17	85	0.202				
	Total	24.84	99					
Educational Attainment	Between Groups	10.14	14	0.724	0.791	0.676	Accept	Not Significant

	Within Groups	77.82	85	0.916				
	Total	87.96	99					
Employment Status	Between Groups	21.95	14	1.568	1.531	0.117	Accept	Not Significant
	Within Groups	87.05	85	1.024				
	Total	109.00	99					

Table 4.3 determines the test of difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of social norms. The F-values and significant value for the following: Age 0.588 and 0.867, Sex 2.711 and 0.002, Educational Attainment 0.791 and 0.676, Employment Status 1.531 and 0.117, respectively.

Since the computed significant value for sex is 0.002 which is less than 0.05, therefore the decision is to reject the hypothesis. Therefore, the decision signifies that there is a significant difference between the factors that influence young adults to consume disposable electronic cigarettes when grouped according to sex in terms of social norms.

This implies that male and female vapers have varying differences on why they choose to consume disposable electronic cigarettes in the context of social norms. Social identities depend on social opportunities as individuals examine and categorize people into groups and identity, which can foster and enhance their social network. As a result there is an impact on social norms with the consumption of disposable electronic cigarettes in relation to the construction of social identity.

Table 4.4 Test of Difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of Knowledge

Profile	Knowledge	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	4.09	14	0.29	0.596	0.861	Accept	Not Significant
	Within Groups	41.67	85	0.49				
	Total	45.76	99					
Sex	Between Groups	4.60	14	0.328	1.379	0.181	Accept	Not Significant
	Within Groups	20.24	85	0.238				
	Total	24.84	99					
Educational Attainment	Between Groups	15.05	14	1.075	1.253	0.254	Accept	Not Significant
	Within Groups	72.91	85	0.858				

	Total	87.96	99					
Employment Status	Between Groups	20.27	14	1.448	1.387	0.177	Accept	Not Significant
	Within Groups	88.73	85	1.044				
	Total	109.00	99					

Table 4.4 determines the test of difference between factors that influence young adults to consume disposable electronic cigarettes when grouped according to profile in terms of knowledge. The F-values and significant value for the following: Age 0.596 and 0.861, Sex 1.379 and 0.181, Educational Attainment 1.253 and 0.254, Employment Status 1.387 and 0.177, respectively.

Since a computed significant value for age, sex, educational attainment and employment status is greater than 0.05 therefore the decision is to accept the hypothesis that there is no significant difference between factors that influence young adults to use disposable electronic cigarettes when grouped according to profile in terms of their knowledge.

As aforementioned, there is no disparity among the demographic profile in regards to knowledge as a factor that influences consumption of disposable electronic cigarettes for the reason that majority of the respondents largely share similar perceptions about it. Majority of them have agreed that they are knowledgeable of the contents inside the product, and that they are aware that disposable electronic cigarettes contain harmful chemicals that can potentially induce the long-term health effects from habitually vaping. Furthermore, a significant portion of the respondents have conformed to the knowledge that disposable electronic cigarettes are promoted as derivative smoking cessation aid.

5. Significant difference in the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile

Table 5.1 Test of Difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms Physical

Profile	Physical	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	7.97	14	0.57	1.281	0.236	Accept	Not Significant
	Within Groups	37.79	85	0.45				
	Total	45.76	99					
Sex	Between Groups	3.89	14	0.278	1.127	0.347	Accept	Not Significant
	Within Groups	20.95	85	0.246				
	Total	24.84	99					

Educational Attainment	Between Groups	11.73	14	0.838	0.934	0.526	Accept	Not Significant
	Within Groups	76.23	85	0.897				
	Total	87.96	99					
Employment Status	Between Groups	21.04	14	1.503	1.452	0.148	Accept	Not Significant
	Within Groups	87.96	85	1.035				
	Total	109.00	99					

Table 5.1 determines the test of difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms of physical. The F-values and significant value for the following: Age 1.281 and 0.236, Sex 1.127 and 0.347 Educational Attainment 0.934 and 0.526, Employment Status 1.452 and 0.148 respectively.

Since the computed significant value for age, sex, educational attainment and the employment status is greater than 0.05 therefore decision is to accept the hypothesis that there is no significant difference between the perception of respondents on health risks of the habitual consumption of disposable electronic cigarettes when grouped according to profile in terms of physical. This implies based on the result of the study that regardless of the profile at any part of the age considered, different sex male or female, no matter what degree they have finished and status in life, the respondents are aware that vaping using disposable electronic cigarettes was not beneficial to their physical state and could develop into potential health risks upon habitual consumption disposable electronic cigarettes.

Table 5.2 Test of Difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms Psychological

Profile	Psycho-logical	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	6.99	13	0.54	1.193	0.298	Accept	Not Significant
	Within Groups	38.77	86	0.45				
	Total	45.76	99					
Sex	Between Groups	3.03	13	0.233	0.92	0.536	Accept	Not Significant
	Within Groups	21.81	86	0.254				
	Total	24.84	99					
Educational Attainment	Between Groups	10.48	13	0.806	0.895	0.562	Accept	Not Significant

	Within Groups	77.48	86	0.901				
	Total	87.96	99					
Employment Status	Between Groups	15.72	13	1.21	1.115	0.358	Accept	Not Significant
	Within Groups	93.28	86	1.085				
	Total	109.00	99					

Table 5.2 determines the test of difference between perception of respondents on health risks of habitual consumption of disposable e-cigarettes when grouped according to profile in terms of psychological. The F-values and significant value for the following: Age 1.193 and 0.298, Sex 0.92 and 0.536, Educational Attainment 0.895 and 0.562, Employment Status 1.115 and 0.358 respectively.

Since the computed significant value for the age, sex, educational attainment and the employment status is greater than 0.05, therefore the decision is to accept the hypothesis which indicates that there is no significant difference between the perceptions of the respondents on perceived health risks of habitual consumption of disposable electronic cigarettes when they grouped according to profile in terms of the psychological aspect.

This implies that there is no significant difference between the perceptions of respondents on health risks of the habitual consumption of disposable electronic cigarettes because regardless of the demographic profile of the respondents, they have all confirmed that the psychological aspect of consuming disposable electronic cigarettes can attribute to the development of health risks due to their habitual consumption.

Table 5.3 Test of Difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms Sociocultural

Profile	Socio-cultural	Sum of Square	df	Mean Square	f	Sig-Value	Decision	Verbal Interpretation
Age	Between Groups	12.71	15	0.85	2.154	0.014	Reject	Significant
	Within Groups	33.05	84	0.39				
	Total	45.76	99					
Sex	Between Groups	5.27	15	0.351	1.508	0.121	Accept	Not Significant
	Within Groups	19.57	84	0.233				
	Total	24.84	99					
Educational Attainment	Between Groups	12.00	15	0.8	0.885	0.583	Accept	Not Significant
	Within Groups	75.95	84	0.904				

	Total	87.96	99					
Employment Status	Between Groups	15.70	15	1.045	0.942	0.522	Accept	Not Significant
	Within Groups	93.30	84	1.111				
	Total	109.00	99					

Table 5.3 determines the test of difference between perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms sociocultural. The F-values and significant value for the following: Age 2.154 and 0.014, Sex 1.508 and 0.121, Educational Attainment 0.885 and 0.583, Employment Status 0.942 and 0.522 respectively.

Since the computed significant value for age is 0.014 which is less than 0.05, therefore the hypothesis was rejected, which has indicated that there is a significant difference between the perception of respondents on health risks of the habitual consumption of disposable electronic cigarette when grouped according to age in terms of sociocultural.

DISCUSSION

For the first research question, most of the young adults' ages are between 24-26 and 21-23 respectively, as the predominant age range among the respondents of the study. In a recent foreign study, Tattan-Birch (2022) stated that there is an 18% increase of vapers who use disposable electronic cigarette from January 2021 to April 2022, were largely pronounced among young adults as the highest amount of demographic user. In regards to their sex, there are fifty-four (54) male and forty-six (46) female ratio of respondents indicating that the male respondents are marginally higher than the female respondents who have participated in the survey questionnaire. According to Piñeiro et al. (2016), the male respondents reported to have more positive expectancies about electronic cigarettes, including the taste, social facilitation, and energy while the females rated electronic cigarettes higher for the weight control and psychological relief benefits.

Furthermore, in regards to the educational attainment, a significant proportion of the respondents are classified as undergraduate college students with a fifty-three (53) in total. In regards to employment status, majority of the respondents are students with over forty-seven (47) partakers. In regards to the weekly allowances of the young adult respondents, the frequent weekly allowance is 2,200php and above, which indicates that majority of the respondents have the financial capacity to purchase disposable electronic cigarette. In regards to the monthly salary, the most frequent response for the monthly salary is not applicable; stating the respondents earn an irregular sum or none.

For the second research question, in terms of the interests about disposable electronic cigarettes, the respondents reflected on how it is mainly because of curiosity as to why they started to habitually vape. With an overall weighted mean of 2.82, it demonstrates to have an impact to respondents. Several studies reported that curiously is another reason

why people use e-cigarettes. As a recent invention, e-cigarettes have been of interest to people who want to try something new and unconventional (Bearss, 2018). In regards to the desirable attribute of disposable electronic cigarettes, it is thought to be desirable for consumption due to the absence of unpleasant smell. Based on the overall weighted mean of 3.38 there is impact in relation to the attractive features of the device. According to Mugharbil et al. (2023), The positive sensory experience, such as pleasant smell, various flavors and taste were most appealing aspects of disposable e-cigarettes.

However, in regards to the social norms surrounding disposable electronic cigarette, the respondents did not agree that they were influenced to vape by others, irrespective if they were closely associated with them. With an overall weighted mean of a 2.30, it is apparent this has lesser impact among respondents. In a contrasting study, Chao et al. (2019) says that individuals' behaviors are influenced by their peers and other groups to which they are associated in social network or establishment of personal social identity.

Interestingly, in regards to factors that affect young adults to use disposable electronic cigarettes in terms of knowledge, a significant portion of the respondents are aware of the constituents that are inside of the disposable electronic cigarette along with potential health risks that they might develop due to habitual vaping. This is demonstrated based in overall weighted mean of 3.27, which signifies that there is impact to the respondents.

For the third research question, in terms of the physical aspect, the respondents largely disagreed in feeling any manifestation of dryness and itchiness in their throats after vaping. The overall weighted mean of 2.12 indicates that physical has less impact in the perceived health risks of habitual consumption of disposable electronic cigarette. In a contrasting study, however, exposure to chemical concentrations found in disposable e-cigarettes has potentially been shown to stimulate irritation to the throat, as stated in a study of National Library of Medicine (2018). Also, Eissenberg (2020) states that vaping exposes the lungs to various chemicals with irritating potency in the vaporizing process.

In terms of the psychological aspect, majority of the respondents habitually consuming disposable electronic cigarettes do it to relieve themselves from the emotional tension or stress. This is based on the overall computed weighted mean of 2.80; designating that there is impact in the psychological aspect that perceives health risks from the habitual consumption of a disposable electronic cigarette. In a 2024 foreign study, a systematic review on adolescents' health perceptions on e-cigarettes scrutinized that most youth perceive vaping as a coping mechanism to manage their stress and anxiety.

Lastly, in terms of sociocultural, the respondents determine that the pattern of habitual consumption of disposable electronic cigarettes is due to both the availability and accessibility in the area. With an overall weighted mean of 2.70, the sociocultural aspect holds impact in perceived health risks as direct consequence of habitual consumption of disposable e-cigarette. Correspondingly, several studies included in the review reported that people use e-cigarettes out of convenience and affordability (Mugharbil, 2023). The convenience is due to the prevalence of product; therefore, it becomes easily accessible

and available in various communities, and the affordability influences the sociocultural aspect by means of unhealthy impulsion to purchasing disposable electronic cigarettes.

For the fourth research question, the difference between factors that influence young adults to use disposable electronic cigarettes when grouped according to profile. In terms of interest, the F-values and significant values were determined through the following: Age 1.465 and 0.138, Sex 1.091 and 0.377, Educational Attainment 0.858 and 0.612, Employment Status with 2.137 and 0.015. According to Mullins (2022), the promotion for electronic cigarettes purposely target the youth population in commercials by linking vaping with the intriguing ideals, like happiness, friendship and success. They are commonly marketed by stating the advantage of e-cigarettes over normal cigarette.

Meanwhile, in terms of desirable attributes, the F-values and significant value for the following are: Age 1.289 and 0.239, Sex 1.588 and 0.11, Educational Attainment 0.465 and 0.93, Status 0.476 and 0.924 respectively. The sensory experiences of vaping were desirable qualities, such as smell and flavor, are found to be prominent roles to motivate the use of vaping products. As confirmed by similar studies, a major determinant to use electronic cigarette was the provision of pleasant sensory experience (Lee et al., 2017). In terms of social norms, the F-values and significant value for the following: Age 0.588 and 0.867, Sex 2.711 and 0.002, Educational Attainment 0.791 and 0.676, Employment Status 1.531 and 0.117 respectively. Blank and Hoek (2022) supplement the impact of social norms with disposable electronic cigarettes in relation to construction of social identity. Social identities depend on social opportunities as individuals examine and categorize people into groups and identify among groups which foster and enhance self-esteem. Youth compare groups to refine or strengthen affiliation and social identity.

In terms of knowledge, the F-values and significant value for the following: Age 0.596 and 0.861, Sex 1.379 and 0.181, Educational Attainment 1.253 and 0.254, Employment Employment Status 1.387 and 0.177 respectively. In a similar study, Popova (2020) has explained that it is partly because disposable e-cigarette manufacturers are not always transparent in which chemicals or drugs have been incorporated within the product. The lack of transparency in ingredients resulted in young adults becoming susceptible to habitual consumption of disposable electronic cigarette due to misconstrued knowledge.

The test of difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to profile in terms physical. The F-values and significant value for the following: Age 1.281 and 0.236, Sex 1.127 and 0.347, Educational Attainment 0.934 and 0.526, Employment Status 1.452 and 0.148 respectively. Maryam & Barthelemy (2020) states that there is a worrying increase among young adults who perceive e-cigarettes as a new and safe trend and part of healthy life. Thus, leading to the negligent acts with electronic cigarette which can be adapted up by young adults without careful health-related considerations.

In terms psychological, the F-values and significant value for the following: Age 1.193 and 0.298, Sex 0.92 and 0.536, Educational Attainment 0.895 and 0.562, Employment Status 1.115 and 0.358 respectively. Cabral (2022) stated in his current study that aims to

examine rates of cigarette smoking, e-cigarette use, dual usage, and cannabis vaping during the early months of the pandemic. In the study, it determines the influence of intentions to use electronic cigarette in relieving psychological distress (i.e., anxiety, depression, loneliness or stress) on vaping behaviors among young adults respondents.

In terms of the sociocultural aspect, the F-values and significant value for the following: Age 2.154 and 0.014, Sex 1.508 and 0.121, Educational Attainment 0.885 and 0.583, Employment Status 0.942 and 0.522 respectively. Societal interpretations transformed vaping into an accessory lifestyle choice, influenced by consumerism culture and trend. Furthermore, social representations of electronic cigarettes impact its acceptability with varying perceptions; highlighting the role of social influence in shaping attitudes towards vaping, and the prevalence based on its availability and accessibility (Davidson, 2023).

Conclusions

The young adults, aged 21-26, are predominant age ranges in consumers of disposable electronic cigarette, with relatively higher usage in male respondents. Most of the young adult vapers are undergraduate college students with a weekly allowance of 2,200php above; signifying they have the financial capacity to buy disposable electronic cigarette. Moreover, the initial interest of consuming disposable electronic cigarettes was primarily due to curiosity and desirable attribute of absence of any unpleasant smell encouraged further inclination to habitually consume the product. The young adults autonomously decided to engage in the habit of vaping, thus they have not been influenced by others. Accordingly, they were also aware of the contents that are inside disposable electronic cigarette, along with health risks they can possibly develop. Despite their awareness, however, they still continued to habitually consume the disposable electronic cigarettes.

The physical health risks were not apparent among the respondents in regards to their habitual consumption, but they found it significantly effective in relieving psychological demands, such as emotional tension or stress. Furthermore, due to the availability and accessibility of disposable electronic cigarettes in their communities, this has greatly motivated the young adult respondents in persisting with their habitual pattern of vaping.

A significant difference is confirmed between factors that influence young adults to use disposable electronic cigarettes when grouped according to status in terms of interest. Although most of the respondents started using disposable electronic cigarettes out of curiosity and became a habit, the employment status of respondents matters in interest because it varies how a student or employee consumes disposable electronic cigarettes.

Also, there is a significant difference between factors that influence young adults to use disposable electronic cigarette when grouped according to sex in terms of social norms. Males consider more positive expectancies about electronic cigarettes, including taste, social facilitation or energy, while females for the weight control and psychological relief. There is a significant difference between the perception of respondents on health risks of the habitual consumption of disposable e-cigarettes when grouped according to age in

terms of sociocultural due to differences in attitudes and awareness towards vaping, and because of the accessibility and availability of disposable e-cigarette in community.

Dissemination of health teachings, particularly the reorientation of chemical properties of disposable electronic cigarette and the health consequence of habitual consumption, adaptation of healthy diversions and partaking in health-oriented programs, are effective interventions which corresponds to the Health Promotion Model of Pender (1982) as a holistic guide for the young adults to avoid developing health risk due to habitual vaping.

Recommendations

After the analysis of findings and formulation of a conclusion, the following suggestions are presented to enhance the research in terms of data, design, and implementation.

1. In accordance to Health Promotion Model, autonomous health-seeking practices should be integrated into the health teaching. Young adults should be oriented of the chemical properties inside disposable electronic cigarettes, and the imminent health consequences of habitual consumption. Additionally, they should consider engagement in healthier diversion or activity which do not impose detrimental risk to their health, and should be encouraged to partake in health-oriented programs.

2. The government should intensify their effort to strictly regulate the manufacture of disposable electronic cigarettes and their legal distribution to the market, so that observation of toxic chemical property is strictly assessed with vigilant inspection.

3. For the manufacturers of disposable electronic cigarettes, product advertisement should incorporate precautionary health measures and avoid promotion of vague health claim. Transparency of its content, especially chemicals, is recommended.

4. For the community, proposals of seminars and programs about the prevalence of disposable electronic cigarettes among the Filipino youth should be conducted to raise awareness on the growing health concern due to various influential factors that encourage habitual consumption of the device and its perceived health risks.

5. Due to the study's limitations, future researchers should expand their study on a larger scope in terms of sample size, research locale, and the age inclusion in an effort to maximize the results based on varied size and age range of respondents.

6. Future researchers can compare the impact of disposable electronic cigarettes to other variants under Electronic Nicotine Delivery System (ENDS) to determine its level of influence to a targeted demographic relative to other e-cigarette variants.

7. Provided that this study is centralized on disposable electronic cigarette, this can serve as a foundation for future studies which corresponds to the subject or it can be a baseline for the comparative studies that can utilize the data for comparison.

Compliance with Ethical Standards

In accordance with the ethical consideration of the study, the researchers have adhered to appropriate standards of conduct and principle in order to safeguard the well-being of the respondents and ensure the integrity of research. Moreover, the researchers did not force respondents to be surveyed as they were informed beforehand that participation is voluntary and that withdrawal was readily a choice should they decide not to participate.

The necessary document and permission letter were secured before the initiation of the survey. Confidentiality was ensured, and data were strictly used for academic purposes. The conclusion derived from the results is assured to be clear of any data manipulation.

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FACTORS OF SKIPPING BREAKFAST AND ITS IMPACT TO ACADEMIC PERFORMANCE OF GRADE-11 GAS STUDENTS IN MSU-SULU SENIOR HIGH SCHOOL

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ABSTRACT

The purpose of this study was to investigate the factors contributing to breakfast skipping among senior high school students and assess its impact on their academic performance. The study aimed to identify the reasons behind breakfast skipping and understand how it affects students' overall academic achievement. The researchers employed a quantitative research approach, involving a sample of 105 senior high school students. The sample was divided into seven sections, with 15 participants in each section. Data was collected through structured questionnaires that assessed breakfast consumption patterns, reasons for skipping breakfast, and academic performance indicators. The questionnaires were given to the participants during their regular school hours. A checklist survey or questionnaire was used to gather data on the factors and impact associated with skipping breakfast and the students' GPA. Additionally, correlation analysis was used as a statistical tool to analyze the data. The study revealed several factors contributing to breakfast skipping on the academic performance of the students, and it’s not a rare occurrence. And the several impacts of skipping breakfast on academic performance do not make an impact on them. Students who regularly skipped breakfast still gain a good academic performance, meaning they still perform very well. The findings emphasized the importance of breakfast in providing essential nutrients and energy for optimal cognitive function. Having acknowledged the above results, the researchers wish to recommend that further studies be made to find educational institutions that should raise awareness among students, parents, and teachers about the importance of breakfast and its impact on academic performance. This can be achieved through educational campaigns and workshops that promote healthy breakfast habits. Researchers also suggest schools should provide breakfast options for students, ensuring they have access to nutritious meals before starting their classes. And also,

further research is needed to explore specific interventions and strategies that can effectively address breakfast skipping among senior high school students and improve their academic performance.

Keywords: *factors, impact, academic performance, skipping breakfast, quantitative, MSU-Sulu senior high school.*

INTRODUCTION

Education is an important contribution to an individual's access and one of the best processes of a child's life because it allows us to explore, discover, and do things freely, not repeat what previous generations have done. A stress-free life is important and leads to a healthy mind. Healthy means that learners will not fear to explore life, as they have seen someone who is not afraid but is fair in facing the challenges of the present and the future. In the 21st century, there is always race and tuff competition everywhere in the field of education, and students' academics feel pressure and tension in the academic world to survive in so-called competitions because academic achievement is important for future decisions in life. Breakfast is often called 'the most important meal of the day', and for good reason. As the name suggests, breakfast breaks the overnight fasting period. It replenishes your supply of glucose to boost your energy levels and alertness, while also providing other essential nutrients required for good health. Skipping breakfast among Filipino students has several negative effects on the on the rates of overweight and obesity among students. According to SCISPACE, breakfast skipping negatively affects cognitive skills, including memory, concentration, and academic performance. It is also associated with higher levels of fatigue, depression, and lower self-esteem.

Skipping breakfast can have a huge impact on students' academic performance. Hence, having stomach intact or eating while studying serves as a way of learning for others and learning is an important aspect in education as uttered by Sabbaha et. al., (2024) cited by Abdulmajid et. al., (2024), Balla et. al., (2024) Jarak et. al., (2024), Sabbaha et. al., (2024), Basir et. al., (2024), Usman et. al., (2024), and Sakili et. al., (2024). Breakfast is perceived as healthy and even more important than other meals. Students who skipped breakfast during the week had significantly lower academic performance from 32 to 38 points than those who ate breakfast. Research found that with the increase in breakfast consumption, academic performance also increased. Lack of breakfast is associated with a low nutritional condition and therefore leads to low academic performance (Akeredolu and Okafur, 2015).

Breakfast is common among adolescents, but little research has been conducted on the effects of breakfast on school performance. Furthermore, attention problems partly mediated the relationship between breakfast delay and school performance. This large-scale study emphasizes the importance of breakfast as a determining factor for school performance. Some of the reasons for missing breakfast, and the most common reason for missing breakfast, are "no hunger in the morning, sometimes no time to eat." Some

students have experienced headaches, weakness, and difficulty concentrating when they don't get breakfast. Failure to prepare breakfast can be a problem for students 'academic performance, as they can't focus and are constantly distracted in class. However, if we can address skipping breakfast well, it can help improve the performance of students.

Further research is needed to investigate specific mechanisms that affect academic performance by avoiding breakfast. Understanding the reasons why breakfast is avoided and its direct impact on cognitive functions and academic results can help to fill this gap in research. Research gap for the topic. This research aims to provide a comprehensive understanding of the situation at this specific location and could contribute valuable insights for the university and the wider academic community.

Research Questions

This study seeks to answer the following research questions:

1. What are the factors of skipping breakfast among the Grade-11 GAS students in Mindanao State University-Sulu Senior High school?
2. What is the level of academic performance of the grade 11 GAS students'?
3. What is the impact of skipping breakfast to the Grade-11 GAS students' academic performance?
4. Is there a significant relationship of factors of skipping breakfast to the academic performance of GAS grade 11?

RESEARCH METHODOLOGY

Research Locale

This study was conducted at Mindanao State University-Sulu SHS, located at Capitol Site, 7400, Jolo, Sulu. ChEd holds a secondary public school at Mindanao State University-Jolo during the school year 2023-2024. This school comprises a senior high school and offers two tracks, which are academic and technical vocational tracks. Under the Academic Track are the General Academic Strand (GAS) and the Science, Technology, Engineering, and Mathematics Stand (STEM).

Sampling Method

The participants of the study are the general academic strand of Grade 11 students of Mindanao State University-Sulu Senior High School located at Capitol Site, 7400, Jolo, Sulu. The number of participants was 105, with 15 students in each GAS section. The participants will then answer the questionnaires given by the researchers to determine the factors and impact of skipping breakfast.

In this study, the researchers used Purposive Sampling or Judgement sampling to select the participant of the study. According to Crossman (2020), as cited by Jailani et al. (2024), Basir et. al. (2024), Sasapan et. al. (2024), Abdulhari et. al. (2024), Hadjibun

et. al. (2024), and Sabbaha et. al. (2024) Purposive Sampling is a non-probability sample that is selected based on characteristics of a population and the objective of the study.

Research Instrument

Gathering the data, questionnaires were used to determine the factors contributing to skipping breakfast among the senior high school students of Mindanao State University-Sulu. Some questions were taken from the internet, though there were some that were slightly revised and subjected to reading by experts in the field of research who were tasked with stabilizing the content on the basis of clarity, relevance, and purity.

Data Gathering Procedure

The researchers collected data by first obtaining a letter of permission from the Senior High School Department Director of Mindanao State University, Sulu. A letter of permission was also sent to the respondents' class advisers to enable researchers to conduct questionnaires on the subject of skipping breakfast. When the letter was approved, the researcher personally delivered the research instrument and recovered it. The responses of the respondents were collected, verified, and compiled to obtain the original score.

Statistical Techniques

A weighted mean is used to describe the factors affecting the performance, its impact on the students, and their level of academic performance at Mindanao State University-Sulu. While the significant relationship between factors and the impact of skipping breakfast on academic performance is dealt with within correlations.

RESULTS AND DISCUSSION

Table 1 Factors of Skipping Breakfast Among the Grade 11 GAS Students

Statement	Mean	Std. Deviation	Description
1. I don’t like the food choices.	2.46	.734	Yes
2. It’s a habit	2.45	.747	Yes
3. My family skipped breakfast. and so do I.	2.44	.649	Yes
4. Unable to prepare	2.40	.767	Yes
5. I need to lose weight	2.40	.614	Yes
6. Away from family	2.31	.776	Maybe
7. Work pressure	2.30	.831	Maybe

8. No time to have breakfast	2.30	.810	Maybe.
9. I don't feel hungry.	2.29	.717	Maybe
10. I don't like eating early in the Morning.	2.25	.794	Maybe
Grand Mean	2.36		Yes

Legend; 1.00-1.67=No (Disagree), 1.68-2.34=Maybe (Undecided), 2.35-3.00=Yes (Agree)

Table 1 shows the results on the factors contributing to skipping breakfast among the Grade 11 GAS students. It was found out that the Grade 11 GAS students in MSU-Sulu SHS answered yes, which means they agreed on the listed factors of skipping breakfast, as it can be seen in the table that it has a grand mean of 3.26. This indicates that skipping breakfast among the Grade 11 GAS students at MSU-Sulu SHS is not a rare occurrence.

Table 2 Students' Level of Academic Performance

	Mean	Std. Deviation	Description
Academic Performance	86.32	3.9	Very Satisfactory

Note: Did not meet the expectation= 74 and below; Fairly Satisfactory=75-8; Satisfactory = 80-84; Very Satisfactory = 85-89; and Outstanding = 90-100.

As shown in this table, the level of academic performance of grade 11 GAS students garnered a mean of 86.32% with a verbal description of satisfactory. This means that the level of academic performance of grade 11 GAS students at Mindanao State University-Sulu Senior High School is very satisfactory, which signifies that they are not affected by the factors of skipping breakfast.

Table 3 Impact of Skipping Breakfast Among the Grade 11 GAS Students

Statement	Mean	Std.	Description
1.I always feel the lack of concentration during class sessions.	1.79	.829	Maybe
2.I have experienced feeling tired or fatigue in the morning due to skipping breakfast.	1.75	.704	Maybe
3. Lack of class participation lead into my poor performance.	1.74	.797	Maybe
4.Skipping breakfast can affect my academic	1.63	.763	No

performance or ability to learn.			
5. Skipping breakfast can affect my academic performance or ability to learn.	1.62	.671	No
6. Skipping breakfast can have an impact to my brain function and subsequent performance.	1.55	.695	No
7.Skipping breakfast can make an impacts on my performance in exams or tests.	1.55	.671	No
8. I have experienced a decline in my academic performance.	1.55	.650	No
9.I have experienced low energy level during the school I day.	1.55	.604	No
10.I often find myself feeling hungry or distracted during morning classes when I skip breakfast.	1.52	.539	No
Grand Mean	1.47		No

Legend; 1.00-1.67=No (Disagree), 1.68-2.34=Maybe (Undecided), 2.35-3.00=Yes (Agree)

Table 2 shows the perceived impact of skipping breakfast on the academic performance of Grade 11 GAS students. It was found that the grade 11 students perceived that the lists of possible impacts of skipping breakfast on student academic performance were not true to them. The grand mean obtained was 1.47 with a verbal description of no, which means disagree. Pollitt and Mathew (1998) summarized the literature on the impact of breakfast on cognition, finding that no definitive conclusion was justified. However, they found that the data strongly suggests that omitting breakfast interferes with perception and learning, which is more pronounced in nutritionally vulnerable students. But despite skipping breakfast, the students still manage to do very well in their academic performance in school.

Table 4. Relationship of Factors of skipping breakfast to the academic performance of GAS grade 11

Variables	1	2
Factors of Skipping Breakfast	-	
General Average	.273**	-

Note: "p < .05, "p <.01.

A Pearson correlation coefficient was computed to assess the linear relationship between factors of skipping breakfast and the academic performance of the students. The findings revealed that there is a correlation between the two variables, *r (103) =-273**, p = .005*.

Conclusions

Based on the findings of this study, the factors of skipping breakfast showed that the students of MSU-Sulu SHS Grade 11 GAS have said "yes, which means the students agreed about the factors of skipping breakfast. In terms of the level of academic performance among students at MSU-Sulu Senior High School, it was assessed as very satisfactory." This means that there is a great level of satisfaction, even though the student has perceived the factors of skipping breakfast. The impact of skipping breakfast among the students of MSU-Sulu Senior High School Grade 11 GAS has been said “NO” which means the students did not perceive the statements, but the students are still able to gain very satisfactory results in their academic performance. The relationship between factors such as skipping breakfast and students’ academic performance is not related. Based on research findings, there are reasons for skipping breakfast that did not have an impact on the students’ academic performance.

Recommendations

1. Increase awareness and education. It is crucial to raise awareness among students, parents, and educators about the importance of breakfast for academic performance. Conduct workshops, seminars, or informational sessions to educate them about the benefits of a nutritious breakfast and the potential consequences of skipping it.

2. Improve breakfast options: Collaborate with school cafeterias or food service providers to offer a variety of healthy and appealing breakfast options. Ensure that the available choices are nutritious, balanced, and cater to different dietary preferences and restrictions.

3. The school may create a breakfast-friendly environment. Establish a positive and inviting breakfast environment within the school premises.

4. The school may designate a dedicated breakfast area where students can comfortably enjoy their meals. Consider incorporating socialization opportunities, such as breakfast clubs or peer support groups, to encourage regular breakfast consumption.

5. Implement breakfast programs. Develop and implement breakfast programs that provide students with access to a nutritious breakfast, especially for those who may face financial constraints or time limitations at home. These programs can include initiatives such as grab-and-go breakfasts, breakfast in the classroom, or breakfast vouchers.

6: The concerned school may engage with parents and guardians in promoting a healthy breakfast, habits at home. Provide them with resources, such as recipe ideas or meal planning tips, to support them in preparing nutritious breakfasts for their children.

7.The teachers may continuously monitor and evaluate the effectiveness of the implemented interventions. Collect data on breakfast consumption rates, academic performance, and student feedback to assess the impact of the initiatives and identify areas for improvement.

Compliance with Ethical Standards

Researchers have guaranteed that participants in the study will have the freedom to check and respond to the questionnaire provided. Furthermore, the researchers ensure that the questionnaire is readable. and concise.

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FEMALE SCHOOL ADMINISTRATORS IN JOLO: THEIR LEADERSHIP JOURNEY AND CHALLENGES

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ABSTRACT

This study investigates the challenges faced by female school administrators in Jolo and the strategies they employ to overcome these obstacles. Using a qualitative research approach, in-depth interviews were conducted with both male and female respondents to gain comprehensive insights into the experiences of female administrators. Thematic analysis was used to identify key challenges, including gender bias, balancing professional and personal responsibilities, safety concerns, lack of professional development opportunities, and cultural expectations. Despite these hurdles, the study reveals relevant and strategic approaches of these administrators. By recognizing and addressing gender bias, engaging in continuous personal development, and employing transformational leadership styles, female administrators able to improve their leadership effectiveness and advance their careers. Their data-driven decision-making, supportive interactions with colleagues, encouraging relationships with students, and cooperative community engagement further highlight their positive impact in Jolo. The findings explicitly revealed the need for an equitable work environment that supports the growth and success of female leaders, specifically enhancing the effectiveness of educational institutions.

Keywords: *Female leadership, educational administration, challenges faced by female administrators, coping strategies, empowerment.*

INTRODUCTION

The world has seen the transformation and advancement in the new millennium. The efficacy and quality of education are correlated with the ability to adapt to transformative processes. Women in the province of Sulu, who make up half of the population and are primarily responsible for raising the next generation, are now recognized to have excellent employment because of their education, which also serves as a necessary condition for them to adjust to these changes. In the study of Rehbock, S. K. (2020), he illustrates the unique demands of leadership in academia, a context which is currently characterized by changing conditions and developments such as new public management and heightened international competition. Academics have to fulfill multiple demands and are increasingly expected to be effective leaders.

Women participate more in production and development when they have higher education. It is believed that the future of women leaders seems to be bright due to higher female educational attainment (Maheshwari 2023). Furthermore, to educate women and men equally, more work needs to be put into establishing professional attitudes in both the social and educational spheres.

Sulu is a crucial area where the government works to make improvements in employment. When it comes to employment involvement, women are less advantaged than men. In the Republic of the Philippines, women's participation in the labor force appeared to decline in proportion to their level of education. This statement brought to light the limited prospects available to women in our nation, particularly considering that the Philippines is a developing nation with a need for more employment opportunities.

When it comes to educational leadership, women are often stereotyped as being unequal to what men can do. Even though equal chances encompass opportunities presented in various educational institutions in Sulu nowadays, the number of women in line for leadership still needs to grow. In the present time, there are growing criticisms faced by women leaders due to gender inequality. Some of these problems were manifested to degrade women's capacity by citing that women are less capable compared to men.

Rauhaus, B. M., & Carr, I. A. S. (2019) perceived that gender differences in faculty responsibilities and experiences may impact individuals' professional experiences related to job satisfaction, advancement, and promotion. In the discussion of traditional beliefs, there are many individuals who are thinking that men should always the ones to lead. In the study of Alameeri, K., Alshurideh, M., & Al Kurdi, B. (2023) wherein articulated that the importance of paying attention to the factors affecting women in leadership and management in order to empower them and decrease gender discrimination in the workspace. Recent research has highlighted the evolving pathways for women in leadership. A study by Sandberg and Thomas (2020) emphasizes that despite increasing opportunities, women still encounter unique challenges that shape their leadership trajectories. The concept of the "glass cliff," where women are more likely to be appointed to precarious leadership positions during times of crisis, has been further examined by Ryan et al. (2016).

Stemming the structure of school administration, there are female teachers-in-charge and deans in Sulu who are grappling with criticisms. The belief of average performance indebted to every female leader is a manifestation of gender discrimination. However, there are no complexities in female leaders' administration skills, but the fact that setbacks of putting women in high-rank positions still need to be corrected most. But the ideas of Wadesango, N., & Karima, R. (2016), it is said that Women should accept change and perceive taking hardship positions as a way of climbing to the upper echelons of educational educators.

Even while women and men have collaborated throughout history and at all societal levels, their contributions have only sometimes been equally acknowledged, and women have consistently been viewed as secondary to males. Women who hold low-status employment are accepted as usual. They have, however, found it extremely challenging to begin working in high-status positions or to advance in their careers. All too often, women who aspire to hold senior administrative posts face the phenomenon known as the "glass ceiling." As a result, it can be said that with administrative positions that require greater responsibilities, women are found in limited numbers (Çelikten, 2004; Ergün, 1996; Shum & Cheng, 1997). Successful female administrators often employ a range of strategies to overcome barriers. A study by Brown, Kelan, and Humbert (2018) suggests that developing resilience and adaptive leadership skills are crucial for navigating gender biases. Moreover, engaging in continuous learning and seeking out leadership training programs are identified as effective strategies (McKinsey & Company, 2020).

It is noteworthy to observe the numerous distinctions between the duties of men and women despite the advancements made by women employed in various sectors (Acuner & Sallan, 1993). Any legal issues do not impede the appointment or advancement of women. Despite having equal educational backgrounds, women are afforded different chances than men.

Keating and Safir (2019) argue that authenticity in leadership allows women to build trust and credibility with their teams. By being transparent, empathetic, and consistent in their actions, female leaders can foster a positive and inclusive organizational culture. This approach not only enhances team performance but also supports the personal and professional growth of the leader and her team members.

Teaching has historically been a vocation that is suited for women (Apple, 1994). Nonetheless, women are underrepresented in higher jobs in both high schools and colleges (Blackmore, 1998). This indicates that men are more likely to work in administration (Streitmatter, 1999). The proportion of female administrators in the Ministry of Education has yet to reach 25%, even though 48% of Filipino primary and secondary school teachers are female.

Due to the literature above, the researchers aimed to investigate the level of challenges of female administrators in Jolo, Sulu, Philippines.

According to research, women who become school administrators frequently have different career paths that are marked by a variety of entry points, career breaks, and nonlinear routes. These trajectories may be impacted by elements including obligations to one's family, harassment at work, and a lack of mentorship opportunities (Brunner et al., 2019). Examining the professional trajectories of female school administrators in Sulu can shed light on how cultural norms and professional goals interact.

Obstacles that face female school administrators include discrimination based on gender, problems juggling work and personal obligations, and restricted access to opportunities for professional growth. Research indicates that policies encouraging gender equity, mentorship programs, and supportive work settings are crucial in tackling these issues (Brunner et al., 2019; Fitzgerald & Gunn, 2020). Targeted interventions to assist the professional growth and advancement of female school administrators in Sulu can be informed by an understanding of the unique challenges they encounter.

Despite experiencing difficulties, female administrators of schools show resiliency and use a variety of leadership techniques to overcome obstacles and encourage constructive change within their organizations. Studies highlight the significance of promoting gender-sensitive policies, creating networks of support, and cultivating inclusive leadership practices (Karp & Helou, 2018). Analyzing the leadership techniques used by Sulu's female school administrators can provide valuable insights into how to get past obstacles and promote institutional change.

Research by Eargly and Carli (2007) emphasized that gender stereotypes can influence perceptions of leadership effectiveness, with traits traditionally associated with leadership often aligning more closely with male characteristics. This explains that the male genes are more coherent with the leadership standard. A study by the World Economic Forum (2023) highlights that despite progress, unconscious biases still significantly impact women's career advancements. The research emphasizes the need for greater awareness and proactive measures to create representative power structures within organizations (World Economic Forum).

Within this educational setting, the amplification of the perspectives and experiences of female school administrators has been influential in shaping educational leadership and gender equality in Sulu. Yeakey, C. C., Johnston, G. S., & Adkison, J. A. (1986) explicitly stated that interest in the study of race/ethnic minorities and women in public school administration had evolved over the past decade. This study draws attention to how crucial it is to acknowledge and resolve the particular difficulties faced by women in leadership positions in the field of education.

In addition, gender disparities in educational leadership are widely documented, understanding how women become underrepresented in senior administrative positions. There are studies indicating that societal norms, cultural expectations, and institutional biases contribute to these disparities, limiting women's access to leadership roles (Shakeshaft, 2019). In Sulu, where traditional gender roles may influence perceptions of women's leadership capabilities, understanding these dynamics is crucial.

Hence, women who become school administrators frequently face different career breaks and nonlinear routes in leadership. These trajectories may be impacted by obligations to one's family, harassment at work, and a lack of mentorship opportunities (Brunner et al., 2019). Examining the professional trajectories of female school administrators in Sulu can shed light on how cultural norms and professional goals interact. Hence, Harrison, M. G., King, R. B., & Hocson, S. M. G. (n.d.) sought out that the ability of school heads to foster a school ethos supportive of counselling is essential in enabling counsellors to leverage the multifunctional nature of their work, become embedded and centrally positioned in the school community, and enhance their effectiveness. Doing so can enable counselling to be more culturally accessible to young people. It is why female leaders are also in need to be backboned by moral and trainings supports.

Based on the review-related literature and studies presented, the researchers aims to quantify the experiences and challenges encountered by female school administrators in Jolo, Sulu, focusing on their perspectives and struggles in the institution.

Research Questions

The study seeks to investigate the challenges faced by female school administrators in Jolo. Hence, it addresses the following research questions:

1. What specific challenges do female school administrators encounter in their professional roles within the educational institutions of Jolo?

2. How do these female administrators overcome the challenges they face in their leadership roles?

3. In what ways does gender influence their leadership styles, decision-making processes, and interactions with colleagues, students, and the community?

METHODOLOGY

This study used a qualitative research design, specifically a phenomenological approach, to explore and understand the lived experiences, leadership journeys, and challenges faced by female school administrators in Jolo. This approach is chosen to provide in-depth insights into the subjective experiences and personal narratives of the participants.

Purposive sampling is adopted to select participants who are female school administrators in Jolo. There were three secondary schools surveyed: Hadji Butu School of Arts and Trades, Sulu College of Technology Inc., and Southern Mindanao Islamic Institute as access participants of the study. There were 10 female leaders and 10 male leaders from said school obtained as final sample size for the possible themes or insights from the interviews.

Hence, the study used in-depth Interview such as semi-structured in-depth interviews for the participants. This method is used to have flexibility in probing deeper into participants' responses and uncovering rich, detailed narratives about their leadership journeys and challenges. The following is the interview guide that is part in developing a questionnaire. These ensure that key topics are covered while allowing participants the freedom to express their thoughts and experiences. Key topics included such as:

- Background and career trajectory
- Leadership style and philosophy
- Key milestones and achievements
- Challenges faced in their roles
- Strategies for overcoming challenges
- Support systems and networks

The participants were given 60-90 minutes to answer the formulated questionnaire. Their responses were audio-recorded and transcribed verbatim for accurate data analysis. Key themes were identified and essentially coded through participants' experiences and perspectives on their leadership journeys and challenges. These themes were refined and validated through iterative analysis.

Prior the conduct of the survey, the participants were provided with detailed information about the study's purpose, procedures, risks, and benefits. Written informed consent were provided before the commencement of the interviews. Hence, the researchers ensured that Participants' confidentiality will be strictly maintained. Pseudonyms were used in all transcripts, reports, and publications in order to protect participants' identities.

While Participation in the study were considered voluntarily. To ensure credibility, member checking was conducted where participants will be asked to review and verify the accuracy of the transcribed interviews and preliminary findings. Peer debriefing sessions will be conducted to enhance the dependability and confirmability of the findings. By following this methodology, the study aims to provide a comprehensive understanding of the leadership journeys and challenges faced by female school administrators in Jolo, contributing valuable insights to the field of educational leadership.

RESULTS

Table 1

Presented the Female Administrators' Challenges and Perspectives			
Research Question no. 1	**Codes**	**Categories**	**Themes**
1. What specific challenges do female school administrators encounter in their professional roles within the educational institutions of Jolo?	A1 . Gender Bias and Discrimination	Assumption of competence	Challenges Faced by Female School Administrators in Jolo
	A2- Balancing Professional and Personal Responsibilities	Managing of household tasks and caregiving roles	
	A3- Safety and Security Concerns	Impact of ongoing conflicts and threats	
	A4- Lack of Professional Development Opportunities	Hindered growth and advancement	
	A5-Inadequate support from the educational system	Insufficient mentoring	
	A6- Cultural and Societal Expectation	Pressure from traditional gender roles	

Table 2

Presented the Female Administrators in overcoming challenges			
Research Question no.2	**Codes**	**Categories**	**Themes**
2. How do these female administrators overcome the challenges they face in their leadership roles?	A1- Identification of Challenges	Gender Bias and Stereotypes	Overcoming challenges and enhancing leadership effectiveness
	A2- Strategies to overcome challenges	Personal Development	
	A3- Impact of Strategies on Leadership Effectiveness	Career advancement	

Table 3

Presented the Gender Influences in Leadership and Organizational Behavior			
Research Question no.3	**Codes**	**Categories**	**Themes**
1. In what ways does gender influence their leadership styles, decision-making processes, and interactions with colleagues, students, and the community?	Leadership Style	Transformational	Gender Influences in Leadership and Organizational Behavior
	Decision-Making	Data driven	
	Interaction with Colleagues	Supportive	
	Interaction with Students	Encouraging	
	Interaction with Community	Cooperative	

DISCUSSION

This chapter explained and discussed the tabular presentation of non-numerical data gathered from the respondents. The researchers elaborated on the different categories of female administrators' concern about their leadership challenges and perspectives.

Table 1

Presented the Female Administrators' Challenges and Perspectives			
Research Question no. 1	**Codes**	**Categories**	**Themes**
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	A4- Lack of Professional Development Opportunities	Hindered growth and advancement	
	A5-Inadequate support from the educational system	Insufficient mentoring	
	A6- Cultural and Societal Expectation	Pressure from traditional gender roles	

Table 1 elicits the responds of the respondents on the emerging theme, Challenges Faced by Female Administrators in Jolo. Both Male and Female respondents stated that Female administrators often faced significant gender bias and discrimination, leading to an assumption of their incompetence. This bias manifests in various ways, including undermining their authority, questioning their decisions more frequently than those of male counterparts, and an overall lack of respect for their capabilities. This creates an environment where women must work harder to prove their competence and gain the same level of recognition as men.

Based on the statements of the respondents on the code Balancing Professional and Personal Responsibilities**,** Female administrators in Jolo struggle with balancing their professional duties with household tasks and caregiving roles. Cultural expectations had placed the burden of managing home responsibilities primarily on women. This is known factor that increased stress and burnout of Female leaders. Hence, the respondents stated that dual responsibility impacts Female ability to fully commit to their administrative roles, often resulting in compromised professional performance.

Hence, in terms of Safety and Security Concerns, the ongoing conflicts and threats in Jolo present significant safety and security concerns for female administrators. These concerns are not only about their personal safety but also about the safety of their students and staff. The constant worry about security issues makes it challenging for them to perform their duties effectively and without distraction.

With further Lack of Professional Development Opportunities there is a notable lack of professional development opportunities tailored to the needs of female administrators. This lack of targeted training and development programs hinders their growth and advancement within the educational system. Without access to proper professional development, female administrators are less able to innovate and lead effectively.

In terms of Inadequate Support from the Educational System, the respondents stated that the educational system in Jolo provides fewer leadership training for school administrators. There is a lack of mentoring, networking opportunities with other female leaders, and institutional policies that promote gender equality.

The code Cultural and Societal Expectations traditional gender roles and societal expectations place additional pressure on female administrators. These cultural norms

create resistance to women in leadership positions, both within educational institutions and in the broader community. Such expectations limit their ability to assert their authority and implement changes, challenging their professional legitimacy.

Table 2

Presented the Female Administrators in overcoming challenges			
Research Question no.2	**Codes**	**Categories**	**Themes**
2. How do these female administrators overcome the challenges they face in their leadership roles?	A1- Identification of Challenges	Gender Bias and Stereotypes	Overcoming challenges and enhancing leadership effectiveness
	A2- Strategies to overcome challenges	Personal Development	
	A3- Impact of Strategies on Leadership Effectiveness	Career advancement	

The table 2 presents a detailed and structured examination of how female administrators overcome leadership challenges. Based on the result, recognizing gender bias and stereotyping role are the first step towards addressing these issues. By identifying these barriers, female administrators will be better equipped to develop targeted strategies to counteract the biases and advocate for a more equitable work environment.

According to the respondents stated that engaging in personal development is a proactive approach that female administrators take to empower themselves. This includes participating in leadership training, team-building activities, and continuous learning. These efforts result in increased confidence, improved skill sets, and greater adaptability, which are essential for overcoming challenges and excelling in leadership roles.

The strategies employed by female administrators lead to significant career advancement. By investing in personal development and effectively managing challenges, these leaders enhance their decision-making abilities, achieve higher job satisfaction, and experience professional growth. This career advancement not only benefits the individual administrators but also serves as an inspiration and a role model for other women aspiring to leadership positions.

Hence the theme of overcoming challenges and enhancing leadership effectiveness encapsulates the successful journey of female administrators. Through a combination of self-awareness, personal development, and strategic action, these leaders transform potential obstacles into opportunities for growth and improvement. Their interest to

acquire and surmount these challenges demonstrates adaptability and commitment to continuous improvement.

Moreover, the ability to identify and acknowledge gender bias and stereotypes is a crucial positive step. It empowers female administrators to confront these issues head-on, raising awareness and driving change within their organizations. This proactive stance fosters a more inclusive and supportive work environment.

The emphasis on personal development reflects a positive and forward-thinking approach. Female administrators who prioritize their growth and development are better prepared to handle leadership challenges. This proactive mindset leads to enhanced leadership capabilities, greater resilience, and a more robust professional presence.

The positive impact of these strategies is evident in the career progression of female administrators. By overcoming gender-related challenges through personal development and strategic action, these leaders achieve significant career milestones. This success not only validates their efforts but also paves the way for future generations of female leaders, contributing to a more diverse and equitable leadership landscape.

Table 3

Research Question no.3	Codes	Categories	Themes
3. In what ways does gender influence their leadership styles, decision-making processes, and interactions with colleagues, students, and the community?	Leadership Style	Transformational	Gender Influences in Leadership and Organizational Behavior
	Decision-Making	Data driven	
	Interaction with Colleagues	Supportive	
	Interaction with Students	Encouraging	
	Interaction with Community	Cooperative	

The table presents a comprehensive analysis of how gender influences leadership styles, decision-making processes, and interactions with colleagues, students, and the community. The research question at the center of this analysis seeks to understand the nuanced ways in which gender impacts these various dimensions of leadership and organizational behavior.

The code Transformational under the category of leadership style indicates a trend where gender plays a significant role in the adoption of transformational leadership. According to the respondents Female Administrators in Jolo were Transformational leaders and were known for their ability to inspire and motivate their teams to achieve beyond expectations. This style involves fostering an environment of collaboration, innovation, and personal development. Hence the researchers found out that female leaders are more likely to exhibit transformational qualities, emphasizing interpersonal relationships, empowerment, and team cohesion. This aligns with the broader understanding that transformational leadership is associated with positive organizational outcomes, including increased employee satisfaction and performance.

In terms of decision-making, the respondents stated that Female Administrators are Data driven. This highlights an aspect for using empirical evidence and data to guide decisions. This approach ensures that decisions are objective and based on concrete information rather than subjective judgment. Gender can influence this propensity, with some studies indicating that female leaders may rely more on collaborative and data-informed decision-making processes. This can be attributed to a tendency to seek comprehensive perspectives and minimize biases, thus enhancing the accuracy and effectiveness of decisions.

The supportive nature of interactions with colleagues, as indicated by the code "Supportive," underscores the role of gender in fostering a positive work environment. Supportive leaders provide encouragement, assistance, and backing to their colleagues, promoting teamwork and collaboration. Female leaders are often associated with a more supportive and empathetic interaction style, which can lead to increased morale, stronger relationships, and improved overall team performance. This supportive approach helps create a culture of mutual respect and trust, essential for organizational success.

The code "Encouraging" within the category of interaction with students reflects a leadership approach that emphasizes motivation and upliftment. Leaders who adopt an encouraging style focus on helping students achieve their potential and fostering a positive learning environment. Gender influences this interaction style, with female leaders often being more nurturing and encouraging. This approach can significantly impact students' academic and personal growth, leading to better educational outcomes and a more supportive school culture.

The cooperative nature of interactions with the community, as captured by the code "Cooperative," highlights the importance of gender in community engagement. Cooperative leaders work collaboratively with community members and stakeholders, building partnerships and engaging in mutual support for common goals. Female leaders are frequently seen as more community-oriented and cooperative, focusing on relationship-building and collective action. This cooperative approach can enhance community relations, foster trust, and drive successful community initiatives.

Conclusions

The study on female school administrators in Jolo reveals a complex landscape of challenges and strategies that shape their professional experiences. The findings indicate that these administrators face significant hurdles, including gender bias, balancing professional and personal responsibilities, safety concerns, lack of professional development opportunities, inadequate support from the educational system, and cultural expectations. These challenges create an environment where female leaders must work harder to prove their competence and gain recognition, often leading to increased stress and burnout.

Despite these obstacles, the resilience and adaptability of female administrators in Jolo are evident in their proactive approaches to overcoming challenges. Recognizing and addressing gender bias is a crucial first step that empowers them to advocate for a more equitable work environment. Engaging in personal development through continuous learning, leadership training, and team-building activities enhances their skills, confidence, and adaptability. These efforts not only help them manage challenges effectively but also contribute to their professional growth and career advancement.

The study highlights the importance of transformational leadership among female administrators, characterized by their ability to inspire and motivate teams, foster collaboration, and emphasize personal development. This leadership style is associated with positive organizational outcomes, including increased employee satisfaction and performance. Additionally, the data-driven decision-making approach adopted by female administrators ensures that decisions are objective and based on empirical evidence, enhancing their effectiveness and minimizing biases.

The study concluded that supportive interactions with colleagues and encouraging relationships with students further underscore the positive impact of female leadership. By fostering a collaborative and empathetic work environment, female administrators build strong teams and improve overall morale. Their cooperative approach to community engagement strengthens partnerships and drives successful initiatives, benefiting both the school and the broader community.

Therefore, the study underscores the significant contributions of female school administrators in Jolo despite the challenges they face. Their commitment to personal development, strategic action, and transformational leadership not only advances their careers but also sets a positive example for future generations of female leaders. By addressing gender bias, prioritizing professional growth, and fostering supportive relationships, these administrators create a more inclusive and effective educational environment. Their success serves as an inspiration and a catalyst for change, promoting gender equity and driving organizational success in the field of education.

Recommendations

To address the challenges faced by female administrators in Jolo, it is essential to implement comprehensive anti-discrimination policies that eliminate gender bias and discrimination within educational institutions. Introducing work-life balance programs, such as flexible working hours, parental leave, and on-site childcare facilities, can support female administrators in managing their dual responsibilities.

Enhancing safety and security protocols, in collaboration with local law enforcement and community leaders, is crucial for ensuring their safety and mitigating threats. Expanding professional development opportunities through targeted workshops, seminars, and courses can enhance leadership skills and career growth. Creating mentorship and networking programs will provide female administrators with valuable support and knowledge sharing. Promoting gender equality and conducting awareness campaigns to challenge traditional gender roles and societal expectations are necessary to foster a more inclusive environment. Cultivating a supportive institutional culture that values diversity and provides equal opportunities for advancement will further empower female leaders.

Encouraging transformational leadership training will help them inspire and motivate their teams effectively. Implementing data-driven decision-making practices, with access to data analytics tools and training, ensures that decisions are based on empirical evidence and objective analysis. Strengthening community and stakeholder engagement by promoting cooperative and collaborative interactions will build strong partnerships and enhance community relations. These recommendations collectively aim to create a more equitable, supportive, and effective educational environment for female administrators in Jolo.

Compliance with Ethical Standards

This study, titled "Female Administrators in Jolo: Their Leadership Journey and Challenges," has been reviewed and scrutinized by the School Research Team in Hadji Butu School of Arts and Trades. These researchers are trained and mentored by Ugnayan ng Pahinungod, University of the Philippines-Mindanao. All procedures involving the participants adhered to the ethical standards and its policies. Informed consent was obtained from all participants, who were fully informed about the nature, purpose, and potential risks of the research. Participation was voluntary, with the option to withdraw at any time without penalty. The researchers ensured that confidentiality was maintained by anonymizing data and and could be accessed only by the research team. The authors declare no conflict of interest. Thus, we thank the participants for their valuable contributions and acknowledge the support from to Hadji Butu School of Arts and Trades.

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Declaration of Interest

As proud Tausug of the province of Sulu, we, the researchers of the study are immensely pleased to present our research topic entitled, "Female School Administrators in Jolo: Their Leadership Journey and Challenges." Our interest in this study is rooted in our strong commitment to acquiring an understanding of the particular educational leadership of female administrators in the Municipality of Jolo who are facing work and cultural challenges.

Furthermore, our primary goal is to explore the experiences of female school administrators in Jolo. Jolo is a known municipality in Sulu for its rich cultural heritage with its highly competitive working environment. Hence, this study aims to shed light on the leadership journey of these women, the obstacles they encounter, and the strategies they employ to overcome these challenges.

Our motivation for this research stems from a strong belief in the transformative power of education and its critical role in effective leadership. We believe that leadership chooses no gender and it always plays a driving force to have educational success. From the global perspective, female administrators often face distinct challenges compared to their male counterparts, including gender biases, cultural expectations, and security concerns.

This research aligns with our broader academic interests in gender studies, educational leadership, and provincial development. As it reflects gender equality and empowering women in leadership positions, therefore, we tend to highlight interventions and practices that would help regress the specific challenges of female administrators in Jolo.

Thus, our dedication to this research is driven by a genuine interest in understanding and addressing the unique challenges faced by female school administrators in Jolo. At the same time, we are committed to conducting this study with the highest standards of academic rigour and ethical integrity, ensuring that the voices and experiences of these women are accurately and respectfully represented.

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FORDA FERSON: A PSYCHOLINGUISTIC ANALYSIS OF PERCEPTIONS AND COMMUNICATION FREQUENCY PATTERNS AMONG GENERATION Z SPEAKERS

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ABSTRACT

This qualitative study examined the perceptions and communication frequency patterns of Filipino Generation Z speakers regarding the slang phrase "forda ferson." Drawing insights from twenty key informants in Gingoog City, the research explored the frequency, contextual usage, associated meanings, and communicative contributions of the slang. Utilizing content analysis, the study revealed that "forda ferson" facilitated informal and playful communication, fostering camaraderie among speakers. While it effectively described actions and behaviors within social groups, its usage also posed comprehensibility challenges for those outside the immediate social and generational context. The findings underscored the dynamic nature of language evolution, indicating that the popularity of slang terms like "forda ferson" might decline over time. This research highlighted the interplay between language and social interaction, showcasing how slang emerged to fulfill specific communicative needs while reflecting broader societal shifts.

Keywords: *communication patterns, Generation Z, language evolution, slang, social interaction*

INTRODUCTION

Change is inevitable for both language and humans. Humans adapt to the current era they are living in and strive to keep up with present trends. Language, in turn, undergoes similar transformations. The inevitable change in language is manifested over time, highlighting that language continuously evolves with new sets of words being introduced to society (McWhorter, 2016). One intriguing aspect of language evolution is the emergence of slang words and phrases, which serve as markers of identity and belonging within particular communities (Alawiyah et al., 2023). This phenomenon is evident in the Philippines, a country where the creation and use of slang words, phrases, and expressions are prolific. The emergence of newly invented words has become an integral part of daily interactions and communication among Filipinos, particularly among the younger population.

Filipinos are known for their inventiveness and creativity in crafting new slang and expressions. The slangs created by Filipinos address their communication needs. The Filipino slang phrase "forda ferson" (or "For the Person" in its original form) exemplifies this linguistic creativity, demonstrating how Filipinos playfully develop new expressions to convey nuanced meanings (De Leon, 2022). This phrase, along with other slangs, illustrates how communication has evolved. The manner in which Filipinos communicate today differs from the past, with a noticeable shift in preferences for conveying ideas and information, particularly among younger generations.

For instance, the phrase “forda shopping ang ferson” describes a person who enjoys spending money on material things or who has just made a purchase. The combination of words in this phrase reflects the individual's status and attitude towards material possessions. This expression not only highlights personal preferences but also reflects the lifestyle, habits, and social group of the individual. It shows how language succinctly expresses nuances of identity and attitudes.

The phrase "forda ferson" originated on the video-sharing platform TikTok, thanks to content creator Chrishanna Luisa Olavidez Austria. In one of her videos, Austria, appearing flushed, greeted her followers with “mga ferson” and called herself a "drunk girl." Just before ending the video, she noticed her reflection and commented, "forda red girl." This video went viral and received 21 million views (De Leon, 2022). Subsequently, the phrase gained widespread popularity and usage among Filipino speakers, especially the younger generation. Its popularity has become a part of contemporary Filipino communication, showcasing its impact on modern linguistic practices.

The changes in language and communication reflect our technology-driven society. The phrase “forda ferson,” which gained popularity on TikTok, demonstrates how social media platforms facilitate the rapid spread of newly invented words and expressions. Technology provides an avenue for innovative linguistic developments and their dissemination (Jebaselvi et al., 2023). If these terms are accepted and deemed relevant for communication, their spread from social media platforms to everyday usage becomes more prevalent.

Slang, characterized by its informality and distinctive use in communication, unites individuals within the same community who share cultural experiences. Generation Z, born between 1997 and 2012, exemplifies this trend. Exposed to today's technological advancements, Generation Z is at the forefront of creating and using new slang terms and expressions to convey their thoughts, ideas, and opinions (Almeida et al., 2020). Despite its informal nature, slang contributes significantly to the richness of language and communication (Mahapatra et al., 2022).

Furthermore, the use of slang terms and expressions reflects the interconnectedness of the society in which they are invented and used. The Philippines is known for its linguistic creativity, with people frequently altering language to signify specific actions or concepts. This dynamic linguistic expression involves adding or removing prefixes and suffixes, rearranging syllables, reversing words, and blending terms from different languages (Limos, 2019). For example, the slang "yorme" is an alteration of "mayor." This linguistic creativity dates back to the 19th century. In an interview with CNN Philippines, Jay-ar Igno, a Linguistics professor at the University of the Philippines, referred to this method of creating words as 'tadbalik.' Roy Cagalingan from the Komisyon sa Wikang Filipino noted that revolutionaries historically used this technique to conceal their identities. For instance, writer Marcelo H. del Pilar adopted the pseudonym "Plaridel" by rearranging the letters in his surname (De Guzman, 2017). Today, people enjoy inventing and using new words, often modifying existing words to make them their own and employing unconventional grammar or pronunciation to make them catchier.

The evolution of language, as evidenced by contemporary slang usage, demonstrates that language is not passive. The continuous addition of new words testifies to language's fluidity and adaptability to meet its users' needs (Knetemann, 2020). The way people communicated in the past differs from the present, with each era having its unique linguistic characteristics. In today's generation, where Filipino slang terms are popular, these expressions will eventually be documented in history, highlighting their contribution to communication and their role as a linguistic playground for experimentation with new words and expressions.

The adaptability of language enables individuals to use it as a tool for expression. Slang fosters a sense of community and belonging, allowing individuals to connect more deeply. The gradual shift in expression provides individuals with a sense of place, using newly invented words and expressions to build connections with others. Although some may take language for granted due to our innate ability to communicate, there is a need for a deeper understanding of language's profound impact on our daily lives.

Research Objectives

This study aimed to analyze Filipino Gen Z speaker's perceptions and frequency of usage patterns in communication focusing on the Filipino slang phrase "forda ferson". The implications and derived connotations of the phrase will be in the context of Filipino youth. This also sought to understand how language evolves and adapts to meet the

needs of its speakers. Furthermore, the paper intended to show how these slang terms can contribute to the daily communication of the Filipino Gen Z speakers.

Research Questions

The researchers developed four primary questions that were presented to the key informants aiming to address the demands of the study:

1. How frequently do the participants use the phrase “forda ferson”?
2. In what context is “forda ferson” typically employed?
3. What meanings or connotations are associated with the phrase “forda ferson”?
4. What is the implication of the phrase “forda ferson” to communication?

METHODOLOGY

This study utilized a qualitative research design to gather in-depth insights from twenty key participants, focusing on their personal perspectives regarding the topic.

To achieve the study's objectives, a psycholinguistic content analysis was employed. This method involves systematically categorizing and analyzing the responses of key informants to extract meaningful insights. Specifically, survey questionnaires featuring the phrase "forda ferson" were distributed to Filipino Generation Z speakers. These responses were coded for frequency of usage, contextual application, associated meanings or connotations, and their contribution to communication.

To ensure a representative sample of Generation Z speakers, the questionnaires were distributed electronically to individuals who were best suited to provide relevant answers. Researchers verified the compatibility of the informants' responses with the questionnaire items before accepting them. The sample comprised twenty individuals from Gingoog City. This study underscores the importance of eliciting authentic responses from participants, free from external influences or the opinions of others.

RESULTS AND DISCUSSION

Research Question 1: How frequently do the participants use the phrase “forda ferson”?

Table 1.
Frequency of participants’ utilization of the phrase “forda ferson”

The frequency of usage of the phrase "forda ferson" among participants reveals a diverse pattern, indicating varying levels of integration of this phrase into their everyday lexicon. The data from Table 1 categorizes participants' usage into several distinct frequencies, which can be broadly grouped for analytical clarity.

Key Informants	Frequency of Use
R1, R14, R17	Rarely Used
R2, R3	Frequently Used
R4, R20	Never Used
R5, R12	Not Often
R6, R15	Seldom
R7	Couple of Times
R8	No Longer Used
R9, R10, R16	Occasionally
R11	Almost Everyday
R13	Daily
R18	Often Used
R19	Sometimes

A significant portion of participants, specifically those identified as R1, R14, R17, R5, R12, R6, R15, and R7, fall into the category of rare usage. This group, comprising 40% of the total respondents, reports using the phrase rarely, not often, or seldom. This suggests that while the phrase is known to them, it does not feature prominently in their regular communication.

Conversely, a smaller subset of participants, R2, R3, R11, R13, and R18, which constitutes 25% of the respondents, report frequent usage. This group includes those who use the phrase almost every day or daily, indicating that for them, "forda ferson" is a significant part of their daily vocabulary. The occasional users, including R9, R10, R16, and R19, represent 20% of the participants. These respondents use the phrase sporadically, which may imply contextual or situational usage rather than a habitual one. The data also shows that a minority of participants, specifically R4, R20, and R8, who make up 15% of the sample, never use the phrase or have ceased to use it altogether. This could reflect a variety of factors, such as personal preference, cultural shifts, or the phrase falling out of favor or relevance in their social circles. As noted by Fishman (1991), language usage patterns are often indicative of broader social dynamics and can reflect underlying cultural trends and shifts.

Overall, the distribution of frequency usage indicates that "forda ferson" is not uniformly used among the participants. The majority of respondents either rarely or occasionally use the phrase, suggesting it holds niche rather than widespread significance within the group. The presence of a subset of frequent users highlights that while the phrase may not be universally prevalent, it retains strong relevance for a particular segment of the participants. This pattern of usage could provide insights into social or linguistic trends within the group, indicating areas where the phrase retains cultural importance and areas where it is diminishing in relevance. As Labov (2001) posits, the dynamic nature of language and the different ways in which linguistic elements permeate individual communication practices are reflective of the adaptability and evolution of language in response to social contexts.

In conclusion, the varying frequency of "forda ferson" usage among the participants underscores the dynamic and context-dependent nature of linguistic

practices. This variability not only highlights individual differences in language use but also points to broader cultural and social factors that influence how and why certain phrases gain or lose prominence within a community.

Research Question 2: In what context is “forda ferson” typically employed?

Table 2.
Context of “forda ferson” utilization

Key Informants	Context of Use
R1, R3, R6, R9, R11, R13, R15	Describing or Referring to Someone
R2, R4, R10, R16	Informal Context
R5	Teasing a Person
R7, R8, R17, R18, R19	Conversations with Friends
R12	Expression of oneself
R14, R20	Highlighting a Gesture or Interest

The phrase "forda ferson" is employed in a variety of contexts, reflecting its versatility and the nuanced ways it integrates into different communicative scenarios among the participants. Analyzing the contexts of use as reported in Table 2 provides insights into the socio-linguistic dynamics and the cultural nuances underpinning this phrase.

A substantial proportion of participants, specifically R1, R3, R6, R9, R11, R13, and R15, use "forda ferson" when describing or referring to someone. This context suggests that the phrase is a descriptor, potentially highlighting characteristics, behaviors, or identities in a familiar or colloquial manner. The usage here aligns with common linguistic practices where certain phrases become shorthand for complex descriptions or shared understandings within a community (Eckert, 2012).

Another notable context for "forda ferson" is its use in informal settings, as indicated by R2, R4, R10, and R16. This grouping underscores the phrase's role in casual, everyday interactions, where formality is relaxed, and conversational norms are more flexible. Informal contexts often allow for greater linguistic creativity and the incorporation of colloquial expressions, which can enhance relatability and social bonding (Coupland, 2014).

Participants R5, R7, R8, R17, R18, and R19 employ "forda ferson" in conversations with friends or for teasing a person. This indicates that the phrase functions as a social tool to create in-group cohesion and shared humor. Such usage is common in peer group interactions, where language plays a crucial role in reinforcing social ties and mutual understanding (Meyerhoff, 2018). The teasing aspect, specifically noted by R5, further illustrates the playful and intimate nature of the phrase, suggesting it is used in environments where social bonds are strong, and mutual teasing is a form of affection or camaraderie.

R12 uses "forda ferson" for self-expression, indicating a personal and perhaps introspective application of the phrase. This context points to the flexibility of "forda ferson" in capturing individual identity or sentiment, aligning with the idea that language is a powerful tool for personal expression and the articulation of one's self-concept (Holmes, 2013).

Lastly, R14 and R20 use "forda ferson" to highlight a gesture or interest. This context implies a more action-oriented or demonstrative usage, where the phrase underscores specific behaviors or focal points in interaction. Highlighting gestures or interests suggests a performative aspect, where language is used to draw attention and convey significance (Kendon, 2004).

Overall, the diverse contexts in which "forda ferson" is used illustrate its multifaceted role in communication among the participants. The phrase's adaptability to describe people, function in informal and friendly interactions, serve as a teasing mechanism, facilitate self-expression, and highlight gestures or interests underscores its linguistic and social utility. The varied applications of "forda ferson" reflect its embeddedness in the socio-cultural fabric of the group, demonstrating how language evolves and adapts to meet the communicative needs of its users.

Research Question 3: What meanings or connotations are associated with the phrase “forda ferson”?

Table 3.

Meanings and connotations associated with the phrase “forda ferson”

Key Informants	Meanings and Connotations
R1, R19	Highlighting or Pointing out about a Person
R2, R11	Indirect Reference
R3	Classifying a Type of Person
R4	Originated from the phrase “for the person”
R5	Pointing out the Obvious or Complimenting
R6	Non-serious Alternative Reference
R7, R13	Referring to themselves or others
R8	Literal Meaning only
R9	Lessens Intimidation and Prevents Offense
R10	Describing a Feeling or Situation
R12, R14, R15	Expressing Interest
R16	Teasing and Joking
R17, R18, R20	Describing an Action

The meanings and connotations of the phrase "forda ferson" among participants demonstrate its rich semantic diversity and contextual flexibility. The data from the key informants, as shown in the table, provide a nuanced understanding of how this phrase operates within different communicative frameworks. Firstly, R1 and R19 use "forda ferson" to highlight or point out a person, indicating that the phrase serves as a tool for

drawing attention to specific individuals. This usage aligns with the general linguistic function of deictic expressions, which are used to point out or specify entities within a given context (Levinson, 2004). This deictic use underscores the phrase's role in social interactions where identifying and focusing on individuals is necessary.

R2 and R11 employ "forda ferson" as an indirect reference. This suggests a pragmatic function where the phrase is used to allude to someone without direct mention, perhaps to maintain politeness or subtlety. Indirect references are common in communication as they allow speakers to navigate social sensitivities and preserve face (Brown & Levinson, 1987).For R3, "forda ferson" classifies a type of person, indicating that the phrase has a categorical function. This connotation implies that "forda ferson" can be used to group individuals based on shared characteristics, contributing to the construction of social categories and identities (Agha, 2007).

R4 notes that the phrase originated from "for the person," highlighting its etymological roots. Understanding the origin of colloquial phrases is crucial as it provides insights into their initial meaning and subsequent semantic shifts (Tagliamonte, 2016). R5 uses "forda ferson" to point out the obvious or to compliment, indicating its dual role in emphasizing evident traits or actions and in expressing positive social evaluations. This usage aligns with the communicative function of compliments as social lubricants that enhance interpersonal relationships (Holmes, 1988).

R6 perceives "forda ferson" as a non-serious alternative reference, suggesting a playful or informal usage. This aligns with the concept of linguistic play, where language is used creatively and humorously to foster social bonding (Crystal, 1998). R7 and R13 use the phrase to refer to themselves or others, indicating a flexible personal reference. This flexibility in reference suggests the phrase's adaptability in various interactional contexts, enhancing its utility in everyday conversation (Goffman, 1981).

R8 applies a literal meaning to "forda ferson," indicating a straightforward interpretation without additional connotations. Literal usage can reflect the foundational understanding of the phrase before it acquires more nuanced meanings (Gibbs, 1994). R9 mentions that the phrase lessens intimidation and prevents offense, highlighting its mitigating function in communication. This usage is crucial in maintaining harmony and reducing potential conflicts in social interactions (Mcleod, 2023). R10 uses "forda ferson" to describe a feeling or situation, indicating its metaphorical extension beyond referring to people. Metaphorical language allows for more expressive and nuanced communication (Lakoff & Johnson, 1980).

R12, R14, and R15 employ the phrase to express interest, showcasing its role in indicating curiosity or engagement with a topic or person. Expressing interest is a key component of active and empathetic listening in communication (Rogers & Farson, 1987). R16 uses the phrase for teasing and joking, emphasizing its playful and humorous connotation. This usage aligns with the social function of humor in creating rapport and relieving tension (Hay, 2000). Finally, R17, R18, and R20 use "forda ferson" to describe an action, indicating its descriptive function in narrating or explaining behaviors.

Descriptive language is essential for effective storytelling and conveying detailed information (Tannen, 1989).

In summary, the diverse meanings and connotations of "forda ferson" among participants illustrate its multifunctional role in communication. Its applications range from direct reference and classification to playful teasing and metaphorical description, highlighting its semantic richness and adaptability within various social contexts.

Research Question 4: What is the implication of the phrase “forda ferson” to communication?

Table 4.
Implication of the phrase “forda ferson” to communication

Key Informants	Communication Implications
R1, R6, R16	Lightens Conversation
R2, R18	Sense of Camaraderie and Belonging
R3, R7, R8, R14, R17	Fun, Enjoyable, and Humorous Communication
R4, R10, R15	Enhances Communication
R5	Adds Spice, Emphasis and Character
R9	Prevents Misunderstanding and Intimidation
R11, R20	Causes Confusion and Communication Barrier
R12	Self-identification
R13	Good for Informal Conversations
R19	Makes Communication Casual

The phrase “forda ferson” carries significant implications for communication, influencing various aspects of interaction among the participants. The data from Table 4 provides a detailed overview of these implications, highlighting the multifaceted role the phrase plays in shaping communicative dynamics.

One of the primary implications, as noted by R1, R6, and R16, is that “forda ferson” lightens conversation. This aligns with the broader concept of linguistic strategies that reduce conversational tension and foster a more relaxed and congenial atmosphere (Norrick, 1993). By incorporating humor and light-heartedness, the phrase helps to ease social interactions and make them more enjoyable. Additionally, R2 and R18 indicate that the phrase fosters a sense of camaraderie and belonging. This suggests that “forda ferson” functions as a social glue, reinforcing group identity and cohesion. Shared linguistic practices, such as using specific phrases, are crucial in creating and maintaining social bonds within a community (Eckert, 2012). The sense of belonging facilitated by the phrase underscores its role in social integration and solidarity.

For R3, R7, R8, R14, and R17, “forda ferson” makes communication fun, enjoyable, and humorous. This indicates that the phrase adds an element of playfulness to interactions, which can enhance the overall communicative experience. Humor and enjoyment in communication are essential for building rapport and positive relationships

(Hay, 2000). The playful use of “forda ferson” likely contributes to a more vibrant and engaging conversational dynamic. R4, R10, and R15 highlight that the phrase enhances communication. This enhancement could be due to the phrase’s ability to convey nuanced meanings and add expressive depth to interactions. Enhanced communication through such phrases helps in articulating thoughts more effectively and enriches the interactional content (Gumperz, 1982).

R5 mentions that “forda ferson” adds spice, emphasis, and character to communication. This suggests that the phrase serves as a linguistic tool to emphasize certain points and make interactions more vivid and memorable. The use of distinctive phrases can inject personality and energy into conversations, making them more engaging and impactful (Crystal, 1998). R9 notes that the phrase prevents misunderstanding and intimidation. This implies that “forda ferson” can function as a mitigative device, softening potentially harsh statements and reducing the risk of miscommunication. Mitigative language strategies are vital in maintaining politeness and preventing conflicts in interactions (Brown & Levinson, 1987).

However, R11 and R20 observe that the phrase can cause confusion and act as a communication barrier. This indicates that not all participants may be familiar with or understand the phrase, leading to potential misinterpretations. The introduction of colloquial or context-specific language can sometimes hinder clear communication, especially if the interlocutors do not share the same linguistic background (Giles & Coupland, 1991). R12 points out that “forda ferson” aids in self-identification, suggesting that the phrase can be used to express personal identity or affiliation. Language is a powerful tool for self-expression, and specific phrases can serve as markers of identity and group membership (Holmes, 2013).

R13 finds the phrase well-suited for informal conversations, indicating its appropriateness in casual and relaxed settings. Informal language is characterized by its flexibility and creativity, and phrases like “forda ferson” enhance the informal communicative style (Coupland, 2014). Finally, R19 asserts that the phrase makes communication casual. This reinforces the idea that “forda ferson” contributes to a laid-back and informal conversational tone, which can be more accessible and less intimidating for participants. Casual communication often fosters openness and spontaneity, facilitating smoother and more dynamic interactions (Tannen, 1989).

In conclusion, the phrase “forda ferson” plays a significant role in communication among the participants, with implications ranging from lightening conversations and fostering camaraderie to enhancing communication and preventing misunderstandings. However, it also has the potential to cause confusion if not universally understood. These diverse implications underscore the complexity and multifaceted nature of linguistic expressions in social interactions.

Conclusions

The Filipino slang "forda ferson" provides substantial insights into its usage, social functions, and implications for language evolution and adaptation. Primarily employed in informal settings, this slang facilitates casual, playful communication among friends and close acquaintances, enabling individuals to express themselves freely without the constraints of formality. It functions not only as a linguistic tool but also as a social mechanism that enhances connections and fosters a sense of camaraderie among speakers.

Additionally, "forda ferson" is often used to describe actions, behaviors, and characteristics, either of oneself or others. This indicates that the slang provides an efficient way to share information about personal traits and actions within conversational contexts. Furthermore, it introduces a tone of playfulness and humor, contributing to more engaging and enjoyable interactions. This social function underscores its role in strengthening interpersonal bonds and creating a friendly atmosphere during communication.

However, the use of "forda ferson" is not without challenges. While it facilitates communication within certain social groups, it can lead to misunderstandings or misinterpretations among individuals unfamiliar with its meaning. This highlights a broader issue in language evolution: the balance between innovation and comprehensibility. As new terms and slang emerge, they can create generational or social divides, posing challenges for those outside the immediate social and generational group.

The findings reflect the dynamic nature of language. The varied frequency of informants using "forda ferson", ranging from occasional to seldom, indicates that the slang, once at its peak on social media, is gradually waning in popularity. This trend aligns with the natural life cycle of language, where terms may rise to prominence rapidly and then decline as language users shift their preferences. The fact that some individuals are aware of the slang but do not use it themselves further illustrates individual differences in adopting linguistic trends, influenced by personal communication needs and preferences.

Overall, "forda ferson" exemplifies how language evolves and adapts within social contexts. Slang terms emerge to fulfill specific communicative needs, reflecting the dynamic interplay between language and social interaction. While these terms can enhance communication within groups, they also highlight the challenges of maintaining mutual understanding across different social and generational boundaries. Ultimately, the evolution and adaptation of language are continuous processes shaped by the changing needs and preferences of its users.

Recommendations

The findings of this study on the Filipino slang "forda ferson" offer valuable insights into its usage and social functions. However, to advance our understanding of its implications for language evolution and adaptation, further research is recommended.

Future studies should aim to enhance depth by utilizing larger and more diverse samples to capture a broader spectrum of perspectives and usage patterns. This could involve investigating different age groups, social backgrounds, and regional contexts to identify variations and commonalities in the application of "forda ferson".

Moreover, researchers could adopt a longitudinal approach to observe how the usage and popularity of the slang evolve over time, providing a comprehensive understanding of its life cycle within linguistic trends. Examining the influence of digital media and cultural shifts on the dissemination and decline of slang terms could also yield valuable insights into societal changes.

In cases where the current findings suggest intriguing or unexpected outcomes, further research is essential to validate these results and explore underlying mechanisms. Such studies could delve into the cognitive and social processes that facilitate the adoption and diffusion of slang, thereby contributing to a more nuanced comprehension of language dynamics in contemporary society. This multifaceted approach will not only enrich scholarly discourse but also offer practical implications for understanding language evolution and adaptation in diverse cultural contexts.

Compliance with Ethical Standards

Prior to their participation, informed consent was diligently obtained to ensure voluntary engagement in the study. Additionally, stringent measures were implemented to guarantee the anonymity of informants, thereby fostering an environment conducive to open and uninhibited idea exchange. Participants were also informed of the study's objectives and purposes, ensuring transparency throughout the research process.

The well-being of participants was conscientiously safeguarded to prevent any conflicts of interest during the study. This approach promoted integrity and facilitated unbiased data collection, which is essential for rigorous and valid analysis. There was a meticulous avoidance of bias in the interpretation of findings, and results were exclusively utilized for research purposes, adhering strictly to scholarly standards.

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GULAYAN SA BAKURAN PROGRAM IN APLAYA NATIONAL HIGH SCHOOL-ANNEX, SANTA ROSA CITY: BASIS FOR ENTREPRENEURIAL PROGRAM

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ABSTRACT

This study investigates the reconfiguration of the annual activities of the Department of Education (DepEd) in response to the public health emergency brought by COVID-19, specifically focusing on the 2020 Brigada Eskwela and Oplan Balik Eskwela as clarified in DepEd Order No. 53, s. 2020. The research employs a qualitative design, utilizing interviews and document analysis to explore the adaptation strategies of DepEd in ensuring the health, safety, and well-being of learners, teachers, and personnel while supporting the provision of learning opportunities through multiple delivery modalities. One significant initiative, Gulayan sa Tahanan (Urban Vegetable Gardening at Home), is highlighted as part of the Brigada Eskwela and School-Family-Community Partnership. This program promotes sustainable food supply at homes, engaging learners in gardening activities that enhance their understanding of Science, Home Economics, Health, and other learning areas, while raising awareness about the importance of health and food security. Additionally, Gulayan sa Tahanan fosters economic productivity by teaching entrepreneurial skills, as learners and families can sell excess produce to generate income. The analysis reveals that the initiative not only addresses food security but also minimizes household expenses and provides a practical model for small-scale food production, thereby contributing to family and community resilience during the COVID-19 crisis. Overall, the study underscores the multifaceted benefits of integrating urban gardening into educational activities, highlighting its role in promoting health, education, and economic stability in times of crisis.

Keywords: *Brigada Eskwela 1, Gulayan sa Tahanan 2, Health and Safety in Education 3, Sustainable food supply 4, urban gardening in education 5, Covid-19 6*

INTRODUCTION

The Aplaya National High School-Annex, as one of the schools in the Division of Santa Rosa City, has actively participated in the implementation of the "Gulayan sa Bakuran Program," as mandated by Division Memorandum 330, s.2020, titled "Implementation of Gulayan sa Bakuran Project." This initiative emphasizes that "Gulayan sa Bakuran: Container and Backyard Vegetable Gardening" is a productive activity for teaching and non-teaching personnel, learners, and their families. Its primary aim is to advocate for and aid in expanding food adequacy levels during the pandemic. The project is designed to achieve three objectives: developing health awareness through gardening during the coronavirus pandemic, encouraging personnel, school heads, teachers, students, and their families to plant vegetables for food consumption, and fostering an appreciation for gardening and its importance to daily life.

Despite the project's intentions, there was a lack of clarity in the guidelines provided, leading Aplaya National High School to adapt the implementation by modifying the "Gulayan sa Paaralan" procedures to fit the context of home environments. This adaptation involved activities such as vegetable gardening, utilization of garden produce, and the creation of seed banks or nurseries. This initiative aims to extend learning tasks for students and teachers while instilling the value of gardening. Over time, the "Gulayan sa Bakuran" program can help students learn from the process of growing and caring for plants.

The vegetable gardening activities initially conducted at school are now practiced at home through the "Gulayan sa Bakuran" or "Tahanan" as part of the Technology Livelihood Education (TLE) subject. During the pandemic, students, teachers, administrators, and non-teaching staff used their backyards, empty lots, or small pots to plant vegetables and fruits, providing a source of food supply during this time of crisis. Additionally, gardening has served as a productive and enjoyable leisure activity.

The researchers of this study are directly involved in the program as educators, specifically implementing the "Gulayan sa Bakuran: Container and Backyard Vegetables Gardening Program" as TLE teachers at Aplaya National High School-Annex in the City Schools Division of Santa Rosa. They have observed that the program is timely, given its objective of advocating for and aiding in the expansion of home and community food adequacy levels during the pandemic.

The project begins with an online launch and orientation after being cascaded by SDO personnel and school heads to the focal persons, teachers, and parents. After the launch and orientation, participants prepare their land or garden and seedlings for planting at home. The project's success is ensured through strong monitoring and evaluation of its implementation.

Teachers, students, parents, and non-teaching personnel are encouraged to plant easily grown vegetables at home, such as onions, sweet potatoes, ginger, garlic, radish, cassava, river water spinach, jute leaves, mustard, snow cabbage, malabar spinach,

camote leaves, gabi, tomatoes, eggplants, lady's fingers, bitter gourd, and chili peppers. These vegetables provide fresh, edible portions of herbaceous plants—roots, stems, leaves, flowers, fruits, or seeds—that participants can use for food consumption.Sufficient knowledge about plant growth is necessary for successful gardening. For root crops, a wide area with full sunlight and well-drained soil is essential, along with organic fertilizer and proper soil preparation. Leafy vegetables require moist, nutrient-rich soil with continuous irrigation, while fruits need fertile, sandy loam soil. Moreover, the "Gulayan sa Tahanan" program not only teaches learners how to plant and gain profit from gardening but also fosters young entrepreneurship, benefiting students from all socioeconomic backgrounds by nurturing unconventional talents and skills. This entrepreneurial activity creates opportunities, ensures social justice, instills confidence, and stimulates the economy, creating income opportunities for the participants and others.

Given these observations, the researchers believe there is a need to assess the "Gulayan sa Bakuran" program at Aplaya National High School-Annex, Division of Santa Rosa City, as a basis for an entrepreneurial program. This assessment will involve the participating teaching and non-teaching personnel and students, aiming to initiate vegetable gardens in their homes as a sustainable food basket for daily vegetable consumption.

Research Questions

The study aims to assess the Gulayan sa Bakuran in Aplaya National High School - Annex, Division of Santa Rosa City: Basis for Entrepreneurial Program

Specifically, it seeks to answer the following questions:

1. What is the profile of the respondents in terms of:
    - 1.1. Teaching/ Non-Teaching
        - 1.1.1. Age
        - 1.1.2. Sex
        - 1.1.3 Educational Attainment
        - 1.1.4 Length of Service
    - 1.2. Students
        - 1.2.1 Age
        - 1.2.2 Sex
    - 1.3 Parents
        - 1.3.1 Age
        - 1.3.2 Sex
        - 1.3.3 Educational Attainment
        - 1.3.4 Employment Status
2. What do respondents grow in their backyard in terms of:
    - 2.1 Root Crops
    - 2.2 Leafy Vegetable
    - 2.3 Fruits
3. How do plants grow in terms of:
    - 3.1 Root crops
    - 3.2 Leafy Vegetables
    - 3.3 Fruits

4. How do the respondents consume the backyard produce in terms of:
    4.1 Root crops
    4.2 Leafy Vegetables
    4.3 Fruits
5. What marketing plan may be developed as Basis for Entrepreneurial Program based on the findings?

METHODOLOGY

Research Design

The researcher used descriptive-quantitative research. This assumed that phenomena should be studied objectively with the goal of obtaining single truth, or at least reality within known probabilities, with an emphasis on measurement, numerical data and experiments. Specifically, this study made use of the descriptive method of research with the questionnaire as the primary instrument. A descriptive research involved collecting data to test hypotheses or to answer questions concerning the status of the subject of the study. A descriptive study determines and reports the way things are. Descriptive research is scientific research that describes events, phenomena or fact systematically dealing with a certain area or population. Specifically, it will use a descriptive-survey research design in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population (Creswell, 2002).

In this study, the use of descriptive-survey research was employed in Aplaya National High School -Annex in the Division of Santa Rosa City for SY 2020-2021. The focus of this research was to assess the Gulayan sa Bakuran in Aplaya National High School -Annex, Division of Santa Rosa City as the basis for entrepreneurial program.

Participants of the Study

This study covered the teachers and non-teaching staff and parents and students involved in the implementation of the Gulayan sa Bakuran program. For the students, a stratified random sampling technique was used in the study since the researcher selected randomly from strata that divide the population covering Grade 7. The respondents were selected using the sampling technique so that the researcher may fairly generalize the results back to the population from which they were chosen. A total of 61 teaching staff of Aplaya National High School - Annex participated in the Gulayan sa Bakuran based on the school record. Further, all the 10 non-teaching staff were also included.

Table 1

Distribution of student participants by Section in Grade 7

Sections	Students	
	Population	Sample
Archimedes	56	10
Aristotle	56	10
Copernicus	55	10
Euclid	56	10
Kepler	56	10
Pasteur	55	10
Faraday	69	15
Descartes	72	15
Newton	66	12
Kelvin	72	15
Galileo	74	15
Pascal	71	15
Maxwell	72	15
Edison	71	15
Mendel	72	15
Ptolemy	73	14
Total	**1,046**	**206**

Table 1 shows the distribution of student participants in Grade 7 in terms of their respective sections. Using Slovin's formula with 95% confidence level and 5% margin of error, the total population of 1,046 students who were involved in Gulayan sa Bakuran had a sample size of 206. The online distance learning sections Archimedes, Aristotle, Copernicus, Euclid, Kepler, and Pasteur had 10 participants each while the modular distance learning sections had 15 student-respondents for each except for Newton with 12 and Ptolemy 14 student-participants. As stated, the sample size employed a stratified random sampling technique so that it will enable the researcher to obtain a sample population that best represents the entire population being studied and making sure that each subgroup of interest was represented.

Instrumentation

The key instrument used in the study is a survey questionnaire. A questionnaire is a set of orderly arranged questions, carefully prepared to answer the specific problems of the study (Zulueta and Costales, 2003).

A questionnaire was devised to obtain necessary data in the Gulayan sa Bakuran in Aplaya National High School -Annex, Division of Santa Rosa City as Basis for Entrepreneurial Program. It was composed of two parts. The first part determined the demographic characteristics of the respondents while the second part identified the assessment of Gulayan sa Bakuran program in Aplaya National High School -Annex in the Division of Santa Rosa City specifically asking for the grown plants classified under root crops, leafy vegetables, and fruits. Further, questions pertaining to the consumption

of the produce were included. A five-point rating scale indicated below was used to answer specific questions relative to the treatise.

Rating		Range		Interpretation
5	-	4.51-5.00	-	Always (Daily/Everyday)
4	-	3.51-4.50	-	Often (4 times a week)
3	-	2.51-3.50	-	Sometimes(2times a week)
2	-	1.51-2.50	-	Seldom (Once a week)
1	-	1.00-1.50	-	Never (Never)

The draft of the instrument was submitted to the research adviser for checking. Then, it was subjected to a dry run for validation among 10 teaching and non-teaching, and 10 students and 10 parents who were not involved in the study. The results of the dry run served as a basis in revising and improving the instrument prior to its actual administration.

The instrument was administered among the respondents via online using Google forms and/or email. The gathered data were tallied, tabulated, and analyzed accordingly.

Data Gathering Procedure

The gathering of data began with the process of seeking permission and approval to conduct the study. A letter was sent to the principal or school head of Aplaya National High School Annex requesting for the approval to conduct the online survey. Upon approval, the researcher started the study by subjecting the respondents to answer the validated questionnaire. Also, questions regarding the survey were entertained and answered by the researcher and the instructions were clearly explained before the respondents started doing the activity. The last step of data gathering was collecting the accomplished survey in the google form to come up with the data that were subjected to statistical treatment, analysis, interpretation and presentation.

In addition, the ethical guidelines as specified in the research management guidelines of the Department of Education were followed by the researcher, as those ethical considerations were carefully observed throughout this study. The consent form to the participants required the researcher to explain to them the importance/significance and objectives of the study. The data and information gathered were kept in full confidentially. The works of researchers of other authors were properly recognized.

Statistical Treatment of Data

The researcher used the frequency count and percentage distribution to determine the profile of the respondents in terms of age and gender. Percentage distribution is a descriptive statistic used to determine the number of respondents responding to a particular category against the total number of the respondents while frequency count refers to the number of times the response falls or occurs under a given category.

The formula in getting the percentage is:

$$\%=f/(x)100\%$$

Where:

%- percent 100- constant

f- Frequency

x- Total number of respondents

The Weighted Mean was used to determine the Gulayan sa Bakuran in Aplaya National High School -Annex, Division of Santa Rosa City: Basis for Entrepreneurial Program in terms root crops, leafy vegetables and fruits consumption.

The Weighted Mean was used to calculate the central tendency of the response of the respondents. The formula for getting the Weighted Mean is:

$$WM= (\sum fx)/n$$

Where:

$\sum fx$= sum of all the products of f and x

Where:

f= frequency.

X= weight of each option

$\sum$= sum of all

n= total population

To interpret the weighted mean, a five-point rating scale indicated below will be used to determine assessment of Gulayan sa Bakuran program:

Rating		Range		Interpretation
5	-	4.51-5.00	-	Always (Daily/Everyday)
4	-	3.51-4.50	-	Often (4 times a week)
3	-	2.51-3.50	-	Sometimes(2times a week)
2	-	1.51-2.50	-	Seldom (Once a week)
1	-	1.00-1.50	-	Never (Never

Moreover, One-Way Analysis of Variance (ANOVA) was utilized to test the significant difference on the Gulayan sa Bakuran in Aplaya National High School - Annex, Division of Santa Rosa City as Basis for Entrepreneurial Program.

$$F = \frac{MST}{MSE}$$

$$MST = \frac{\sum_{i-1}^{k}(T_i^2/n_i) - G^2/n}{k \quad 1}$$

$$MSE = \frac{\sum_{i-1}^{k}\sum_{j-1}^{n_i} Y_{ij}^2 \quad \sum_{i-1}^{k}(T_i^2/n_i)}{n-k}$$

In the given formula, F is the variance ratio for the overall test, MST is the mean square due to groups (between groups), MSE is the mean square due to error (within groups, residual mean square), Yij is an observation, Ti is a group total, G is the grand total of all observations, ni is the number in group i and n is the total number of observations.

Pearson r Coefficient of Correlation was used to determine the significant relationships namely: how the respondents grow the plant and consumed the produce in terms of Root crops, Leafy Vegetables, and Fruits; and the respondents' profile and the plants they grow in terms of root crops, leafy vegetables, and fruits.

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

In the given formula, Pearson r was used to analyze if a relationship exists between two variables, x and y. If there is a relationship that exists, then the extent that x influences y can be determined by means of the coefficient of determination which is equal to the square of r and multiplied by 100%.

r is the correlation coefficient, xi are the values of the x-variable in a sample, \bar{x} is the mean of the values of the x-variable while y_{i} are the values of the y-variable in a sample and \bar{y} is mean of the values of the y-variable.

Scope and Limitations

The study focuses on the assessment of the Gulayan sa Bakuran in Aplaya National High School -Annex, Division of Santa Rosa City: Basis for Entrepreneurial Program in Aplaya National High School Annex in the Division of Santa Rosa City for School Year 2020-2021. It covers the teachers, students and non-teaching staff involved in the implementation of the said program root crops such as Onions ,Sweet Potatoes, Ginger, Garlic ,Radish and Cassava, in leafy vegetables, River water/spinach, Jute leaves, Mustard, Snow Cabbage, Malabar Spinach, Camote leaves, and Gabi, and fruits are Tomato, Eggplant, Lady's fingers, Bitter gourd, and Chili Peppers, since the researcher will randomly select Grades 7 because the researcher is a grade 7 teacher in TLE that's why she uses grade 7 as one of her respondents.. Using Slovin's formula with 95% confidence level and 5% margin of error a total of 198 students will be selected from 16 sections. The respondents will be selected using the sampling technique so that the researcher may fairly generalize the results back to the population from which they were chosen. The school is selected because it is one of the institutions in the city division classified as very large in terms of its typology. In addition, it is the researcher's teaching post. Relative to teacher-participants, demographic profiles such as age and gender will be considered. All the 51 teachers of Aplaya National High School Annex participating in the Gulayan sa Bakuran will be involved in the study. Further, all the 10 non-teaching staff will also be included.

RESULTS

A. How Respondents Grow Specific Plants. The findings of the study revealed that there is a significant difference on how the respondents grow the specific plants in terms of root crops based on the computed F-value of 7.49.

On the other hand, leafy vegetables obtained a computed F-value 0.74 revealing that there is no significant difference on how the respondents grow the specific plants in terms of leafy vegetables.

Lastly, a computed F-value of 0.53 was found in terms of fruits which implied there is no significant difference on how the respondents grow the specific plants in terms of fruits.

B. How Respondents Consume the Produce of Specific Plants. The results disclosed that in root crops there is a computed F-value of which means that there is a significant difference on how the respondents consume the produce of specific plants in terms of root crops.

Moreover, leafy vegetables obtained a computed F-value of 8.48 explaining that there is a significant difference on how the respondents consume the produce of specific plants in terms of leafy vegetables.

Furthermore, a computed F-value of 9.94 was obtained in terms of fruits displaying that there is a significant difference on how the respondents consume the produce of specific plants in terms of fruits.

C. Relationship Between Teaching/Non-Teaching and How they Grow the Plant and Consume the Produce of a Specific Plant. A computed r-value of 7.63 was obtained interpreted as very high implying that there is a significant relationship between teaching and non-teaching personnel's manner of growing plant and consumption of the produce with the specific plants classified under root crops.

There is a significant relationship between teaching and non-teaching personnel's manner of growing plants and consumption of the produce with the specific plants classified under leafy vegetables as revealed by the computed r-value of 8.48 interpreted as very high.

Lastly, a computed r-value of 9.94 interpreted as very high was obtained displaying that there is a significant relationship between teaching and non-teaching personnel's manner of growing plants and consumption of the produce with the specific plants classified under fruits.

D. Relationship Between Parents/Students and How they Grow the Plant and Consume the Produce of Specific Plants. There is a significant relationship between parents and students' way of growing plants and consumption of the produce with the specified plants classified under root crops as exhibited with the obtained computed r-value of 7.49 interpreted as very high.

A computed r-value of 0.74 was garnered and interpreted as high revealing that there is no significant relationship between parents and students' manner of growing of plant and consumption of the produce with the specific plants classified under leafy vegetables.

Lastly, a computed r-value of 0.53 interpreted as moderate was found exhibiting that there is no significant relationship between parents and students' manner of growing of plant and consumption of the produce with the specific plants classified under fruits.

E. Relationship of Between How the Plants Grow to the Profile of Teaching/ Non-Teaching Respondents. In terms of age, a computed r-value of -0.09, 0.04 and -0.05 were obtained having a negligible correlation. Thus, there is no significant relationship between age and how the plants grow in root crops, leafy vegetables, and fruits to teaching and non-teaching respondents.

Relative to sex, a computed r-value of 0.09, 0.16 and -0.04 with a negligible correlation were garnered revealing that there is no significant relationship between sex and how the plants grow in root crops, leafy vegetables, and fruits to teaching and non-teaching respondents.

Meanwhile, a computed r-value of -0.25, -0.08 and -0.01 were obtained implying that there is a negligible correlation were obtained in terms of educational attainment. Hence, there is no significant relationship between educational attainment and how the plants grow in root crops, leafy vegetables, and fruits to teaching and non-teaching respondents.

Furthermore, a computed r-value of -0.04, 0.18 and 0.04 interpreted having a negligible correlation were found revealing that there is no significant relationship between length of service and how the plants grow in root crops, leafy vegetables, and fruits to teaching and non-teaching respondents.

F Relationship of Between How the Plants Grow to the Profile of Parent Respondents. In terms of age, a computed r-value of 0.06, 0.08 and 0.01 were obtained having a negligible correlation. Thus, there is no significant relationship between age and how the plants grow in root crops, leafy vegetables, and fruits to parent respondents.

Relative to sex, a computed r-value of 0.05, 0.05 and 0.12 with a negligible correlation were garnered revealing that there is no significant relationship between sex and how the plants grow in root crops, leafy vegetables, and fruits to parent respondents.

Meanwhile, a computed r-value of -0.09, -0.09 and -0.13 interpreted having a negligible correlation were obtained in terms of educational attainment. Hence, there is no significant relationship between educational attainment and how the plants grow in root crops, leafy vegetables and fruits to parent and student respondents.

Furthermore, a computed r-value of -0.08, -0.07 and -0.10 interpreted with a negligible correlation were found revealing that there is no significant relationship between employment status and how the plants grow in root crops, leafy vegetables and fruits to parent and student respondents.

G. Relationship of Between How the Plants Grow to the Profile of Student Respondents. A computed r-value of -0.06, -0.02 and 0.01 were obtained having a negligible correlation. Thus, there is no significant relationship between age and how the plants grow in root crops, leafy vegetables, and fruits.

Lastly, a computed r-value of -0.10, -0.09 and -0.01 interpreted having a negligible correlation were found uncovering that there is no significant relationship between sex and how the plants grow in root crops, leafy vegetables, and fruits to student respondents.

DISCUSSION

Table 1

Demographic Profile of Teaching/ Non-Teaching Participants

Characteristics	F	%
1.1. Age		
21-30	11	18%
31-40	25	41%
41-50	19	31%
51-60	5	8%
61 and above	1	2 %
Total	**61**	**100%**
1.2. Sex		
Male	11	18%
Female	50	82%
Total	**61**	**100%**
1.3. Educational Attainment		
Bachelor's degree	37	61%
Bachelors with MA Units	17	28%
Master of Arts degree	4	6%
Master of Arts with Doctorate Units	2	3%
Doctoral degree	1	2%
Total	**61**	**100%**

1.4.	**Length of Service**		
3 years and below		18	30%
4-9 years		24	39%
10-14 years		8	13%
15-20 years		7	11%
21 years and above		4	7%
Total		**61**	**100%**

Table 1 shows the demographic profile of the teaching and non-teaching participants in terms of age, sex, educational attainment, and length of service. In terms of age, 25 (41%) of the respondents belong to 31-40 years old, 19 (31%) of the respondents belong to 41-50 years old, 11 (18%) of the respondents were from 21-30 years old, 5(8%) from 51-60 years old and 1 (2%) belong to 61 and above. The teaching and non-teaching personnel belonged to the early and middle adulthood stage with age groups spanning from 18-40 as early adults; 40-65 as middle adults. The study assumes that age variable influences the respondent's assessment of the Gulayan sa Bakuran Program as found in several studies like Scott et. al. (2020) which examined relationships between home gardening and older adults' self-reported well-being. It showed adults aged 60 and above showed positive aging-self perceptions towards aging while engaged in gardening activities at home. Gardens provide important restorative benefits for older adults. Likewise, the study of Chamin-Pui et. al. (2021) found significant associations between improvements in well-being, perceived stress, and physical activity across ages. The participants in the said study were gardeners and non-gardeners above 18 years.

Relative to sex, 50 (82%) were female and 11 (18%) were male. Majority of the teaching and non-teaching were female. The sex variable is assumed to have effect on the Gulayan sa Paaralan Program. The study of Philpott et. al (2020) revealed that gender influenced plants' richness and composition. Specifically, women plant more plant species than men. It was also concluded that plant selection as well as the richness of plants grown are likely a function of gardener socio-demographic characteristics. The findings of the said study could shed light to the present study since there is a dominance of the female group among the teaching and non-teaching personnel.

In terms of educational attainment, there were 37 (61%) respondents having bachelor's degree followed by 17 (28%) Bachelor's degree with MA Units, 4 (6%) with Master of Arts degree, 2 (3%) with Master of Arts with Doctorate Units and 1 (2%) having Doctoral degree. All the teaching and non-teaching participants were educationally qualified. Majority of them showed a basic entry requirement in the public school which is a bachelor's degree. On the other hand, it can be noted that several participants pursue continuing professional development, specifically acquiring further graduate studies units

and degrees. It indicates that teaching and non-teaching staff are already concerned about their educational qualification and professional development as revealed by Gula-gula (2021). On the other hand, there are still staff in the locale of the study whose educational qualification is equivalent to the minimum entry requirement. This could be supported by the age of the said personnel. They could acquire advanced knowledge and skills in pedagogy and work if they continue to pursue graduate studies like their fellow teachers and staff.

In terms of length of service,18 (30%) had 3 years and below, 24 (39%) with 4-9 years, 8 (13%) having 10-14 years, 7 (11%) with 15-20 years and 4 (7%) having 21 years and above. It can be gleaned from the teaching and non-teaching personnel that they had diverse years of service in the institution. Most of them had served their school from 4 -9 years while others have been in the field for more than a decade. It signifies that they have acquired varied experiences in participating different school programs like the Gulayan sa Bakuran.

Significantly, among the demographic profile most of the respondents belong to 31-40 years old in terms of age. In terms of sex, majority were female and majority of the respondents' educational attainment were bachelor's degree holder. Lastly, most of the respondents had 4-9 years length of service.

Table 2

Demographic Profile of Pupil Participants

Characteristics	F	%
1.5. **Age**		
12 Years old	98	48%
13 Years old	98	48%
14 Years old	10	4%
Total	**206**	**100%**
1.6. **Sex**		
Male	110	53%
Female	96	47%
Total	**206**	**100%**

Table 2 displays the demographic profile of the student-participants highlighting age and sex. In terms of age, 98 (48%) were 12 years old, 98 (48%) were 13 years old and 10 (4%) were 14 years old. The students were at the appropriate age as Grade 7 students. Majority of them are aged 12 - 13 years old. They belong to the adolescent stage, also known as teenagers. The age characteristics of the students is assumed to influence their assessment towards the Gulayan sa Paaralan. According to Cornell University (2020) gardening improves opportunities for children, youth, adults, and families to gain interest and eat more fruits and vegetables. Middle school-aged students indicate that gardening affects their vegetable consumption, including improved recognition of, attitudes towards, preferences for, and willingness to taste vegetables. Gardening also increases the variety of vegetables eaten.

In terms of sex, 110 (53%) were male while 96 (47%) were female. Majority of the students were male. Van et. al. (2016) in their study found that students participating in gardening were most likely to be male of younger age and living in rural areas. It was also found that gardening was positively associated with healthy dietary habits among students such as greater fruit and vegetable consumption. Also, students also who participate in gardening report slightly lower levels of depressive symptoms and enhanced emotional well-being and experience higher family connection than students who do not participate in gardening. In the study of Lier et. al. (2016) participation in the gardening activity implemented by school is dominated by the male students. Students who participated in gardening were more likely to share frequent meals with their families than students without gardens at home. Furthermore, results showed fruit and vegetable consumption and home availability of fruits and vegetables were significantly associated with gardening activity. In general, Utter et. al. (2016) concluded that school gardens have a positive impact on student health.

The table reveals that in terms of age most of the respondents were 12 and 13 years old. Lastly, relative to sex majority of the students were male.

Table 3

Demographic Profile of Parent Participants

Characteristics	F	%
1.7. <u>Age</u>		
21-30	8	4%
31-40	106	51%
41-50	72	36%
51-60	17	8%

61 and above	3	1%
Total	**206**	**100%**

1.8. **Sex**		
Male	28	14%
Female	178	86%
Total	**206**	**100%**

1.9. **Educational Attainment**		
1.10. Elementary graduate 2%	5	
1.11. High School graduate 50%	104	
1.12. College undergraduate 31%	63	
Bachelor's degree	34	17%

1.13. **Employment Status**		
1.14. Employed Specify 33%	68	
1.15. Unemployed 67%	138	
Total	**206**	**100%**

BARANGAY/RESIDENCE		
Ibaba	7	4 %
Kanluran	4	2 %
Labas	41	23 %
Malusak	32	18 %
Market Area	34	19 %
Tagapo	60	34%
Total	**178**	**100%**

Table 3 reveals the demographic profile of parents in terms of age, sex, educational attainment, employment status and residence. In terms of age, 8 (4%) of the respondents belong to 21-30 years old, 106 (51%) of the respondents belong to 31-40 years old, 72 (36%) of the respondents were from 41-50 years old, 17 (8%) from 51-60 years old and 3 (1%) belong to 61 and above. Like the teaching and non-teaching personnel, the parent participants belonged to the early and middle adulthood stage. It is also assumed that their age distribution influences their assessment of the Gulayan sa Paaralan Program. Bui et. al. (2018) stated that parents have an impact on a child's development. The study assumes that parents also play a role in the implementation of the gardening program under study. On the other hand, Cornell University (2020) found that having a garden as an adult was positively associated with fruit and vegetable consumption.

Relative to sex, 28 (14%) were male and 178 (86%) were female. Majority of the parent participants were female. As stated in the study of Philpott et. al (2020) it revealed that gender influenced plants' richness and composition. The current study assumes that the sex variable of parents influences their assessment towards the gardening program. Specifically, women plant more plant species than men. It was also concluded that plant selection as well as the richness of plants grown are likely a function of gardener socio-demographic characteristics.

In terms of educational attainment, there were 5 (2%) who were Elementary graduates, 104 (50%) high school graduates, 63 (31%) college undergraduates and 34 (17%) obtaining bachelor’s degrees. The parents showed a diverse educational level. Majority of them have completed basic education as high school graduates. Several of them have attained college level and degrees. The educational attainment of parents reflects their knowledge about planting and growing various plants. Duncan (2016) noted that households with gardens had students more interested in participating in the school garden program.

In terms of employment status, 68 (33%) were employed while 138 (67%) were unemployed. Thus, majority of the parents were unemployed. This means that they have more time to participate in the Gulayan sa Bakuran. The study also assumes that the Gulayan sa Paaralan is an avenue for the unemployed parents to generate profit to support and produce a sustainable source of food for the family. For employed parents, the gardening program assumes associations between improvements in well-being, perceived stress, and physical activity of parents as reiterated by Chamin-Pui (2021). In a systematic review on environmental influences on fruit and vegetable consumption, Cornell University (2020) revealed improved intakes in fruits and vegetables. Further, the study of Taboka (2016) showed results that gardens had positive gross margins to leafy vegetables, onions, tomatoes, and green pepper which showed higher viable gross margins.

Lastly, in terms of residence 7 (4%) reside in Ibaba, 4 (2%) from Kanluran, 41 (23%) from Labas, 32 (18%) from Malusak, 34 (19%) from Market Area and 60 (34%) residing in Tagapo. Majority of the respondents confirmed that they reside in areas near the school namely Labas, Malusak, Tagapo and Market Area. These areas are

commercial sites where there is a possibility to sell various kinds of vegetables and crops grown by the residents from the Gulayan sa Paaralan. In these areas the parents are near the market that is why they can sell their vegetables, fruits, and root crops. While in Ibaba and Kanluran they are far from the market, so they just consume it by their family. Rojo et. al. (2015) categorizes family gardens as urban food gardening which encompass agricultural activities with generally low economic dependence on material outputs. Family gardens in urban settings are non-commercial, food producing undertakings that aim to provide the respective household and families with vegetables, fruits, and herbs. The type of urban setting highly influences the character of the garden. In dense urban areas, balcony or rooftop cultivations in pots are more common, whereas in detached housing, a part of the garden is allocated to growing vegetables, fruits, and herbs.

As highlighted in this table, among the demographic profiles most of the respondents belong to 31-40 years old in terms of age. Relative to sex, majority were female and majority of the respondents' educational attainment were high school graduate. In addition, most of the parent respondents were unemployed. Lastly, most of the respondents reside in Barangay Tagapo.

Conclusions

Corollary to the findings, the following conclusions were drawn:

1. Profile of the Respondents

1.1 Teaching and Non-Teaching Personnel. Majority belong to 31-40 years old, female and having bachelor's degree. Lastly, mostly had 4-9 years length of service.
1.2 Students. Most of the respondents were 12 and 13 years old and male.
1.3 Parents. Most of the respondents belong to 31-40 years old, female and high school graduates. In addition, most of the parent respondents were unemployed and residing in Barangay Tagapo.

2. Respondents Plants Grown in the Backyard

In terms of root crops, teaching and non-teaching personnel commonly planted onions and ginger while parents and students typically were planting onions and sweet potatoes. Relative to leafy vegetables, teaching and non-teaching personnel commonly planted kamote leaves/tops and pechay while parents and students were planting kangkong and camote leaves/ tops typically.

Lastly, teaching, and non-teaching personnel usually planted sili (chili peppers) while parents and students were commonly planting tomatoes in terms of fruits.

3. How Plants Grow in the Backyard

There are varied responses on how the plants grow in the backyard. In generally, plants classified under root crops considered the following ways: in planting onions, majority of the teaching and non-teaching personnel revealed that it grows in the backyard

by transplanting/using bulbs - plants the bulb ¾ inch deep and 3 inches apart from each while parents and students revealed that in planting onions, they ensured that the plant site receives full sunlight and maintains well-drained soil. Both the teaching and non-teaching personnel and parents and students revealed that in planting sweet potatoes, they ensure the planting site receives full sunlight and warm climate. In planting ginger, both the teaching and non-teaching personnel and parents and students revealed they choose a planting site that receives 2 - 5 hours direct sunlight and is protected from strong winds. In planting garlic, the teaching and non-teaching personnel mentioned that they harvest garlic when most of the leaves have turned brown by digging the bulbs up while parents and students revealed that they water the plant regularly when it is dry.

Relative to radish, teaching and non-teaching personnel considered setting the planting site with partial shade from sunlight. On the other hand, parents and students considered preparing the soil, removing rocks, trash, and large sticks from the planting area. Both the teaching and non-teaching personnel and parents and students revealed that in planting sweet potatoes, they ensure the soil in the plant site is loose and not water logging.

In leafy vegetables, the following were the usual ways of growing the plants: in planting kangkong (river/water spinach), they ensure the planting site has watery or swampy and/or muddy soil with lots of organic matter and full sunlight. In planting saluyot (jute leaves), teaching and non-teaching personnel considered harvesting saluyot late in the afternoon 30 days after planting by cutting the crop 20 - 25 cm from the ground. Subsequent harvesting is done 1 to 2 weeks interval up to 7 months while parents and students revealed that they select a planting area that has full sun or partial shade with well-worked, well-drained soil rich in organic matter.

Both the teaching and non-teaching personnel and parents and students revealed that in planting mustasa, they select a planting area that has full sun or partial shade with well-worked, well-drained soil rich in organic matter. In planting pechay, teaching and non-teaching personnel considered watering the plants well daily and watching it grow in a few days while parents and students revealed that they select a sunny place and loamy soil with plenty of organic materials. In planting alugbati, teaching and non-teaching personnel mentioned that they apply compost or manure once a month to maintain fertility of the soil while parents and students revealed that they water the plant regularly in the morning and late in the afternoon.

In addition, both the teaching and non-teaching personnel and parents and students revealed that in planting camote leaves, they ensure the planting site receives full sunlight and warm climate. In planting gabi (taro), teaching and non-teaching personnel stated that the leaves were picked as soon as the first leaf has opened; harvest taro leaves cut-and-come-again, never stripping the plant of all its leaves while parents and students revealed that they select a planting site that has rich, moist, well-drained soil to moisture-retentive soil.

When it comes to fruit, the following were the common practices: Both the teaching and non-teaching personnel and parents and students revealed that in planting tomato

(kamatis) they ensure the site receives 6 hours of sunlight each day. Similarly, in planting eggplant (talong) they ensure that the soil is well-drained, fertile, sandy loam with a pH between 5.5 and 7.2. Moreover, in planting okra they ensure the planting site has full sunlight and fertile, well-drained soil.

In planting ampalaya (bitter gourd)/leaves, teaching and non-teaching personnel mentioned that they harvest the first batch of immature fruits at a deep green stage. These are approximately 25-30 cm long. Repeat harvesting every 3-5 days preferably in the morning to maintain the freshness of the fruits. Do not harvest the shoots because it will lessen the fruit-bearing performance of the plant resulting in reduced fruit yield. On the other hand, parents and students employed direct seeding or breaking the seed coat lightly and soak the seeds in water for 24 hours, then wash. Incubate for 24-48 hours until the radicles appear. On the first day, plant the seeds with uniform germination to have a uniform stand of plants on site. Lastly, in planting sili (chili pepper)/leaves both the teaching and non-teaching personnel and parents and students revealed that they pluck and/or cut the leaves from the stem.

4. Consumption of Backyard Produce

Both the teaching and non-teaching personnel and parents and students usually share the root crops, leafy vegetables and fruit produce with other households or to the local community.

5. Results of Hypothesis Testing for Significant Difference/ Relationship

5.1 How Respondents Grow Specific Plants. There is a significant difference on how the respondents grow the specific plants in terms of root crops on the other hand, there is no significant difference on how the respondents grow the specific plants in terms of leafy vegetables. Lastly, there is no significant difference on how the respondents grow the specific plants in terms of fruits.

5.2 How Respondents Consume the Produce of Specific Plants. The results disclosed that there is a significant difference on how the respondents consume the produce of specific plants in root crops, leafy vegetables, and fruits.

5.3 Relationship Between Teaching/Non-Teaching and How they Grow the Plant and Consume the Produce of a Specific Plant. There is a significant relationship between teaching and non-teaching personnel's manner of growing plants and consumption of the produce with the specific plants classified under root crops, leafy vegetables and fruits.

5.4 Relationship Between Parents/Students and How they Grow the Plant and Consume the Produce of Specific Plants. There is a significant relationship between parents and students' way of growing plants and consumption of the produce with the specified plants classified under root crops. On the other hand, there is no significant relationship between parents and students' manner of

growing of plants and consumption of the produce with the specific plants classified under leafy vegetables and fruits.

5.5 Relationship of Between How the Plants Grow to the Profile of Teaching/ Non-Teaching Respondents. There is no significant relationship between the demographic profile such as age, sex, educational attainment, and length of service and how the plants grow in root crops, leafy vegetables and fruits to teaching and non-teaching respondents. Thus, a negligible correlation was underscored.

5.6 Relationship of Between How the Plants Grow to the Profile of Parent Respondents. There is no significant relationship between the demographic profile such as age, sex, educational attainment, and employment status and how the plants grow in root crops, leafy vegetables and fruits to parent and student respondents. Consequently, a negligible correlation was accentuated.

5.7 Relationship of Between How the Plants Grow to the Profile of Student Respondents. There is no significant relationship between the demographic profile such as age and sex and how the plants grow in root crops, leafy vegetables, and fruits to student respondents. Thus, a negligible correlation was revealed.

Recommendations

Considering the salient findings and concrete conclusions derived from the study, the following are highly recommended to:

School Administrator Since the school head is one of the major implementers of the Gulayan sa Bakuran: Container and Backyard Vegetables Gardening Program, the result of the study could provide objective data on the assessment of the said program. Eventually, it will provide a basis for an entrepreneurial program which may be a sound basis of policy making, guidelines formulation and monitoring and evaluation of the program. The school heads are hereby encouraged by the following in recommendations:

1.Encourage local school districts to participate in backyard gardening.
2.Encourage all schools to provide a feeding program out of the produce.
3. Support the development of a backyard gardening program.
4. Support upgrades or exchanges of equipment to homes.
5. Strengthen bonds between home gardeners, schools, and communities.
6. Foster respect and concern for the environment.
7. Involve community volunteers, who assist students as they plant, tend, and learn.
8. Plan/ modify a garden program that is in line with the backyard gardening inspired curriculum.
9. Attend regular meetings to facilitate the rollout of the vegetable garden, indigenous garden, along with general problem solving and planning of special events, publicity etc.

10. Plan weekly garden classes/ technical assistance, ensuring they are applicable to all participating age groups.
11. Plan the planting of the vegetable and backyard gardening and involve the whole school community in the process.
12. Plan any development of the vegetable garden infrastructure – incorporating the pre-existing vision – and involve the school community in the process.
13. Coordinate and support garden volunteers, compile and update volunteer information, help coordinate volunteer events, advertise for volunteers and respond to interest from potential volunteers

Teachers -The results of the study could provide teachers deeper appreciation which may lead to integration of concepts related to gardening and the Gulayan sa Bakuran program in the teaching and learning process. Likewise, it may serve as reflection on how the program turns to be a productive activity as part of Work from Home (WFH) that may have a health benefit in its longer sense and for its economic benefit the study could value the available specifically the planted vegetables as food amidst the crisis posed by COVID-19. The following are therefore suggested.

1. As a teacher, you should be able to have open communication regarding the topic of Gulayan sa Paaralan.
2. Continually communicate with parents and children via messenger about the assessment gulayan sa paaralan.
3. Communicate the school regarding the results of the output of the learners.
4. Students' progress in terms of how they plant leafy vegetables, fruits, and root crops should be monitored on a regular basis.
5. Discuss the planting in their garden with the parents and students as it relates to the gulayan sa bakuran assessment.
6. Extend the classroom beyond traditional settings by expanding it outside and more particular to every home.
7. Provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving.
8. Develop self-confidence and a sense of "capableness" along with new skills and knowledge in food growing as vital for the 21st century among the learners/
9. Provide garden-based teaching addresses different learning styles and intelligences.
10. Inculcate student responsibility, patience, perseverance, and how to deal with disappointment if the garden does not grow the way they expected.

School Staff - In addition, school staff could develop health awareness through gardening while having more time at home during coronavirus pandemic. In addition, the study may help in promoting food security. Gardening may give learners hands-on learning opportunities while also raising environmental awareness and providing valuable on hand learning. School gardens are also a fantastic approach to teach children about nutrition by allowing them to connect the dots between growing food and eating a healthy diet.The following are therefore suggested.

1. Include nutritional education, shown to improve attitudes toward vegetables in general.
2. Encourage family members to plant vegetables and promote healthy habits to continue.
3. Engage the students in the whole process (planning, implementation, and evaluation).
4. Equip learners with food processing to further utilize the harvests/produce (canning, freezing, drying, etc.).
5. Capacitate learners with food processing ideas/ innovation to further utilize the harvests/produce (canning, freezing, drying, etc.).

Students- could see that gardening has always been a very important segment of one's life in and out of the school. Likewise, students may realize that a healthy body is essential in developing their mental and physical aspects. Being one of the respondents in assessing the Gulayan sa Paaralan:The following are the recommendations for the students.

1. While still young you must learn how to plant.
2. You need to learn to eat leafy vegetables,root crops and fruits.
3. Remember that vegetables and fruits are delicious to eat if you grow them yourself.
4. Learn the proper process of what to do first.
5. Your habit of planting it is good for the environment and also for your personal life.
6. Spend more time active in backyard gardening.
7. Start choosing healthy foods over junk food.
8. Learn to focus, be patient, and cooperative in the Gulayan activity at home.
9. Participate in school and backyard gardening programs.
10. Demonstrate increased self-esteem and an improved understanding of personal responsibility, as well as enhanced relationships and increased involvement with parents and other family members.
11. Recognize the importance of food security.
12. Be resourceful about obtaining items needed for the garden.

Parents- The more parents involved in their student's education, the better their entire motivation, behavior, and participation specifically in the Gulayan sa Bakuran Program. Thus, this study could raise parent's consciousness on health and nutrition by planting vegetables in available spaces in their homes. Keeping your children engaged and challenged in their educational setting, as well as supporting their learning, is an important part of being involved in their life.In this assessing of Gulayan sa Bakuran when the students sees that parents are active in doing this outdoor activity for sure they will be more easily to learn it.The following are suggested to the Parents;

1. Provide them more instruction about how plants grow, what are the benefits in doing this activity.
2. Implement them the importance of knowing how to cultivate the soil in a proper way.

3. When they are doing the planting on their own,as a parent you should monitor their work if they do correctly.
4. Parents should be a model to students.
5. Always support your students if you see that they love this kind of program.
6.Plan/design their backyard garden according to their site and goals.
7. Inculcate to their children responsibility, patience, perseverance, and how to deal with disappointment if the garden does not grow the way they expected.
8. Incorporate Garden harvests/produce into meal programs, so students benefit from the added nutritional value of backyard-grown produce.
9. Ensure that their children eat right and have an active role in backyard gardening. Also, ensure that children have access to healthy food.
10. Work in the backyard gardening, doing general gardening tasks like weeding, and completing jobs not finished by students.

Community -The school community or stakeholders play an important role in managing schools thus involving them in the Gulayan sa Bakuran Program as partners of the school will make the school more conducive to teaching and learning. Further, the study may also enjoin them for more responsible and active participation in school activities, programs and projects.

1. Develop partnerships that can support backyard gardening.
2. Engage youth in the planning process
3. Contribute to increasing the relevance and quality of education, improving the children's and their parents' knowledge of food production techniques and nutrition.
4. Stimulate the development of home/ backyard gardens.
5. Leverage community resources and assist students in achieving positive outcomes.
6. Create a space where community members and teachers are all perceived as equal in terms of knowledge, and contributions.
7. Provide an avenue where backyard produce was swapped/bartered for other goods and/or service. Likewise, in selling/marketing the produce by a stand and/or roadside stalls or selling to retail outlets (e.g. restaurants or business establishments who purchase locally grown fruits and vegetables).

Future Researchers Future Researchers. This study could provide baseline data on future research that may be conducted related to the topic. They will be able to identify gaps and priority areas in the implementation of Gulayan sa Bakuran that may require further investigation.

Compliance with Ethical Standards

The study was carried out in accordance with ethical guidelines, ensuring that all participants provided informed consent before taking part. They were free to withdraw at any time without consequence, and their anonymity and confidentiality were strictly protected to preserve their privacy. The well-being of participants was a top priority throughout the research process. The study was free from conflicts of interest, and all

sources of information were properly cited and acknowledged to avoid plagiarism. The findings were interpreted objectively and accurately, without bias. The purpose of this study is to contribute to the Gulayan sa Bakuran"program at Aplaya National High School-Annex, Division of Santa Rosa City, as a basis for an entrepreneurial program. This assessment will involve the participating teaching and non-teaching personnel and students, aiming to initiate vegetable gardens in their homes as a sustainable food basket for daily vegetable consumption.

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“You don’t have to be great to start, but you have to start to be great.” – Zig Ziglar

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HOMEROOM GUIDANCE PROGRAM: INSTITUTIONALIZING AN ESSENTIAL NON-ACADEMIC SCHEDULE IN THE CITY SCHOOLS DIVISION OF TANAUAN

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ABSTRACT

DepEd Order No. 31, s. 2012 sets aside a time for the Homeroom period. This underlines the importance of homeroom in the school schedule. Students can easily be influenced by the environment and the media, which do not always have wholesome ideas to share. Learners need the proper guidance they can get and Homeroom periods can be one of those opportunities where they can be guided. This research is initiated to pay more attention to how Homeroom classes are conducted. The researchers will try to revisit the conduct of the homeroom periods in Tanauan City Division. If the data gathered shows inadequacy, then, modifying structure, themes, and perspective might help educators and learners get the most out of this period. Correspondingly, developing a module for homeroom classes can help deliver it according to what the Department of Education intends it to be.

Keywords: *Homeroom, Guidance, Program, Schedule, Theme*

INTRODUCTION

DepEd Order No. 31, s. 2012 provides a time for the Homeroom period. This underlines the importance of homeroom in the school schedule. Learners need the proper guidance they can get and Homeroom periods can be one of those opportunities where they can be guided. Teenage learners can be heavily influenced by the media and the environment. But the contents of the media may not always portray wholesome features

and the environment where some learners live may not be conducive to their moral and personal growth. Because of these matters, the school remains to be a relevant avenue where they can holistically grow and develop virtues that will make them worthwhile citizens when they grow older (Sutton, 2020).

To form and develop worthwhile citizens have never been so important in these times when values can easily be corrupted by irresponsible use of technology. Accordingly, there is a consensus among the older generation that young people today do not have the same values practiced before. Values formation seems to have been disregarded. In school, the homeroom period is one schedule when students can get guidance to put their lives in proper perspective. But this period of the class schedule can be spent aimlessly without any program prepared by the persons concerned.

This research was initiated to pay more attention to how Homeroom classes are conducted. There are a number of literature related to this topic, but, there is more to be explored. The researchers looked into the conduct of the homeroom period in the City Schools Division of Tanauan. The data gathered showed inadequacy, therefore modifying structure, themes and perspective might help educators and learners get the most out of this period. Correspondingly, developing a program and accompanying module for homeroom classes can be helpful in delivering it according to what the Department of Education intends it to be.

Research Questions

In educational settings, the provision of comprehensive guidance and support services plays a pivotal role in fostering students' academic achievement, socio-emotional well-being, and overall personal development. Homeroom guidance programs serve as fundamental platforms for delivering such support within schools, aiming to address students' diverse needs and equip them with essential life skills.

This study seeks to address the following key questions:

1. How is homeroom class being taught in terms of:
    1.1 Preparation
    1.2 Introduction
    1.3 Activity
    1.4 Summary?
2. What possible themes or lessons can be taught in the homeroom period?
3. What program should be created to truly harness the potential of the homeroom period?

METHODOLOGY

The target population of this study is Tanauan City Division secondary school heads, guidance counselors and teachers. Teachers who are current or previous class advisers are the respondents of the questionnaires because usually, they are the ones who conduct homeroom classes. Likewise, guidance counselors were involved in this study because they should be the ones who provide topics for Homeroom discussion. School heads involvement in this study was crucial because of their role as leaders of the schools. They should be knowledgeable about the results and implications of this division-wide research.

The study utilized researcher-made questionnaire, interviews and focus group discussions. The researchers asked the permission of the Schools Division Superintendent and concerned Supervisor for the conduct of the research. The questionnaire was given to secondary school teachers based on the sample size determination made (Kibuacha, 2021). Likewise, the school heads and guidance counselors were interviewed regarding the conduct of the homeroom classes in their respective schools. Focus group discussion was conducted with school heads, guidance counselors, and teachers for some possible modifications in Homeroom classes and creation of a Homeroom Class module that will be used in the Division.

The data collected was collated and tabulated to facilitate analysis. It was organized and categorized using the research questions to be able to identify the themes and patterns to be presented (Caulfield, 2023). To answer the particular questions raised in this study, data were treated carefully, classified and methodically organized according to the certain point established in this study.

RESULTS

1. How is homeroom class being taught?

Homeroom Structure		
1. Preparation	**Weighted Mean**	**Verbal Interpretation**
1.1 asks assistance from Homeroom Guidance Committee (or equivalent) for theme or topic for discussion	2.93	Oftentimes
1.2 reflects on the learners' needs	3.58	Always
1.3 sets aim/s or objective/s	3.55	Always
2. Introduction	**Weighted Mean**	**Verbal Interpretation**
2.1 gives the learners information about the topic	3.57	Always
2.2 tells learners what are expected from them	3.55	Always

2.3 creates a climate of oneness and acceptance among the members of the group to avoid uncomfortable moments during the activity	3.55	Always
3. Activity	**Weighted Mean**	**Verbal Interpretation**
3.1 considers activities which are relevant to learners' personal experiences	3.44	Oftentimes
3.2 provides materials or asks learners' to bring necessary materials	3.34	Oftentimes
3.3 processes activity to truly harness its effect	3.39	Oftentimes
4. Summary	**Weighted Mean**	**Verbal Interpretation**
4.1 gives reflection questions or prompts to diagnose learners' understanding	3.44	Oftentimes
4.2 asks learners for feedback or questions	3.47	Oftentimes
4.3 relates previous and future themes to the current topic whenever merited	3.43	Oftentimes

4.00 – 3.50 - Always (A) 3.49 – 2.50 - Oftentimes (O)
2.49 – 1.50 - Seldom (S) 1.49 and below - Never (N)

2. What possible themes or lessons can be taught in the homeroom period?

Grade 7		
Rank	**Topic**	**Frequency**
1	Student Profile	31
2	School Discipline	30
3	Cleanliness in the Classroom	29
4	Bullying	27
5	Report Card	23
6	Character Formation	21
8	Parent-Teacher Association	19
8	Family Relationship	19
8	Absenteeism	19
10	Love and Responsibility	17

For grade 7, the topic of Student Profile had the most frequency. As new students, the advisers should get pertinent information about them. The information gathered from the students will be helpful to know their background and better help them in cases when they fail the different standards of the school.

Grade 8		
Rank	**Topic**	**Frequency**
2	Class Officers	15
2	Report Card	15
2	Emotional Intelligence	15
4	Managing Conflicts	14
5.5	Personal Goal Setting	12
5.5	Absenteeism	12
7	Home Visitation	10
8	Leadership	8
9.5	Budgeting of Resources	6
9.5	Media Savvy (Effects of Media)	6

The topic of Class Officers had the most frequency among grade 8 advisers. The grade 8 advisers did not ignore their importance for a functional classroom, and they are worth discussing in homeroom periods. Class officers are the representatives of the teachers when they are not around.

Grade 9		
Rank	**Topic**	**Frequency**
1	Character Formation	29
2	School Discipline	27
3	Love and Responsibility	24
4.5	Student Profile	23
4.5	Cleanliness in the Classroom	23
6	Family Relationship	20
7.5	Personal Goal Setting	18
7.5	Building Self-esteem	18
9	Absenteeism	17
10	Managing Conflicts	16

Character Formation is the topic with the highest frequency among grade 9 advisers. Grade 9 level students might be at the peak of their curiosity to explore matters beyond what is acceptable to school norms which is why they face some issues with school authorities. The key remains proper guidance to avoid untoward incidents. Homeroom can be the most appropriate time to do this and character formation is highly appropriate for their level.

Grade 10		
Rank	**Topic**	**Frequency**
1	Student Profile	24
2	Character Formation	23
3.5	Family Relationships	18

3.5	Cleanliness in the Classroom	18
5	School Discipline	17
6.5	Love and Responsibility	16
6.5	Building Self-esteem	16
9	Parent-Teacher Association	15
9	Health and Grooming	15
9	Absenteeism	15

The grade 10 advisers highly ranked topics on Student Profile, Character Formation, and Family Relationships. Worth emphasizing is the choice of character formation and family relationships among them (Kapunan, 2004). Considering the needs of their students, the grade 10 advisers made appropriate choices. Providing topics regarding character and relationship to students can guide them to make correct responses in the situations they encounter.

Grade 11		
Rank	**Topic**	**Frequency**
1	School Discipline	7
3.5	Student Profile	5
3.5	Love and Responsibility	5
3.5	Building Self-esteem	5
3.5	Cleanliness in the Classroom	5
7	Character Formation	4
7	Parent-Teacher Association	4
7	Student Evaluation	4
9.5	Values, Vision and Mission	3
9.5	Class Officers	3

School Discipline had the most frequency among grade 11 advisers. Reaching senior high school does not guarantee that students are already disciplined. Underlining discipline even at this stage will be helpful to students to control themselves as they enter their adulthood.

Grade 12		
Rank	**Topic**	**Frequency**
1	School Discipline	6
2	Family Relationship	5
5	Vision for Homeroom	4
5	Personal Goal Setting	4
5	Study and Reading Strategies	4
5	Managing Conflicts	4
5	Building Self-esteem	4
9	Values, Vision and Mission	3

9	Character Formation	3
9	Leadership	3

Like the grade 11, the grade 12 advisers chose school discipline as their primary topic. Discipline is truly a factor in being able to contribute to the community. The graduating students cannot be fully contributing and functioning individuals to society unless they are taught the non-negotiable importance of discipline, especially at the last year of their high school life.

DISCUSSION

Though not primarily a content subject, homeroom can be given preparation and attention like the usual content subjects (Kelly et al., 2005). The result of the study regarding its delivery is indicated in the table. The research divided the structure of homeroom into four parts namely, preparation, introduction, activity and summary. For the first part, introduction, the indicator, asks for assistance from Homeroom Guidance Committee (or equivalent) for theme or topic for discussion, had the lowest weighted mean of 2.93. This indicates that the conduct of homeroom is not centralized. Advisers do homeroom classes from their initiative. If the Homeroom Guidance Committee is established and had a ready program, the weighted mean could have not been this low.

The second part, introduction, also had three items. The highest weighted mean among them is gives the learners information about the topic. The other two had the same weighted mean. The low weighted mean of creates a climate of oneness and acceptance among the members of the group to avoid uncomfortable moments during the activity can be connected to the lack of briefing or preparation on the part of the advisers coming from authorities concerned in delivering homeroom classes.

The third part, activity, had the item considers activities which are relevant to learners' personal experiences with the highest weighted mean. This shows the sensitivity of the advisers to diagnose the needs of the learners (Ridnouer,2006).

As for the fourth part, summary, asks learners for feedback or questions had the highest weighted mean. While the lowest was relates previous and future themes to the current topic whenever merited. This indicates lack of continuity and coherence of topics or matters discussed and can be associated again to the deficiency of a program for homeroom classes. Accordingly, Mendoza (2005) articulated the importance of homeroom as it provides right conduct and good manners. These two are crucial for developing adolescents to be good citizens as they mature. Hence, preparation for homeroom classes should not be overlooked.

Conclusions

1. It can be seen from the result that the conduct of the homeroom classes can still be improved. It is not centralized, that is, there is no one authority who tells the appropriate

class structure nor topics to be discussed. Likewise, it can be deduced that the conduct of homeroom class depended on the adviser's initiative.

2. From the result of the questionnaire, some of the topics which emerged were: School Discipline, Love and Responsibility, Character Formation, Student Profiling and Cleanliness in the Classroom among others. These topics are highly relevant and based on the needs observed by the advisers. Topics such as these can affect the class dynamics for the entire duration of the school year.

3. Based on the result of the study, a homeroom program can be created to facilitate its delivery. There should be a governing body or committee which will structure the class program for unified administration. Making an institutionalized homeroom program will benefit all advisers during their homeroom time and not only those who have initiative in conducting it.

Recommendations

Homeroom class has its own merits. Learning is not only confined to the content subjects. Some students are very much in need of personal human learning to make sense of their personal lives. Properly conducting homeroom classes and discussing topics relevant to students' lives can answer some of their personal and relational needs. It is therefore recommended that a program be developed regarding class structure and topics to be discussed.

Topics picked by the advisers should be highly considered by the committee. These topics should be appropriately researched and a module should be made out from them. Advisers should be well informed as to how to deliver the topics in the module.

Homeroom class should be given attention (Breaux, 2005). The content subjects do not cover all the needs of growing young learners. There are matters beyond content subjects which deals with the emotional and relational dimensions of learners. Homeroom can be one of the class schedules which can address these dimensions.

Compliance with Ethical Standards

Permission was asked from authorities to conduct this research. Before making the respondents answer the questionnaire, they were given an informed consent form so that there would be no coercion involved in conducting the study. Those who were involved were informed of the purposes of the data that were asked of them.

Sensitive issues were carefully handled with respect to the differences of views (Resnik, 2020). Anonymity of respondents was strictly observed unless the study necessitates

otherwise, but if such happens, authorization from those concerned will be graciously asked by the researchers.

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IDENTIFICATION OF FISH SPECIES IN LAKE LANAO, LANAO DEL SUR: BASIS FOR CONTEXTUALIZED BIODIVERSITY STEM LESSON

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ABSTRACT

This study aims to assess the endemic fish species of fauna in Lake Lanao. Also, it developed a Contextualized STEM Lesson on Biodiversity and Contextualized Biodiversity Handbook. Philippines Republic Act 105333 mandates the utilization of Contextualization and localization of the curriculum in education. However, the unavailability of prepared contextualized STEM Lessons on Biodiversity hinders its goals and functions in improving science education specifically regarding scientific literacy. To its end, the development of contextualized STEM Lessons on Biodiversity is conceived to address this gap. Before the development of contextualized teaching-learning material, pre-assessment biodiversity services interview of the residents of Lake Lanao, picture documentation, and identification of living organisms found in the area were conducted. The results of these steps become the main outputs of the developed teaching-learning material. The contextualized STEM Lesson Plan on Biodiversity underwent the following steps during its development: (a) identification of fish species; (b) determining the lesson focus; (c) crafting of competency and activity; (d) designing and conceptualizing of the Contextualized STEM Lesson on Biodiversity; (e) expert validation; (f) revision; (g) developed Contextualized STEM Lesson on Biodiversity.

Keywords: *STEM Lesson, Contextualization, Biodiversity*

INTRODUCTION

Lake Lanao, the second largest lake in the Philippines, is geographically located in the province of Lanao del Sur, Central Mindanao. It lies between 8° N. Latitude and 124° E. Longitude (Lewis 1978). Frey (1969) considered its basin volcanic due to its collapse associated with the 1955 earthquake. Lake Lanao has a vast watershed of approximately 147, 460 ha (hectares). It exerts considerable influence over the local climate, making Marawi City the summer capital of Southern Philippines.

One of the areas for which the lack of scientific literacy is present on the pressing biodiversity and environmental issues that the country is facing. Endowed with several centers of diversity, endemism, and biological richness, the Philippines is hailed as the 'Galapagos times ten' (Heaney & Regalado, 1998) and considered as one of the 18 megadiverse countries in the world (NEDA, 2011). Most Filipinos are unaware of the country's biodiversity and the need for its conservation (Bagarinao,1999). This resulted in the endangerment of Philippine biodiversity whereas of 2008, 221 species of fauna and 526 species of flora have been included in the list of threatened species (NEDA, 2011).

Apart from biodiversity conservation in the lake watershed, the flux of nutrients and pollutants should be a top priority of an ecosystem-based management that needs to employ innovative socio-environmental approaches involving participatory, multisectoral, multidisciplinary, integrated, and ecomanagement efforts. The looming climate change, which may undoubtedly lead to further loss of biodiversity services, needs to be incorporated into the watershed modelling and management framework.

In addition to contextualization, integration of STEM (Science, Technology, Engineering, and Mathematics) is one of the current trends in education that aims to develop the deep mathematical and scientific underpinnings that students need to be competitive in the 21st-century workforce (Jolly, 2014). This approach to STEM education is called the integrated approach where STEM content areas are taught as though they are in one subject and can be done with a minimum but not limited to two disciplines (Roberts & Cantu, 2012).

To provide a viable solution to the gaps mentioned may it be in terms of strengthening the weak link between what is learned at school and the contexts that surround the learner to strengthen learning, low scientific literacy, the limited literature of studies of species in Lake Lanao (Marawi City, Lanao del Sur), and the utilization of results of such studies in improving the teaching-learning process have motivated the researcher to develop a Contextualized STEM Lesson on Biodiversity and Contextualized Biodiversity Handbook.

Research Objectives

This study aims to:

1. Identify the local fish species of fauna found in Lake Lanao;
2. Develop the Contextualized STEM Lesson on Biodiversity; and,
3. Create a Contextualized Biodiversity Handbook.

Research Questions

1. Teaching the concept of biodiversity in learning activities, especially science education is an important urgency to bring up biodiversity literacy competence. Education plays a crucial place where biodiversity education should be mainstreamed through the development of scientific literacy among students (Jose-Castillo, 2019).

2. The dismal performance of the Philippines in the 2022 Program for International Student Assessment (PISA) indicates that the students in the country are five to six years behind in learning competencies, according to the Department of Education (DepEd). Overall, the Philippines achieved a 2.2-percent point hike in mathematics from 2018 to 2022, 6.9 percent in reading, and a 0.8 percent drop in science proficiency. Contextualization of lessons to empower students to be more responsive to real-world issues while at the same time improving the learning process (DepEd, 2016). However, there is a lack of contextualized materials available and if available are confusing (Valin & Jenner, 2020).

3. It is vital to develop a ready-to-use Contextualized STEM Lesson and Contextualized Biodiversity Handbook that will influence a scientifically literate citizenry in environmental decision-making. Bagarinao (1999) suggested Protected areas as sources for biodiversity education. Mainstreaming Biodiversity Education in formal education will enable people to recognize the relationship between the health of biodiversity and their well-being (Jose-Castillo, 2018).

METHODOLOGY

This study utilized both qualitative and quantitative research design. The descriptive method with qualitative support was used to treat the responses of the learners, administrators, and teachers during the semi-structured needs assessment interview, as well as the elders' and residents' responses during the semi-structured assessment interview on the fish species and their services in Lake Lanao, and the panel of experts' comments and suggestions. On the other hand, the qualitative research design aspect was utilized in the evaluation of the developed Contextualized STEM Lesson on Biodiversity and Contextualized Biodiversity Handbook. Meanwhile, during the identification of fish species in Lake Lanao, purposive and opportunistic sampling was utilized to identify the species that are necessary inputs for the development of the Contextualized STEM Lesson on Biodiversity and Contextualized Biodiversity Handbook.

There were four (4) major phases in the conduct of this study.

The first major phase was the conduct of the semi-structured interview with the elders and residents of Lake Lanao about the species (plants and animals) and their benefits. Responses were categorized based on the species' services, local name, and common name. The data gathered from this stage were analyzed and the results became the springboard in the conduct of the identification of the species in Lake Lanao.

The second major phase was the field species observation in Lake Lanao (presence of plants and animals) where sampling and interviews were utilized.

The third phase was the development of the Contextualized STEM Lesson on Biodiversity which was based on a needs assessment interview of key informants (learners, teachers, and administrators) for the need to develop a contextualized STEM Lesson on Biodiversity and Contextualized Biodiversity Handbook. The data gathered from this stage were analyzed and the results became the springboard in the development of the Contextualized STEM Lesson Plan on Biodiversity and the Contextualized Biodiversity Handbook. The design of the lesson was adapted from the STEM lesson plan structure designed by Theeresan and Yuenyong (2018) where the context was based on the local area of Lake Lanao which included examples like the fish species in Lake Lanao and organisms found in it.

The fourth major phase was the evaluation of the developed Contextualized STEM Lesson on Biodiversity and the Contextualized Biodiversity Handbook. This phase involved a "panel of experts" which was comprised of in-service teachers from MSU-Baloi Community High School, in-service Biology teachers, and STEM experts who evaluated the developed teaching-learning material.

In addition, the researcher thoroughly explained to the students the purpose and the objectives of the study, so that the students become completely aware of what they're about to participate in. The researcher also emphasized to the students that the data gathered from the study was confidential and was solely for academic purposes only.

Furthermore, the researcher exerted an effort to the extent of creating a positive environment among the participants of the study.

RESULTS AND DISCUSSION

The local species and the services of Lake Lanao were the bases of the development of the Contextualized STEM lesson on Biodiversity and Contextualized Biodiversity Handbook. This was evaluated by STEM experts, and in-service teachers through a STEM rubric of Tecson (2019). The following subsections were the results and discussion of identified fish species and the evaluators' ratings of the developed learning material.

4.1.1 Identified Fish Species in Lake Lanao

This is a pioneering study on the identification of fish species found in Lake Lanao. In this study, a total of five (5) species were recorded and identified from Lake Lanao. the identified fish species inhabiting the lake were classified based on the family as illustrated in Table 1.

Table 1. List of fish species recorded in Lake Lanao

Table 1. List of fish species recorded in Lake Lanao

Family	Species	Local Name	Origin
Channidae	*Ophiocephalus striatus* (Bloch, 1793:141)	Aruan	Native (FAO, 2005) Catalog of fishes, 2003
Cichlidae	*Oreochromis niloticus*	Tilapia	Introduced (FAO, 2005)
Osteoglossidae	*Clarias macrocephalus*	Katipa	Introduced (FAO, 2005)
Eleotridae	*Hypseleotris agilis*	Katulong	Introduced (FAO, 1960s)
Osphronemidae and Helostomatidae	*Trichogaster pectoralis*	Gourami	Indonesian origin (FAO, 2012)

Of the five (5) freshwater fish species identified, four (4) freshwater fish species belong to the Channidae family which is the Ophiocephalus striatus *(Aruan*). The other (5) freshwater fish belonging to the Cichlidae family which is the Oreochromis niloticus (*Tilapia*), (1) freshwater fish belong to the Osteoglossidae family which is the Clarias macrocephalus (*katipa*), and (1) freshwater fish belonging to the Eleotridae family which is the Hypseleotris agilis *(katulong*). There is also (1) freshwater fish Trichogaster pectoralis (*Gourami*) which belongs to the family Osphronemidae and Helostomatidae. These are the fish species found in Lake Lanao during the conduct of the study.

4.1.2 Local Species and its Services of Lake Lanao

A semi-structured interview on the local species and its services was conducted which serves as a preliminary assessment tool on the species present in Lake Lanao and their uses as identified by the residents living in the area. This assessment gave the research insights into the species found in Lake Lanao. The data gathered was deemed important as a springboard for the conduct of the entire study as it functions as an indicator of the species that can be identified in the area. The results of this component indicated the use of species and their services by the residents of Lake Lanao as well as

to determine what are the prospective products of these services that can provide more livelihood to the residents.

4.2.1. Development of Contextualized STEM Lesson on Biodiversity

The development of contextualized STEM lessons on biodiversity underwent several processes. In this section, the major findings of the stage are presented along with its implications.

4.2.2 Identified Fish Species in Lake Lanao

Aruan is another native favorite fish species of the Maranao dwellers living in Lake Lanao. They are very common in freshwater plains and survive the dry season by burrowing in the bottom mud of lakes, canals, and swamps, and feed on fish and crustaceous (FAO, 1999).

Oreochromis niloticus (Tilapia) is one of the sources of food and livelihood for the people living on the banks of Lake Lanao. In the early 1970s, the introduction of Nile tilapia (Oreochromis niloticus) in the country was made. It is a species light in color, enhanced the image of tilapia, and boosted commercial production (FAO, 2005). According to the Food and Agriculture Organization of the United Nations (2017), is the most consumed farmed fish in the Philippines, with an average yearly consumption of 4.6 kg per person.

The freshwater catfish *Clarias macrocephalus* is native to the Philippines but is fast becoming scarce in many natural habitats. It is a favorite food fish due to its tender and delicious meat. Recently, the farming of Clarias macrocephalus has gained interest among catfish growers. Like other catfish species, it is resistant to diseases, can be stocked at high densities, and can tolerate low water quality, FAO (2005).

Hypseleotris agilis Herre of Lake Lanao, Philippines as a possible source of indigenous drugs. The fish is locally known as *katulong* belonging to the family Eleotridae which is believed to have been accidentally introduced sometime in the 1960s along with tilapia and milkfish fry stocking in the lake for aquaculture, FAO (1960s).

One of the freshwater fish in Lake Lanao used as food and is also sold is *Trichogaster pectoralis (Gourami)* locally known as *gourami/mirakulo*. It was introduced to the Philippines from Thailand in 1938 (FAO, n.d.). Figures 9 to 12 show the different freshwater fish species found in Lake Lanao. These freshwater fish species are a main source of food and a vital livelihood for the people along the banks of the lake. According to the Food and Agriculture Organization of the United Nations (2008), fish is a source that has a localized economic and nutritional dependence as it provides a crucial source of protein.

4.2.3 Experts' Rating of the Contextualized STEM Lesson on Biodiversity

In-service science teachers, in-service Biology teachers, and STEM experts evaluated the developed Contextualized STEM Lesson on Biodiversity.

Figure 1 shows the distribution of ratings in each of the criteria for the teaching-learning material.
The scale used in rating:

1.0 – 1.54 Needs Improvement
1.75 – 2.49 Good
2.50 – 3.24 Very Good
3.25 – 4.00 Excellent

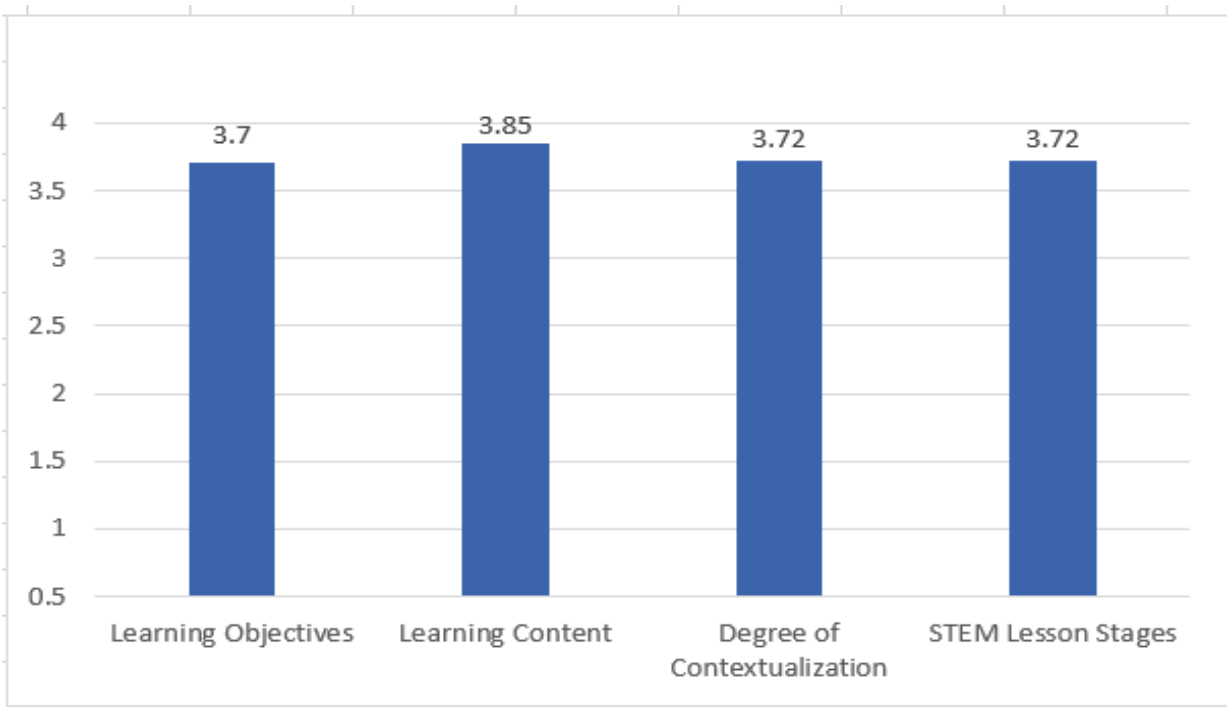


Figure 1. Experts' rating of the Developed Contextualized STEM Lesson Plan on Biodiversity

Figure 1 above shows the summary of ratings by the in-service and in-service biology teachers. The Contextualized STEM Lesson on Biodiversity was rated Excellent in terms of its learning objectives where it is characterized as SMART, based on behavioral terms that can be easily observed, appropriate to the content it offers a clear and concise description of the concept. In the criteria for the degree of contextualization, it is rated as excellent which shows that it links the lesson to the local context of Lake Lanao and the real-world problems. In summary, the whole material got a total weighted average of 3.85 which means excellent and indicates that the material has an exemplary quality in terms of its learning objectives, learning content, degree of contextualization,

and the STEM stages denoting that it is now ready to be used in teaching Biodiversity topic for Grade 8 learners.

4.2.4 Comments and Suggestions of the Panel of Experts of the Contextualized STEM Lesson on Biodiversity

One of the components of the rubric in evaluating the developed Contextualized STEM Lesson on Biodiversity is the comments and suggestions sections. This was done to gather more insights and comments to improve the teaching-learning material figures below show the comments and suggestions of the developed Contextualized STEM Lesson on Biodiversity:

Table 2. Revisions based on the comments and suggestions of the panel of experts

Before	After
CONTEXTUALIZED STEM LESSON ON BIODIVERSITY **LESSON DESCRIPTION** This lesson explores the concept of biodiversity within the local content of Lake Lanao. **LESSON OBJECTIVES** • To define biodiversity its significant and uses. • To identify local species found in Lake Lanao. • To design sustainable fishing gears for the protection of endangered and economically important species found in Lake Lanao .	CONTEXTUALIZED STEM LESSON ON BIODIVERSITY **LESSON DESCRIPTION** This lesson explores the concept of biodiversity within the local content of Lake Lanao. **LESSON OBJECTIVES** • To define biodiversity its significant and uses. • To identify local species found in Lake Lanao. • To design sustainable fishing gears for the protection of endangered and economically important species found in Lake Lanao . • To involved themselves in the protection of biodiversity in Lake Lanao . **LESSON PROPER:**
Comment: Identification of the social issue stage, change the picture of fish in the lake, and ask students more questions about the lake until they can reach the presence of the fish in the lake.	

<table>
<tr><th>Before</th><th>After</th></tr>
<tr>
<td>
<table>
<tr><th>STAGE</th><th>ACTIVITY</th></tr>
<tr><td>1. Identification of social issues</td><td>A. Show a picture of Clarias macrocephalus:
 
Q1: Have you seen this fish before?
Q2: Have you tried eating this fish before?

B. Background information presented in a power point side:
One of the fishes that can be caught in Lake Lanao that are utilized as food is what is locally known as katipa (Clarias macrocephalus). Clarias macrocephalus is one of the remaining endemic cyprinids species in Lake Lanao (Abdulmalik-Labe & Quilang, 2019). It is distributed in Lanao plateau where Lake Lanao, Lake Dapao, Lake Uyaan and Sigawat river are located (Herre 1924, 1953).</td></tr>
</table>
</td>
<td>
<table>
<tr><th>STAGE</th><th>ACTIVITY</th></tr>
<tr><td>1. Identification of social issues</td><td>A. Show the following pictures:
social
 
Q1: Where do you think is this place
Q2: Have you been to this place before?
Q3: What are the animals or plants that we can find in this place?
When the students identify fish as one of the organisms found in the lake show the picture of Clarias macrocephalus;
 
Present Background information:
One of the fishes that can be caught in Lake Lanao that are utilized as food is what is locally known as Katipa (Clarias macrocephalus). Clarias macrocephalus is one of the two remaining endemic cyprinids species in Lake Lanao. (Abdulmalik-Labe & Quilang, 2019).</td></tr>
</table>
</td>
</tr>
</table>

Table 2 shows the addition of a new learning objective which is an effective one. This was added because in making the objectives for the lesson, the three domains of learning should be shown especially the affective domain. The lesson can have more than 3 objectives but it must contain cognitive, psychomotor, and affective objectives.

4.3.1 Development of the Contextualized Biodiversity Handbook

The development of the Contextualized Biodiversity Handbook underwent several processes. In this section, the major findings of the stage are presented along with its implications.

1. Chosen topic standards and competencies

The competencies that were used as the basis for the learning objectives in each of the activities of the handbook were to explain the concept of a species and explain the advantage of high biodiversity in the stability of an ecosystem. These standards were transformed into specific learning objectives in the different activities in the Handbook.

2. Incorporation of the identified species present in Lake Lanao, Lanao del Sur

In this stage, the species identified were depicted in each of the activities for contextualization of the lessons making it relevant and timely for the learners.

3. Designing and Conceptualization of the Contextualized Biodiversity Handbook

The design and conceptualization of the contextualized Biodiversity handbook were based upon the contextual learning theory where a constructivist hands-on approach using the learners' context was utilized. The handbook was composed of teachers' lesson guides, students' activity sheets, and rubrics.

4. Face Validation

The material was face-validated by the panel members and thesis adviser for initial comments and suggestions to improve the developed Contextualized Biodiversity Handbook.

5. First Phase Revision

The comments and suggestions of the thesis adviser and the panel members were applied in revising the Contextualized Biodiversity Handbook.

6. Expert Validation

It was evaluated based on its learning objectives, learning content, degree of contextualization, spelling and grammar, and illustrations and images used.

7. Second Phase Revision

During the second phase of revision, the comments and suggestions of the panel of experts were applied in terms of the learning objectives, learning content, degree of contextualization, spelling and grammar, and illustrations and images used.

8. Developed Contextualized Biodiversity Handbook

After the second phase revision, the developed contextualized biodiversity handbook was now complete which includes the teacher's learning guide, students' activity sheet, and rubrics for the activities and outputs. The developed Contextualized Biodiversity Handbook is a supplementary material for the developed Contextualized STEM Lessons on Biodiversity that will be used in teaching biodiversity to Grade 8 students.

4.3.2 Experts' Rating of the Contextualized Biodiversity Handbook

In-service science teachers, in-service Biology teachers, and STEM experts evaluated the developed Contextualized Biodiversity Handbook in terms of learning objectives, learning content, degree of contextualization, grammar and spelling, illustration, and images. Figure 2 shows the rating in each of the criteria of an excellent teaching-learning material.

Figure 2 shows the summary of the experts' rating in each of the criteria of an excellent teaching-learning material using the following scale:

1.0 – 1.54	Needs Improvement
1.75 – 2.49	Good
2.50 – 3.24	Very Good
3.25 – 4.00	Excellent

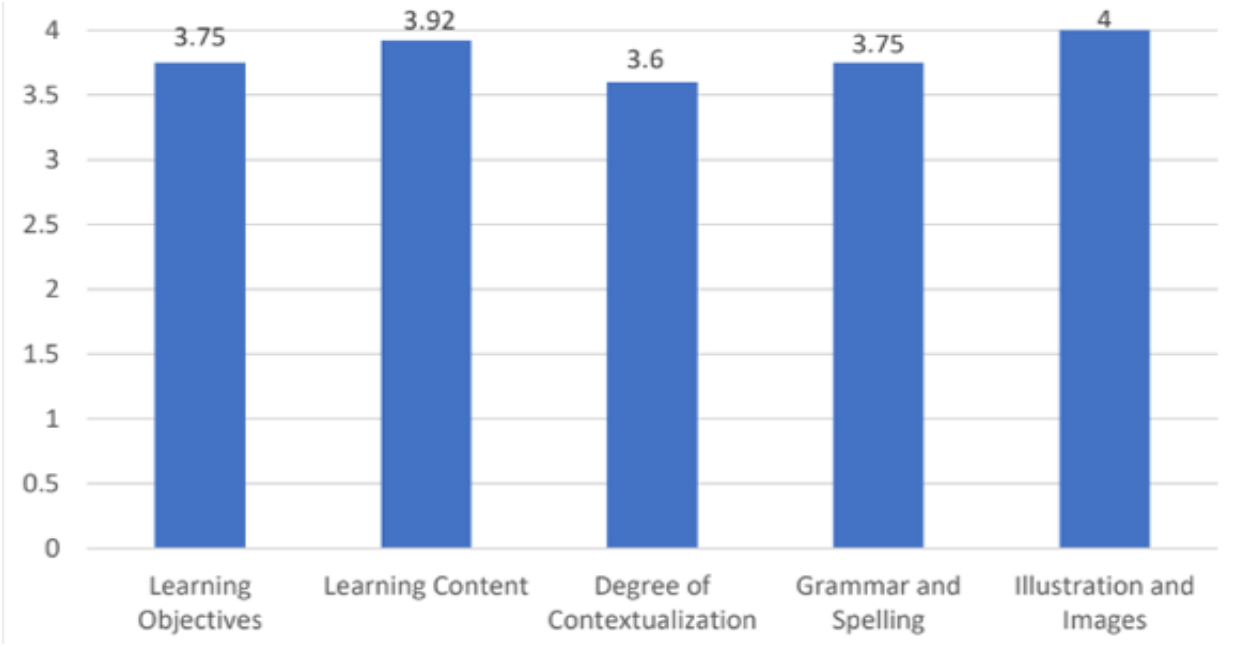


Figure 2. Experts' rating of the developed Contextualized Biodiversity Handbook

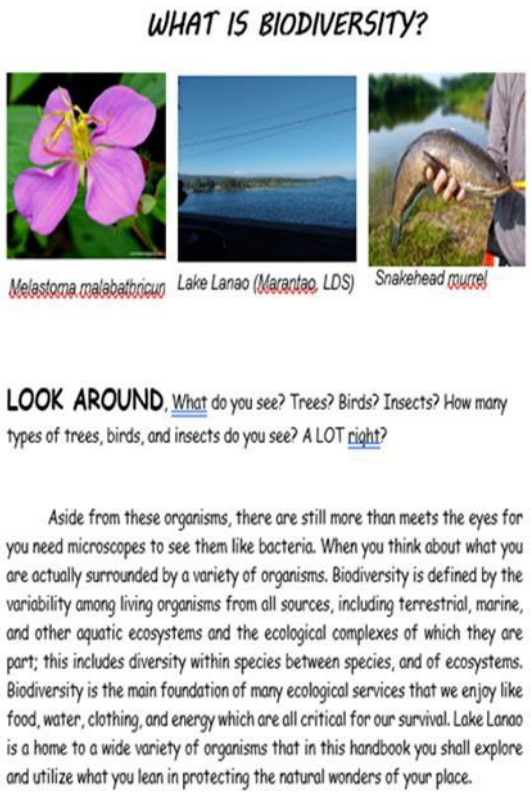
Figure 2 shows the summary ratings of the panel of experts which was comprised of in-service biology teachers, in-service teachers, and STEM experts. The Contextualized Biodiversity Handbook was rated excellent in terms of its learning objectives which implies that the learning objectives were SMART (Specific, Measurable, Attainable, Relevant, Time-bounded) and expressed in behavioral terms. On the other hand, in terms of learning content, it was also rated as excellent where the organization of content is in a logical order and the concepts were accurately presented. The degree of contextualization is also excellent which means that the handbook was creatively modified to accommodate the unique context and values of the locality and connected to real-world problems. The spelling and grammar were also excellent where few errors of English grammar were spotted.

Lastly, in terms of the images and illustrations used it was also rated as excellent where appropriate illustrations and images were used that effectively draw the attention of the readers and aid in the delivery of the concept. In summary, the developed Contextualized Biodiversity Handbook was rated Excellent and can be utilized as a supplement for any learning material and the developed Contextualized STEM Biodiversity Lesson.

4.3.3 Comments and Suggestions of the Panel of Experts of the Contextualized Biodiversity Handbook.

The in-service biology evaluated the developed contextualized teaching-learning material and some of the comments and suggestions of the experts. This component of the rubric for the evaluation of the developed contextualized allows the panel of experts to write down and illustrate the corrections and changes that should be made to improve the contextualized teaching-learning material. To this end, this gave the researcher the necessary feedback that is needed to improve the teaching-learning materials that she developed. The comments and suggestions are illustrated in Table 3.

Table 3. Revisions based on the comments and suggestions of the panel of experts.

<table>
<tr><td colspan="2">Comment: Add an introduction page after the table of contents.</td></tr>
<tr><td>Before</td><td>After</td></tr>
<tr><td>No introductory page</td><td> 
</td></tr>
<tr><td colspan="2">Comment: In activity two hide the species cards around the school for the students to find instead of handing them to them directly.</td></tr>
<tr><td>Before</td><td>After</td></tr>
</table>

1. Scatter the pictures of the species around the school. 2. Let them write the name of each species that they can find as the total number of different species that they can write as “species richness” 3. Instruct students to count and record the number of individuals of each species – something like 4 Philippine Eagles, 3 tilapia fish, and 5 bumblebees. Define the number of individuals of each species as the species abundance. 4. Define species diversity as the species richness (number of species in an area) and species abundance (number of individuals in each species) 5. Divide the class into 5 groups and let them find the pictures of the species you hid around the campus, student, activity sheet 2 (species diversity), and manila paper. 6. Have the students sample the school area 2 times.	1. Hand the students the picture of the sticky note activity test meeting. 2. Get students two minutes to write down the names that they see in the picture and define the total number of different species that they can write as ‘species richness’. 3. Instruct students to count and record the number of individuals of each species- something like 1 robin bird, 3 katipa fish, and 2 Aruan fish. Define the number of individuals of each species as the species abundance. 4. Define species diversity as the species richness (number of species in an area) and species abundance (number of individuals in each species). 5. Divide the class into five groups and hand them the species cards, and students’ activity sheet 2 (species diversity). 6. Instruct them to shuffle the species cards and get 10 species cards without looking at them.

A new page was added to the developed contextualized Biodiversity Handbook. This new page contains the introduction on the topic of Biodiversity and acts as a springboard for the teachers to get an overview of what biodiversity is. One of the panel of experts suggested that in activity two hide the species cards around the school for the students to find instead of handing them to them directly. This was done for students to experience and be engaged in their role as biologists looking for samples for their studies.

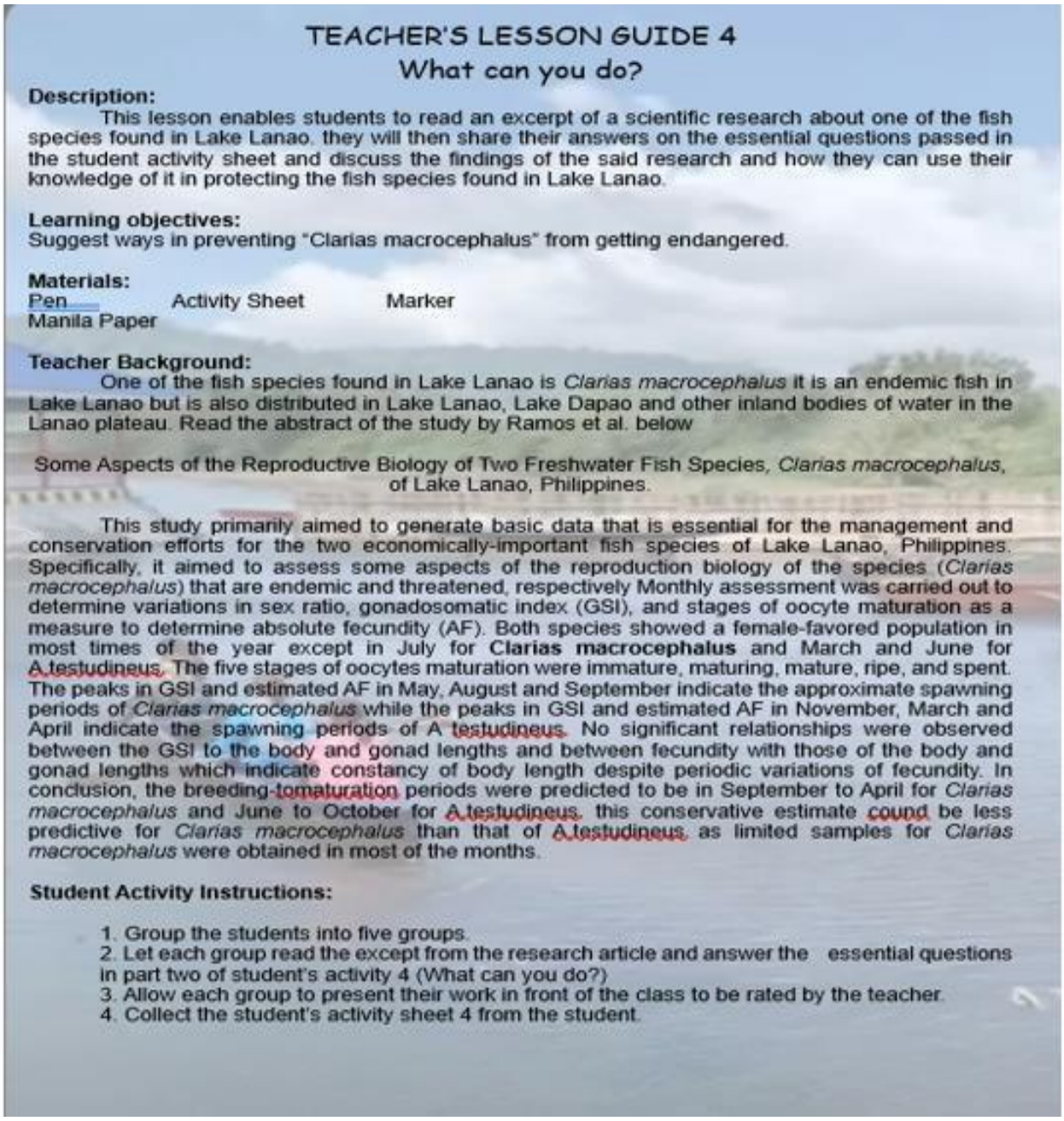
4.3.4 Features of the developed Contextualized Biodiversity Handbook

The Contextualized Biodiversity Handbook was developed to become the supplementary material for the implementation of the developed Contextualized STEM Lesson on Biodiversity. Figure 3 shows the cover page of the developed material:



Figure 3. Cover page of the Contextualized Biodiversity Handbook

Figure 4 below shows a sample teacher's guide that will be used by the teachers as a guide and as a reference for conducting the activity that each lesson has. The contextualized biodiversity handbook contains four (4) lesson guides for four different activities that are the foundational concepts to be delivered during the implementation of the Contextualized STEM Lesson on Biodiversity specifically on the need for knowledge stage.



TEACHER'S LESSON GUIDE 4

What can you do?

Description:

This lesson enables students to read an excerpt of a scientific research about one of the fish species found in Lake Lanao. they will then share their answers on the essential questions passed in the student activity sheet and discuss the findings of the said research and how they can use their knowledge of it in protecting the fish species found in Lake Lanao.

Learning objectives:

Suggest ways in preventing "Clarias macrocephalus" from getting endangered.

Materials:

Pen Activity Sheet Marker
Manila Paper

Teacher Background:

One of the fish species found in Lake Lanao is *Clarias macrocephalus* it is an endemic fish in Lake Lanao but is also distributed in Lake Lanao, Lake Dapao and other inland bodies of water in the Lanao plateau. Read the abstract of the study by Ramos et al. below

Some Aspects of the Reproductive Biology of Two Freshwater Fish Species, *Clarias macrocephalus*, of Lake Lanao, Philippines.

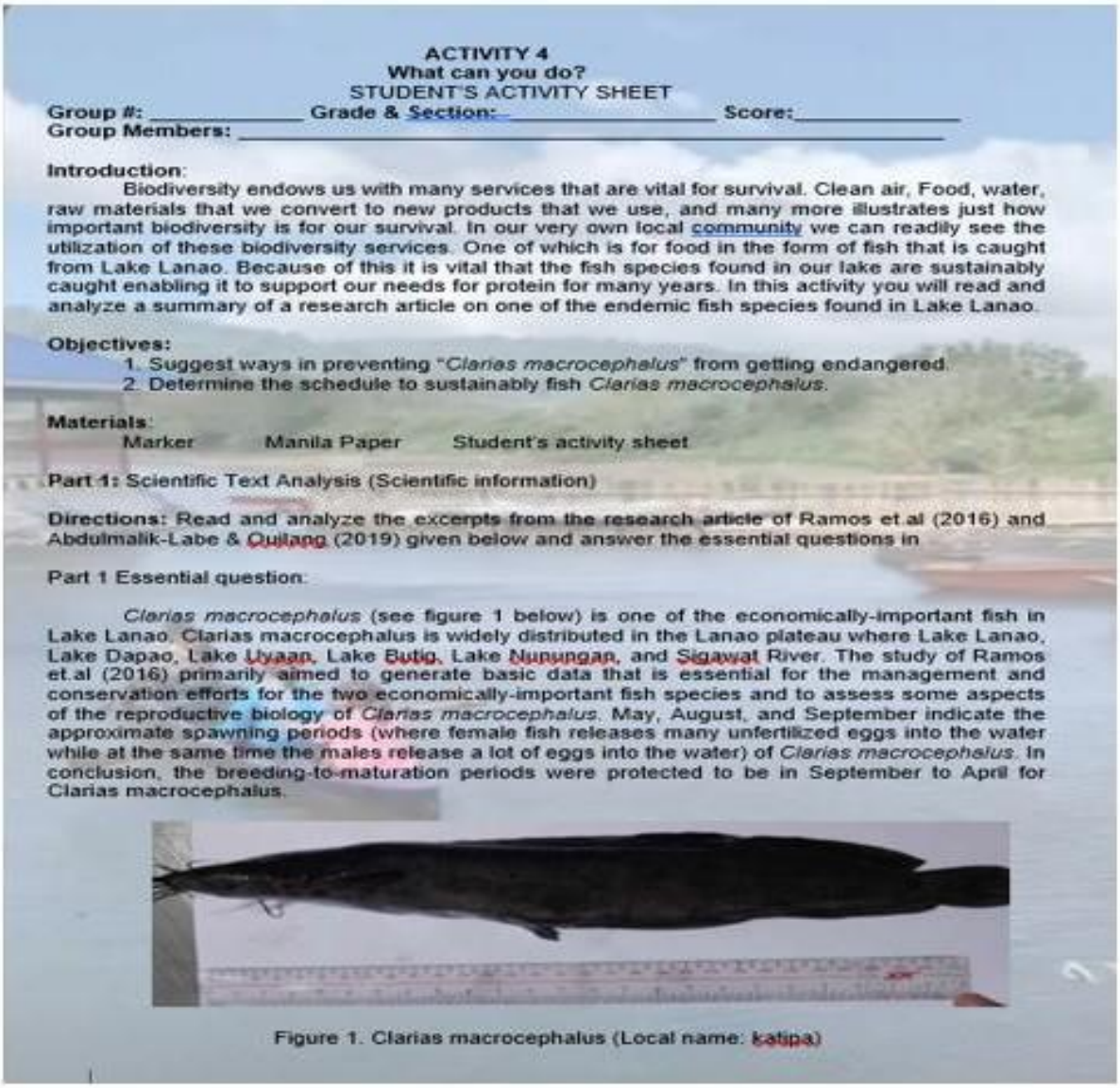
This study primarily aimed to generate basic data that is essential for the management and conservation efforts for the two economically-important fish species of Lake Lanao, Philippines. Specifically, it aimed to assess some aspects of the reproduction biology of the species (*Clarias macrocephalus*) that are endemic and threatened, respectively Monthly assessment was carried out to determine variations in sex ratio, gonadosomatic index (GSI), and stages of oocyte maturation as a measure to determine absolute fecundity (AF). Both species showed a female-favored population in most times of the year except in July for **Clarias macrocephalus** and March and June for A.testudineus. The five stages of oocytes maturation were immature, maturing, mature, ripe, and spent. The peaks in GSI and estimated AF in May, August and September indicate the approximate spawning periods of *Clarias macrocephalus* while the peaks in GSI and estimated AF in November, March and April indicate the spawning periods of A testudineus. No significant relationships were observed between the GSI to the body and gonad lengths and between fecundity with those of the body and gonad lengths which indicate constancy of body length despite periodic variations of fecundity. In conclusion, the breeding-tomaturation periods were predicted to be in September to April for *Clarias macrocephalus* and June to October for A.testudineus. this conservative estimate coupd be less predictive for *Clarias macrocephalus* than that of A.testudineus as limited samples for *Clarias macrocephalus* were obtained in most of the months.

Student Activity Instructions:

1. Group the students into five groups.
2. Let each group read the except from the research article and answer the essential questions in part two of student's activity 4 (What can you do?)
3. Allow each group to present their work in front of the class to be rated by the teacher.
4. Collect the student's activity sheet 4 from the student.

Figure 4. Sample teacher's guide (teacher's lesson guide 4)

The teacher's guide in the contextualized Biodiversity Handbook contains: (1) Description – this part of the teacher's guide describes the lesson that will be presented and an overview of what the students will be doing; (2) Learning objectives/s – contains the specific learning objective for the lesson; (3) Materials – this section shows the list of the materials that must be prepared for the conduct of the lesson; (4) Teacher Background – This section provides the background knowledge that the teacher will use to deliver the concepts for the lesson; and (5) Student Activity Instructions – which will be used by the teachers to carry out the activities for each of the lessons.



ACTIVITY 4
What can you do?
STUDENT'S ACTIVITY SHEET

Group #: _____ Grade & Section: _____ Score:_____
Group Members: _____

Introduction:

Biodiversity endows us with many services that are vital for survival. Clean air, Food, water, raw materials that we convert to new products that we use, and many more illustrates just how important biodiversity is for our survival. In our very own local community we can readily see the utilization of these biodiversity services. One of which is for food in the form of fish that is caught from Lake Lanao. Because of this it is vital that the fish species found in our lake are sustainably caught enabling it to support our needs for protein for many years. In this activity you will read and analyze a summary of a research article on one of the endemic fish species found in Lake Lanao.

Objectives:

1. Suggest ways in preventing "*Clarias macrocephalus*" from getting endangered.
2. Determine the schedule to sustainably fish *Clarias macrocephalus*.

Materials:

Marker Manila Paper Student's activity sheet

Part 1: Scientific Text Analysis (Scientific information)

Directions: Read and analyze the excerpts from the research article of Ramos et.al (2016) and Abdulmalik-Labe & Quilang (2019) given below and answer the essential questions in

Part 1 Essential question:

Clarias macrocephalus (see figure 1 below) is one of the economically-important fish in Lake Lanao. Clarias macrocephalus is widely distributed in the Lanao plateau where Lake Lanao, Lake Dapao, Lake Liyaan, Lake Butig, Lake Nununggan, and Sigawat River. The study of Ramos et.al (2016) primarily aimed to generate basic data that is essential for the management and conservation efforts for the two economically-important fish species and to assess some aspects of the reproductive biology of *Clarias macrocephalus*. May, August, and September indicate the approximate spawning periods (where female fish releases many unfertilized eggs into the water while at the same time the males release a lot of eggs into the water) of *Clarias macrocephalus*. In conclusion, the breeding-to-maturation periods were protected to be in September to April for Clarias macrocephalus.

Figure 1. Clarias macrocephalus (Local name: katipa)

Figure 5. Sample student's guide (activity 4)

Figure 5 shows a sample of students' activity sheets that will be used by the learners during each lesson. Each activity sheet contains: (1) Introduction – a short overview of the topic for the students to know; (2) Learning objectives – the objectives of the activity the what and the how of the activity; (3) Materials – in this section the materials needed for the activity are listed for early preparation; (4) Task – this contains the tasks that must be done by the students to achieve the objectives; (5) Essential questions – this section provides students with questions that must be answered to assess what they learned from the activity; and (6) action plan – in this section a plan, proposal or solution will be provided by the learners based on the tasks or social issues presented in the lesson.

Conclusions

The developed Contextualized STEM Lesson was rated Excellent in terms of its learning objectives where it is characterized as SMART (Specific, Measurable, Attainable, Relevant, Time-bounded) based on behavioral terms that can be easily observed, appropriate to the content where it offers a clear and concise description of the concept and the comments and suggestions of the panel experts of the Contextualized STEM Lesson adding of a new learning objective which is an effective one. Moreover, the Contextualized Biodiversity Handbook was rated excellent in terms of its learning objectives and expressed in behavioral terms.

Recommendations

Further studies on the Biodiversity of Lake Lanao must be carried out to have a holistic assessment of the state of the lake and the possible practices and programs that must be carried out to protect it. Specifically, the abundance of each of the species as compared to the alien invasive species must be further investigated.

It is further recommended to implement the developed Contextualized STEM Lessons on Biodiversity and the Contextualized Biodiversity Handbook for Grade 8 Learners. This way it can aid students in making decisions when faced with biodiversity-related dilemmas in life.

Ethical Considerations

The researcher asked the school principal and the parents of the participants because the study entails the involvement of the residents in Lake Lanao. This was done to guarantee that the student's involvement in the study was entirely voluntary and guided and that they were free to decline or withdraw at any moment.

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IMPACT OF LANGUAGE LEARNING RESOURCES ON ENGLISH PROFICIENCY OF SENIOR HIGH SCHOOL STUDENTS IN MINDANAO STATE UNIVERSITY - SULU

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ABSTRACT

This study aims to understand the impact of language learning resources on English proficiency of senior high school students in MSU-Sulu. The study utilized qualitative research design through descriptive method. The data were collected through open-ended interviews with committed educators. In addition, six MSU-Sulu Senior High School dedicated English teachers were selected as the participants of this study. The research identified a range of resources at the school including traditional materials such as textbooks and dictionaries and technological resources like online platforms and mobile apps. The result shows that utilizing a variety of these resources effectively improved students' English proficiency. This included enhanced vocabulary, better comprehension skills, and increased fluency. It is also revealed that these resources have indispensable role in molding not only students' learning as well as the teaching style and enthusiasm of the MSU-Sulu teachers. Challenges faced by teachers in utilizing these resources were also highlighted in this study. The study also explored the strategies employed by teachers to overcome these challenges and to effectively incorporate these resources into their teaching. This study also recommends conducting a comprehensive inventory and assessment of the current language learning resources, implementing regular surveys or feedback methods to assess the perceived impact of language learning resources, addressing the stated challenges that English language teachers encounter while accessing and utilizing language learning resources, encouraging English language teachers to collaborate and share expertise. Lastly, future researchers doing a similar study are encouraged to include both students and teachers as participants and may consider utilizing quantitative analysis as their approach.

Keywords: *Language Learning Resources, English Proficiency, Mindanao State University-Sulu, Philippines*

INTRODUCTION

English proficiency has become critical in unlocking both professional and personal prospects in today's linked world. With the increasing globalization and interconnectedness of the world, the ability to communicate effectively in English has become a valuable skill not just for students but for every individual in the world. Mastering English is not only beneficial for academic success, it also opens doors to a world of opportunities in various fields and also essential for international communication. In fact, Santos et al., (2022) stated that the Philippines recognizes English as one of its official languages. All individuals must be fluent in both written and spoken English. (Eslit & Valderama, 2023). This will allow for more transparent and effective communication.

Language learning resources such as books, online resources, technologies and other resources have a significant role in enhancing everyone's English proficiency. According to Sari et al. (2022), e-books assist develop not only communication and collaborative skills, but also critical problem-solving abilities. Park and Lee (2021) recommend that teachers should encourage young students to continue reading printed books in order to strengthen their in-depth reading comprehension and grammar skills. The study of Macancela (2019) also points out that websites make a significant contribution to English language learning by helping teachers employ dynamic strategies that make it easier to reinforce the cognitive approach. Assessing the effectivity of various language learning resources is essential, ranging from conventional textbooks to smartphone apps and internet platforms. It can determine which resources are most beneficial in improving English proficiency.

English teachers choose a variety of materials to keep their students engaged, challenged, and ultimately equipped to become self-assured communicators. Prwati et al., (2019) stated that Learning resources have many different applications in the teaching-learning process. Making the best use of educational materials can support both teachers and students in the process of teaching and learning. The growing diversity of language learning resources, including textbooks, online platforms and technologies provide numerous opportunities to enrich language instruction. However, along with the benefits, English teachers face obstacles in effectively integrating these resources into their teaching. As stated by Johnson et al., (2016), although most teachers recognize the advantages of educational technologies, they often find it challenging to integrate new tools into their lessons in a seamless and efficient manner. Every level of school system faces substantial obstacles when it comes to technology integration, from the accession of new technological equipments to the modification of curricula and teaching methods to accommodate new educational resources.

For MSU-Sulu senior high school students, not having access to certain resources, particularly those that mostly rely on technology can pose some challenges in their learning.

Lack of resources might result in students not receiving a proper education and can be very difficult for teachers. It could lead to a decrease in enrollment.

This study will examine the availability of these resources for use in educational settings and explore strategies for bridging the digital divide between digital resources and traditional materials such as locally accessible websites and textbooks. Additionally, investigating English teachers' preferred learning styles and resource accessibility can inform initiatives to address resource disparities and ensure equitable access to quality language learning opportunities.

The study's significance from its potential to improve students' academic performance and English proficiency. It attempts to improve students' academic performance by identifying efficient language learning tools and methods catered to their linguistic backgrounds. As a means of developing students' language proficiency as well as their appreciation of the diversity of the English language and cross-cultural understanding. Faculty members may also improve the educational system to better prepare students for their future academic and professional endeavors by using the study's practical findings to inform curriculum design and resource allocation. Informed professional development programs can enable educators to become more proficient language learning facilitators by recognizing how teachers function as curators and catalysts in optimizing the impact of resources. This study also offers future researchers a starting point to investigate sociolinguistic effects on language learning in various settings, including MSU-Sulu.

Research Questions

This study seeks to find out the impact of language learning resources on the English proficiency of senior high school students in MSU-Sulu, focusing on the perspectives and experiences of MSU teachers as key participants.

Specifically, this study seeks answers to the following questions:

1. What language learning resources are available in MSU-Sulu senior high school for improving English proficiency?
2. What are the impact of language learning resources on the English proficiency of senior high school students in MSU-Sulu as perceived by English language teachers?
3. What are the challenges faced by English language teachers in accessing and utilizing language learning resources for English language education in MSU-Sulu Senior High School?
4. What are the strategies employed by English language teachers in utilizing language learning resources to enhance the English proficiency of senior high school students in MSU-Sulu?

RESEARCH METHODOLOGY

Research Locale

The study was conducted in Mindanao State University-Sulu Senior High School, Philippines. The mentioned high school is in Capitol Site, Jolo Sulu and was established in 2016. It has two buildings. The first, or main building, can be found near the campus gymnasium, while the second, which is considered its administration building, is situated between the College of Agriculture and the College of Arts and Sciences. In addition, it offers three (3) strands: General Academic Strand (GAS), Humanities and Social Sciences (HUMMS), and Science, Technology, Engineering and Mathematics (STEM).

Sampling Method

The researchers selected a purposive of six senior high school English teachers that are currently working at MSU-Sulu to serve as participants in this study. Their perspectives from years of influencing young brains, were invaluable. Participants were recruited through voluntary participation and informed consent.

In this study, the researchers used Purposive Sampling or Judgement sampling to select the participant of the study. According to Crossman (2020), as cited by Jailani et al. (2024), Sasapan et. al. (2024), Basir et. al. (2024) and Sabbaha et. al. (2024) Purposive Sampling is a non-probability sample that is selected based on characteristics of a population and the objective of the study.

Research Instrument

The main instrument used in conducting this study was a self-developed questionnaire which consists of open-ended questions. The focus of this research was open-ended interviews with dedicated teachers to investigate the impact of language learning resources on the English proficiency of senior high school students at MSU-Sulu. The researchers explored their findings on the usefulness of current tools, the problems in utilizing these resources, and their suggestions for optimizing the learning environment through open-ended conversations. In addition, Züll, (2016) defined open-ended survey questions as any questions that do not have an established list of possible answers. When answering open-ended questions, participants must come up with an original response that they can express verbally or in writing.

Data Gathering Procedure

Furthermore, before distributing the survey questionnaires, the researchers checked that all study participants gave their consent.

For the procedure of collecting data, the researchers asked permission from the director of MSU-Sulu senior high school to allow them to conduct their study. The researchers then secured a written permit. Afterward, the researchers gave a letter to each target participants to ask for their permission and cooperation for the launching of the questionnaire consisting open-ended questions for initiating the interviews. The researchers then deployed the survey questionnaire and retrieved it the day after, for participants to have enough time answering it. Lastly, the researchers compiled and analyzed the data that was provided by the participants.

RESULTS AND DISCUSSION

In this section, the data gathered from the participants of this study are coded, analyzed and categorized into themes to further understand the impact of language learning resources on English proficiency of senior high school students in MSU-Sulu.

3.1 Language Learning Resources available in MSU-Sulu Senior High School.

Language learning resources covers a wide range of materials including books, online resources, technologies and other resources that could help not just students but everyone to learn and improve their English proficiency. Books have long been staple resources for students, they continue to play an important role in language acquisition. Park and Lee (2021) recommended that teachers should encourage young students to continue reading printed books in order strengthen their in-depth reading comprehension and grammar skills. Online resources such as websites, apps and platforms have revolutionized the way people learn languages. Wang et al., (2023) stated in their study that the internet is a valuable resource in a culture that has advanced technologically, and the study found out that the internet significantly impacts academic self-efficacy and the process of learning English. Language learning technologies such as information and communication technologies (ICT) and educational technologies (EdTech) have also expanded the opportunities for immersive practice and feedback. These resources can assist learners in honing their English proficiency such as listening, speaking, reading, and writing ability. According to Huda (2023), the widespread use of the internet and the development of technology have completely changed the way that people learn, allowing learners to acquire knowledge in new ways.

Available language learning resources. According to the participants' narrative, English teachers of MSU-Sulu senior high school utilizes a mix of traditional and technological resources in their instruction. This includes materials like books, modules, dictionaries, and visual aids, alongside online resources like videos, mobile apps, and projector presentations. Notably, the recent implementation of free university-wide internet by MSU-Sulu has made accessing online resources significantly easier for students compared to previous years. The result of Andreyeva et al., (2019) research showed that, in comparison to traditional teaching approaches, the use of computer technology in the process of teaching foreign languages provides for better results in practically all language elements and types of speech activity. However, Guarino et al., (2014) emphasized in their study that the internet can be a useful tool in meeting their educational needs but textbooks remained as students' preferred resource. Thus, teaching English can be done through both conventional and technological methods.

> *I usually use books, modules, dictionaries for vocabulary building, worksheets, instructional or online videos, class activities or group activities such as, presentation (speaking, writing, and reading activities) in teaching (P1, Excerpt 1).*
>
> *The available language learning resources used in MSU-Sulu SHS preferably were modules, also by means of video/video presentation to be shown in the projector, others may use flashcards, project supplies and visual*

aids (P2, Excerpt 2).

The only available language learning resources in MSU-Sulu are Textbooks, Mobile App, Language Learning books, and Language Learning websites (P4, Excerpt 3).

Based on what I have experienced during this semester, there are various language learning resources available in MSU-Sulu Senior High School such as books and as well as online resources since MSU-Sulu provides free internet (P5, Excerpt 4).

As language learning requires ample resources, they include the use of multimedia resources as learning materials. Though not limited to, the use of today's technological advances has vastly impacts the educational scenario. Credible sites such as google scholar.com brottanica.com and other learning resources are some I personally use as well other than the modules prescribed by the DepEd (P6 Excerpt 5).

Frequently used language learning resources. With regards to the frequently used resources when teaching English to the students, it is said that modules, textbooks, mobile apps, and online resources are used more often by the English teachers at MSU-Sulu senior high school. This finding from Park and Lee (2021) is directly relevant to the results about the language learning resources available at MSU-Sulu senior high school. The results indicate that teachers primarily utilize a combination of traditional and technological resources, including textbooks and modules, which can be considered forms of "printed books" in the context of this study.

Moreover, some of them rely more heavily on technological advancements as sources, as they can assist them in grasping and seeking more information and comprehensive texts, particularly in the field of English language learning education. Additionally, Macancela (2019) emphasized the importance of technological tools such as website in the variety of interactive activities and practices for understanding the English language, and improving the motivation of students in the improvement of the activities of the subject.

I frequently use textbooks or modules, worksheets or activity sheets and class activities (P1 Excerpt 6).

I personally used modules, wherein ahead of time given to them, so that they may have something to read, background of the subject or ideas to be studied (P2, Excerpt 7).

Basically I only used textbooks, mobile app, and language learning websites (P4, Excerpt 8).

I usually use online resources, to seek for more comprehensive texts especially in the field of language teaching (P5, Excerpt 9).

As I have mentioned, I heavily rely on the technological advances, as to take advantage of its proliferance modules, research materials and other studies related to my topics are all integrated as my sources in which I use for instruction (P6, Excerpt 10).

Helpful language learning resources for teaching English. Based on the teachers' statements, not all of the available resources are helpful, and some of them may also be unhelpful in teaching. According to the participants, the resources that are helpful to them are textbooks, mobile apps, video presentations, and online resources. On the other hand, one of them stated that visual aids are unhelpful because students don't really pay attention to what is written there.

> *The most helpful one is the video presentation, subject to be shown in the projector, it really helps students visualize and understand deeply the discussion. The unhelpful one I think is the visual aids, they do not pay attention of what is written there (P2, Excerpt 11).*
>
> *To be honest, all of the resources that can be found in MSU-Sulu SHS, such as books, e-books, e-paf and such are very helpful in terms of acquiring knowledge and effectively delivering it to the students (P5, Excerpt 12).*
>
> *As mentioned, websites carrying various disciplines are integral for me as I facilitate the learning of my students. So far, studies I find on Google scholar.com and the modules from DepEd are my top reliable resources (P6, Excerpt 13).*

3.2. Impact of Language Learning Resources on English Proficiency of Senior High School Students in MSU-Sulu.

The use of language learning resources has a significant impact in both teaching and learning English. Hassan (2014) mentioned that most individuals believed that without any learning materials, learning a language in an academic environment is impossible. Integrating language learning resources in teaching also allows students to enhance their English proficiency such as speaking, reading, and writing, and their confidence and motivation to engage with the English language. For MSU-Sulu teachers, having access to language learning resources such as books, online resources, and technologies also allows them to create effective and immersive learning environments. By utilizing these resources, MSU-Sulu teachers can further improve their English teaching process, ultimately leading to improved English skills of students.

Impact of language learning resources on students' English proficiency. The responses provided by English teachers offer a diverse perspective on the impact of language learning resources on senior high school students' English proficiency at MSU-Sulu. The teachers acknowledge the varied preferences among students, highlighting the importance of adapting resources to cater to individual learning styles. Several teachers emphasize the positive impact of different resource types, such as worksheets and mobile apps, in enhancing students' speaking, reading, and writing skills. Clear instructional purposes are noted as crucial for effective learning. One teacher, however, exclusively relies on modules, emphasizing their role in expanding students' English vocabulary in writing. Experience plays a significant role, as one teacher with over nine years of service stresses the importance of students' willingness to exert effort for effective learning. Electronic means, as mentioned by another teacher, are recognized for their accessibility and contribution to English proficiency, especially in the early stages of lecturing. In the study of Alghamdi et al.

(2019), stated that incorporating authentic tasks and resources into English language instruction can improve students' speaking fluency and equip them with the skills they need to communicate effectively outside of the classroom.

> *The impact of the different types of resources may vary depending on how students respond to each types. There are many students who find it hard to learn language proficiency through having on the spot activity rather find themselves engaged in having worksheets are activity sheets where they can really express themselves on their own (P1, Excerpt 14).*
>
> *Through these different types of resources used, it has really good and strong impact to the students' English proficiency such as speaking, reading, and writing where it established clear instructional purposes. In their speaking, it makes positive connections to others where they can comfortably share their ideas, feelings and experience. In reading they could actually comprehend well and visualize it. Lastly, writing- through this, it could support and assess the so called (HOTS) preferably the overall critical thinking and analysis that they have undergone through the said resources (P2, Excerpt 15).*
>
> *Since I only use module, base from their activities some students have widen their vocabulary in English in terms of writing (P3, Excerpt 16).*
>
> *I strongly believe, that learning depends on the capacity of the students to learn. I believe they learn when they eagerly exert effort. Base on the experience, in more than 9 years in service and in teaching, all of these resources are helpful when they properly instructed on how to use and how they should apply for instance the Mobile App (P4, Excerpt 17).*
>
> *Among all the types of resources that I use, the ones given by the DepEd has given me far more favorable results from my class (P6, Excerpt 18).*

Utilization of language learning resources enhanced students' confidence and motivation to engage with the English language. The participants of this study collectively illustrate their belief in the importance of English proficiency and the positive impact of language learning resources on students' confidence and motivation. They highlight the role of these resources in helping students reach the fluency level of their peers and the effectiveness of engaging in school activities like speech or English clubs. There's an emphasis on the enthusiasm and self-directed learning of students, as well as the increasing engagement observed throughout the semester, particularly through internet-based language learning. Additionally, one of the participants underscores the complex nature of teaching instruction and the role of language resources in enhancing teaching methods. Overall, it emphasizes the transformative effect of language resources on students' language proficiency journeys. Yokubjonova et al. (2022) stated that reading English-language books has been highlighted as a crucial component of language acquisition, fostering the growth of vocabulary, grammar, and critical thinking abilities. These studies collectively suggest that reading books, especially literature, can have a significant and positive impact on the development of English language skills and proficiency.

> *I believe that being able to use English as a language is a must and what I have noticed in my class with the execution of the language learning resources*

help them unleash the capacity to be at par with those who are fluent and proficient in English. Their motivation and confidence has improved and this can be a great indicator of their progress in their language learning proficiency journey (P1 Excerpt 19).

I could probably say that if they had really enhanced the so called used of language resources by means of engaging different school activities both inside and outside the class for example joining clubs like speech club, English club where it promotes and boosts students' confidence and motivation (P2 Excerpt 20).

I believe students with great enthusiasm and interests will definitely learn not only with the guidance of the teachers, rather even in their own little way (P4 Excerpt 21).

I can see that as we go along with our class for this semester, they are really becoming more engaged through language learning when it is from the internet (P5, Excerpt 22).

I believe that the use of language learning resources has enhanced my students' confidence and motivation to engage with the English language because this embodies a much more complex method of research, relearning and perfecting the profession of teaching instruction as a teacher (P6, Excerpt 23).

Utilization of language learning resources in teaching help teachers improve their way of teaching English. Based on the participants' statements, language learning resources did not just helped students to improve their English proficiency but also helped teachers like them in many ways. Their statements expressed gratitude and appreciation for how these resources helped them improve their way of teaching, as well as, their passion in their profession. It became clear that the participants recognized the indispensable role of language learning resources in shaping not only their students' learnings but also their own evolution as dedicated teachers. Teachers' resourcefulness is essential since the appropriate and effective use of all existing resources is critical to the development of any educational system or organization. Resources are crucial to education and to instructors in particular since they can help to advance both their personal and professional growth (Chigeza, 2022).

As a teacher, the application of language learning resources does not only limit to students. Along with the execution of these language learning resources, I have also noticed that, these made me, if not good or fluent or proficient, at least able to handle my class discussions with its proper and sufficient execution (P1, Excerpt 24).

It usually means a lot and helpful for us, as a teacher, engaging and using different types of language learning resources could have a very big impact, we also learned and studied. Thus, facing and engaging students is but a challenge. We may encounter from time to time, so we really see to it, that we must prepared enough. And the so called mastering, in facing our energetic students, to prevent any circumstances, for instance, lackness of skills in establishing clear discussions (P2, Excerpt 25).

I have a lot of personal achievement in terms of how the language

learning resources had helped me improve my way of teaching English. I could barely remember how I manage to come up with a standardized pronunciation and literally speak spontaneously (P4, Excerpt 26).

As a teacher, it is way more effective to impart knowledge by using any language learning resources that you can use, I have improved it through these resources because it makes me confident in facing the students (P5, Excerpt 27).

As a teacher, and most significantly a lifelong learner, the use of resources for learning are what I deem necessary to comprehensively be more dependent on. Arrogance has no space in the field of education (P6, Excerpt 28).

3.3 Challenges Faced by English Language Teachers in Accessing and Utilizing Language Learning Resources for English Language Education in MSU-Sulu Senior High School.

Students' use of language learning resources profoundly impacts their English language education. Understanding the challenges English teachers face in accessing and utilizing resources at MSU-Sulu Senior High School allows for the development of more effective and tailored teaching strategies. The study of Agung (2019) demonstrates the various challenges that English teachers face in teaching English language. These challenges include the poor level of language comprehension among the students, limited resources of materials, the communication gap that exists between the lecturers and the students, the students' lack of interest and engagement in the classroom, and the absence of social and environmental support.

Main Barriers and Obstacles that the Teachers Encounter in Utilizing Language Resources. The interviews revealed that students' anxiety can hinder participation in recitations, discussions, and other learning activities. According to Sadighi (2017) anxiety related to learning a foreign language is one of the affective factors that has a negative impact on language acquisition. Noise from neighboring classrooms is also highlighted as main obstacle for it disrupts lessons and makes it difficult for students to learn effectively. Cheryan et al., (2014) points out in their study that learning is significantly impacted by a building's structural features. Furthermore, there is a strong correlation between lower student achievement and poor lighting, noise, poor air quality, and inadequate heating in the classroom.

Participant 6 revealed that language barrier is also one of the obstacles teachers faced in effectively teaching English. Students with limited English proficiency may struggle to understand the learning resources. According to Ashikuzzaman (2023), Language barriers in the classroom have the potential to seriously impair participation, interrupt the flow of information, and restrict meaningful interactions between teachers and students.

These responses showcase the importance of considering various factors beyond the resources themselves. Effective language learning requires addressing student anxiety, adapting to classroom environments, and bridging language barriers.

One obstacles and barriers that I usually encountered in my class during recitations and discussion is the level of students anxiety, even not in speaking but on the entirely of the learning process, for if the students find it hard to learn speaking, reading, and writing and other activities will be affected too (P1, Excerpt 29).

In my own experience, the main barriers and obstacles that I encountered in utilizing language learning resources in my teaching is "physical noise", perhaps our classrooms are usually close enough to one another, it is really hard for me to compete with voice coming from the other room (P2, Excerpt 30).

Language barrier is one of the main barriers or obstacles that I faced in integrating these resources in my teaching. Not all learners can comprehend the English language, as much as the others could (P6, Excerpt 31).

Students' behavior affecting the teachers' utilization of language learning resources. Students' behavior is a two-way street when it comes to language learning resources. As Participant 2 points out, disruptive behavior throws a wrench in a teacher's ability to use resources effectively. It's hard to concentrate on implementing a lesson plan when you're constantly managing the classroom. Khasinah (2017) defined disruptive behavior of students as students' misbehavior or poor involvement in class. Such behaviors frequently cause disruptions to the teaching and learning process in the classroom since these actions have an impact on both teachers and other students as well. On the other hand, Participant 6 suggests that student behavior can also be a signal of their interest. Disengaged students might be acting out because the chosen resources aren't engaging them. In both cases, understanding the reasons behind students' behaviors allows teachers to adapt their approach and resource selection. This can lead to a more productive learning environment where students are actively involved and teachers can effectively utilize the resources at their disposal. Moreover, it is essential for teachers to stimulate their student's enthusiasm for learning the English language. (Amjah, 2013).

Yes, it really affects my utilization of language learning resources especially in my teaching. I can't concentrate well, because all the time I keep my eyes watching on them and always reminding them to be behave, not just me, as well as their classmates will be affected, so the tendency is there will no learning at all (P2, Excerpt 32).

Definitely. Because the learners' behaviors are a reflection of how well they are interested in the class (P2, Excerpt 33).

Supports and professional development that the teachers need to effectively integrate language learning resources into their teaching. In accordance with the participants' assertion, there are various form of support and professional development that they need in order for them to effectively teach English to their students. These includes the access to workshops and seminars for integrating language learning resources, interaction with influential and inspiring individuals to support mental well-being and professional growth, opportunities for further education such as educational courses and masteral degrees to enhance teaching skill, regular and rigorous remedial classes and constant drills to support

student performance, especially in language, peer support and interaction with co-teachers for collaborative learning and development, self-motivation, and support from superiors, as well as, the encouragement from peers to navigate the challenges of the teaching profession. Additionally, Sancar et al., (2021) stated that developing teachers professionally is essential to raising student achievement. Furthermore, their varied form of support and needs from dynamic nature of their profession encompasses not only professional development but also the well-being, educational advancement and progress of the students.

> *For professional development, it is with great privileged to attend workshops and seminars on the integration of language learning resources (P1, Excerpt 34).*
>
> *I think the kind of support that I am longing for and could help my professional development is to be with good influential people. I think this means a lot for me, verily if you were being surrounded good people that will always remind and inspired you to work harder and love your profession, you will be inspired to go to school. I mean for me mental health is very important, thus if this will be affected it loosen your capability to control emotion (P2, Excerpt 35).*
>
> *It is always a must to fully understand what you are teaching and master your topics. This is through taking educational courses and masteral degrees (P3, Excerpt 36).*
>
> *I believe a regular and a rigorous remedial class can be of by helps in order to give way to these students with their performance especially in language. Constant drills is highly recommended too (P4, Excerpt 37).*
>
> *Maybe in terms of peer support from my co-teachers, I hope I can interact with them more (P5, Excerpt 38).*
>
> *The kind of support that we need as teachers come from our own selves. The teaching profession is challenging, and self-motivation as a professional is important. Also supports from our superiors at work and peers is important (P6, Excerpt 39).*

3.4 Strategies Employed by English Language Teachers in Utilizing Language Learning Resources to Enhance the English Proficiency of Senior High School Students in MSU-Sulu.

Having effective strategies for teaching the English language is crucial and essential. English has become the primary medium of communication in the global community, making it important to provide proper focus and methods for its instruction. Creating an immersive language learning environment, including technology, realistic materials, offering regular feedback, and encouraging extracurricular language practice are all successful techniques for helping students improve their English language skills. By using these tactics, instructors can help students become confident and effective English language users, providing them with a valuable asset that will open doors to a globalized world. (Budiman et al., 2023). In the pursuit of enhancing English proficiency among senior high school students at MSU-Sulu, English language teachers employ a variety of strategies to effectively utilize language learning resources. These strategies are designed to create an engaging and immersive

learning environment that fosters language acquisition and proficiency. By understanding the specific needs and learning styles of their students, teachers at MSU-Sulu implement tailored approaches that harness language learning resources to optimize the English language learning experience. Additionally, this manner sets the stage for an exploration of the diverse and impactful strategies employed by English language teachers to elevate the English proficiency of senior high school students within the unique context of MSU-Sulu.

Teaching strategies and methods that the teachers employed to help students enhance their English proficiency. Based on the participants' statements, it appears that they are implementing a structured strategic approach to classroom activities. The sequence of group discussions, partner group reporting, and word recitation suggests an interactive and collaborative learning environment. Additionally, the English language teachers' strategy focuses on engaging students in reporting and facilitating discussions, indicating a commitment to ensuring understanding and clarity for the students. Discussion and reporting have been identified as an effective approach to foster a better learning environment and habit of collaborative problem-solving, which helps participant students develop research ideas and skills in various educational contexts especially in English language (Dancis et al., 2023). Additionally, participant 3 stated that he/she used the grammar translation method, which focuses on translating between the target language and the native language, and also the incorporate elements of the direct method into his/her teaching approach. These strategies technically help students understand the structure and grammar of the target language, as well as develop their translation, speaking and listening skills, promoting fluency and natural language use. Moreover, a grammar translation method is currently one of the effective means of building foreign language competences in English (Ishchenko et al., 2022).

To help students grasp complex concepts, learn from each other and develop important social and communication skills, enhance their understanding and retention of the material, and develop their language proficiency and skills, both participants 4 and 6 employed the direct instruction or method, which prioritize unconstrained communication in teaching, aiming to benefit both teachers and students. Furthermore, direct instruction is one of the most widely used teacher-centered methodologies and has proven effectiveness in providing information and developing step-by-step skills. Its central purpose is promoting student on-task behavior through explicit instruction, ongoing support, and student engagement in successful practice, being focused on the interaction between teachers and students. (Guzmán, 2020).

In addition, participant 4 mentioned that the usage of the audio-lingual method and communicative language teaching method is beneficial. Nita and Syafei (2012) also concluded that audio-lingual method and communicative language teaching are useful and applicable in teaching speaking skills.

> *I prepare group discussions, partner group reporting, and word recitation as my teaching strategies (P1, Excerpt 40).*
>
> *As of now, since my subject is Reading Writing Skills I see to it, I engage my students in reporting. Everyone are subject to report, also we have a brief discussion right after reporting, I'm going to make sure, there will be no doubts and clarifications left. In terms in writing, I give them activity assignment to be*

done at home. (P2, Excerpt 41).

I simply use grammar translation method and with the collaboration of direct method (P3, Excerpt 42).

Direct instruction, lecture, cooperative learning, and experiential learning are the best strategies and the direct method. Audio-lingual method and communicative language teaching method are the best method. Each of these has its own strengths and weaknesses (P4, Excerpt 43).

Direct method, I believe that teaching without constraint in communication serve both the teachers and students well (P6, Excerpt 44).

Integrating technologies to support English teaching. The participants emphasize the potential of technology, particularly cellphones and apps, to enhance English proficiency among students. They highlight the importance of leveraging technology for educational purposes. For instance, using the internet for research and assignments, as well as utilizing apps for pronunciation practice and incorporating video presentations for interactive role plays. They also encourage students to embrace technology as a tool for educational advancement and language learning, recognizing its ability to engage and empower students in their English language development. According to Speck (2019), English language learners will benefit if they approach technology. Smart phone technology will use the benefits of studying, enhancing, rehearsing, and developing speaking skills.

I guess everyone has their own access to the internet by means of cellphone, through that, they could actually search deeply and to have a better and clear understanding towards English proficiency.

Giving them assignment from time to time so that they could not just used their cellphone for entertainment but for as well, educational purposes (P2, Excerpt 45).

I always ask my students to use technology in order to enhance and further their knowledge. For instance, I will ask them to use an app to check if the pronunciation for a certain word is correct or not. In making a role play, I used to ask them to provide it with video presentation (P4, Excerpt 46).

Modifying the use of resources in teaching English according to the different learning needs and language backgrounds of the students. In conformity with the participants' narrative, they indicated the importance of relating the resources they utilize and the lesson content to the students' backgrounds and experiences. They emphasize the significance of understanding students' comprehension levels and language backgrounds, as well as the necessity of adjusting teaching methods and resources accordingly. Additionally, participant 2 highlights the value of thorough lesson planning, assessing students' understanding, and ensuring that lessons are effectively delivered. Moreover, their combined approaches and strategies underscore how they modify the use of resources in teaching English according to the different learning needs and language backgrounds of students. Furthermore, Raza (2018) stated that teachers must fulfill each student's learning needs in a classroom with varying levels of language proficiency by using strategies that will benefit all students.

Modification of each resources has something to do with students' level

of understanding. I for one, if I noticed that my students were not able to cope up with lesson discussed, I did some adjustments on my way of teaching. I ensure that student were provided with each learning resources base on their need and language background (P1, Excerpt 47).

Well for me, I'm going to make sure that planning lessons must secured first, of course understanding the status of your students lastly having an "assessment" right after discussions and the rest is history (P2, Excerpt 48).

Sometimes, I actually relate the learning resources to their rationality, and such, I use examples like how would they be if they were the people in the stories (P5, Excerpt 49).

Conclusions

This study investigated the impact of language learning resources on the English proficiency of MSU-Sulu senior high school students. Through interviews with English teachers, the research identified a range of resources available at the school. These included traditional materials like books and dictionaries, alongside technological resources like online platforms and mobile apps. The study revealed that utilizing a variety of these resources effectively improved students' English proficiency. This included enhanced vocabulary, better comprehension skills, and increased fluency. Additionally, the teachers themselves reported a positive impact on their teaching styles and enthusiasm.

However, the research also highlighted challenges faced by teachers in utilizing these resources. Limited access to resources, a lack of training on integrating them, and a shortage of classroom facilities were some of the key obstacles. Interestingly, the study also found that student factors like anxiety levels and disruptive behavior could affect resource effectiveness. These challenges emphasize the need for solutions to maximize the potential of language learning resources and optimize the learning experience for MSU-Sulu students.

The study explored strategies employed by teachers to overcome these challenges and to effectively utilize language learning resources in enhancing students' English proficiency. These included implementing structured activities, creating interactive learning environments, and integrating technology into assessments. Notably, teachers reported using a mix of methods like the audio-lingual method and communicative language teaching to enhance student engagement.

Recommendations

Based on the findings of this qualitative study on the impact of language learning resources on English proficiency of senior high school students in MSU-Sulu, the following recommendations are offered:

***1. Resource Assessment*.** Conduct a comprehensive inventory and assessment of the current language learning resources in MSU-Sulu senior high school to identify gaps and areas for improvement. This could involve working with teachers, administrators, and

students to gain insights into the efficacy and usefulness of present resources. Umar (2018) stated that assessment for learning involves frequent, interactive assessments of students' progress and knowledge to detect learning difficulties and tailor education to individual needs. A comprehensive analysis of his research demonstrates that this style of assessment is very successful at improving students' academic performance and enthusiasm to learn.

2. Proficiency Feedback. Implement regular surveys or feedback methods to assess the perceived impact of language learning resources on the English proficiency of senior high school students. Engage English language teachers in reflective discussions to better understand their observations and recommendations for improving the effectiveness of these resources. In the study of Al-Bashir et al. (2016), stated that individualised written feedback can be useful in assisting students to learn. However, the process is time consuming. If there are a large number of students, it places additional strain on teachers' time to produce these remarks.

3. Teacher Support. Address the stated challenges that English language teachers encounter while accessing and utilizing language learning resources. This could include offering professional development opportunities, assigning adequate funding for resource engagement, and building support networks to assist instructors in overcoming technological or administrative obstacles. An et al. (2022), their research found that perceived teacher support is substantially related to learning engagement. Learning motivation mediates the relationship between perceived teacher support and learning engagement.

4. Collaboration Workshops. Encourage English language teachers to collaborate and share expertise in order to exchange best practices and strategies for efficiently utilizing language learning resources. Create forums or workshops where teachers can share successful ideas and learn from one another's experiences, thereby improving the English proficiency of senior high school students in MSU-Sulu. Burton (2015)'s qualitative study found that effective teacher collaboration includes shared or common goals, teacher efficacy, and positive interdependence among teachers. Other related themes arose, including successful collaboration activities that improve the learning environment.

5. Inclusive Research. Future researchers doing a similar study are encouraged to include both students and teachers as participants. Researchers can acquire a comprehensive picture of the impact of language learning resources by merging student viewpoints and English proficiency data into quantitative analysis. This technique not only adds to the study data, but it also provides useful insights into students' experiences and learning outcomes, allowing for a more comprehensive evaluation of the effectiveness of language learning resources in improving English proficiency. According to Nayman and Altun's (2021) research, teachers' and students' perspectives on learning and teaching are compatible under a basic framework that includes self-study, student involvement, active lesson process, teaching the lesson as art, and, most importantly, the importance of reading habits.

Compliance with Ethical Standards

The researchers followed the research ethics protocol listed below throughout the research process.

Protection from bodily and psychological harm. The researcher ensured that the study's participants were not subjected to embarrassment, insult, harassment, injury, or any

other type of distress. Instead, the researchers maintained the individuals' physical and psychological safety.

Confidentiality of the collected data. The researchers also made sure that the participants' personal information and other data obtained were kept anonymous and strictly confidential unless they provide their full approval.

Absence of deception. The researchers ensured that there was no deception involved in the process of the study. All participants were informed about the study's objective, how the results were used, any potential negative effects of their participation, and who will have access to the results. Furthermore, before distributing the survey questionnaires, the researchers checked that all study participants gave their consent.

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IMPLEMENTATION OF ADOPT-A-SCHOOL PROGRAM: SUCCESS STORY OF BUENAVISTA NATIONAL HIGH SCHOOL

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ABSTRACT

This study aims to examine the successful implementation of Buenavista National High School's (BNHS) Adopt-a-School Programs (ASPs), established through Republic Act No. 8525, and to explore how the school earned two awards for two consecutive years: first runner-up in the division under the mega category and champion in the cluster of Buenavista. Furthermore, this study seeks to identify BNHS' practices that could be benchmarked by other schools and to pinpoint factors needing enhancement to achieve the highest possible recognition. This was through a face-to face interview using a self-constructed guide questionnaire, emphasizing the ASPs' processes: pre-implementation, implementation, post-implementation, and the effects of the projects based on participants' or beneficiaries' perceptions and as reflected in the school report card. Its validity was confirmed by professionals: an Education Program Supervisor, a Research Expert, a Language Expert, and a Statistician. The data were collected through triangulation methods, including in-depth interviews, observation, and documentary analysis, and analyzed using thematic analysis. The responses of program participants, implementing bodies, and school organization members during face-to-face interviews indicated that the ASPs were successful, as evidenced by positive feedback and school report card data. Most ASPs had long-term effects on beneficiaries, as perceived and noted by interviewees. Among the five ASPs at BNHS, two became annual programs, and one was adopted by the Rural Health Unit of the Local Government. The BNHS practices that could be emulated by other schools include formulating short-term ASPs with long-term effects to meet learners' essential needs, leading to annual ASPs that strengthen community linkages; recognizing volunteer groups and stakeholders; providing incentives to outstanding volunteers; and holding "Gabi ng Pagkilala," to recognize various stakeholders' support. Despite BNHS's consistent ranking as first runner-up for two consecutive years in the division and achieving Level 1 in the school

report card, there are areas for improvement. These include consistent adherence to the roles and functions of implementing officers, proper documentation, and accountability in implementing the ASP.

Keywords: *Adopt-a-School Program, Brigada Eskwela, beneficiaries, benchmarking, implementation, donors, sponsors, volunteers, volunteerism, organizations, Memorandum of Agreement, Deed of Donation, Deed of Acceptance*

INTRODUCTION

Presented in this section are the basis of what the researcher will investigate: research questions, hypotheses, and the significance of the study. In this, it was described how the study differs from the other studies and addresses something that is neither yet known nor has been studied before. It also includes the scope, delimitation, and fundamental nature of the study.

Public schools face significant challenges in attaining quality education. One is the lack of resources to further both students and school improvement. Schools could not achieve all the goals and objectives without the support of the community and by merely relying on the government's funds.

To remedy the budget discrepancy, the Department of Education (DepEd) sought the involvement and assistance of private entities to aid public schools in realizing an educational program within an agreed period through Republic Act No. 8525. The Act Establishing an Adopt-a-School Program (ASP), approved on February 14, 1998, is encapsulated in the ASP Toolkit for using generic forms and implementation.

As a counterpart, DepEd has been providing support funds since 2009 to sustain partnership initiatives under the ASP at the regional and division levels, as stated in DepEd Order No. 6 series of 2016, or the so-called Utilization of Support Funds for Adopt-a-School Program. It is intended to support and fund the implementation of Brigada Eskwela (BE), as stated in the 2009 Brigada Eskwela Manual. BE is a unique program of the Department of Education that acts as a frontline activity in dealing with the numerous issues facing Philippine education. From 2020, the allocation was diverted from the former materials for rehabilitating school classrooms to the provision of printing materials for Self-Learning Materials (SLM) for the students because of the changes brought up by COVID-19. Due to this pandemic, the former main objective of DepEd concentrated on providing the students with sufficient learning materials, following the Policy Guidelines for the Provision of Learning Resources in the Implementation of the Basic Education Continuity Plan.

At present, budget allocation has changed because of the improvements in global health. The amount received by the Department of Education from the National Budget for Fiscal Year 2022 supports all the Department's current programs, activities, and projects while paying particular attention to initiatives that support the adoption of blended learning

modalities and the safe and gradual return to face-to-face instruction, such as Flexible Learning Options (FLOs), School Maintenance and Other Operating Expenses (MOOE), Government Assistance and Subsidies.

Regardless of the situation of the country's economic status, schools need the involvement of the community. Daniel (2019) stated that needs of a school, specifically learners, must be satisfied to realize vision and mission of the education that will benefit them. Together, school and community partners can create learning opportunities and access to resources that promote students' growth and learning.

Throughout the fiscal year, more than two-thirds of the governments struggle to keep the anticipated composition of their expenditures. Most industries are impacted by this, particularly those that are service-oriented like education (Kadirov et al., 2023). Thus, consistent support and cooperation of every aspect of the community is indispensable in the realization of every launched project by the school.

To answer the call of the Department of Education, the Division of Marinduque continuously creates various programs under the ASP that could respond to the needs of the learners, eliminating barriers to an effective learning process. Offices designated for this endeavor include the Private Sector Partnerships Unit (PSPU), inclusive of one of the three units handled by the Educational Program Supervisor (EPS) under the different partnership needs of the DepEd, aside from the Government and Community Partnerships Unit (GCPU) and Special Events Unit (SEU).

In support of the ASP of DepEd, Buenavista National High School (BNHS) consistently supports the advocacy of the Office of the Schools Division of Marinduque concerning implementing the national projects. BNHS has persistently sought the cooperation of all stakeholders to implement each ASP launched by the school and the department to suit the needs of the students for the last five years. Among these projects were: Send-off Programs for Players; a Forum on Teenage Pregnancy and Early Marriage; Healing and Firming of Families for a More Holistic Education (HAFFMHE); and the Concreting of BNHS Ground. Aligned with these projects is the National Flag Project of ASP, Brigada Eskwela (BE), which has been conducted every school year and, with the new guidelines, is now a whole-year-round program of the department.

Being a Guidance Designate who untiringly finds ways to improve the learning condition of the students in and out of the school by creating various programs that have been extended to the community for support, the researcher was encouraged to probe the success of the implementation of ASPs in BNHS through the shared experiences of the beneficiaries of the programs under ASP guided by the philosophy, vision, and mission of Homeroom Guidance as mandated by the DepEd Revised Implementation of Homeroom Guidance for School Year 2021-2022. Further, the researcher wishes to identify the various forms of assistance extended to the school and justify the ASP outcomes reflected in the school report card and statements of the beneficiaries of the programs. Likewise, to establish the strong collaborative efforts of family, school, community, government, and other institutions and organizations in realizing projects under the ASP of BNHS.

With the above scenario, the researcher would like to conduct this study to justify the successful implementation of ASP in BNHS through in-depth interviews, with the hope that the results of this study could help improve the implementation of the school's ASPs. Furthermore, the researcher wishes other schools could eventually benchmark those ASPs to provide better services for the clientele and further strengthen connections with other stakeholders. Barret (2023) stated in his paper that escalating commitment in an educational setting demonstrates the ability to create a useful theoretical framework for comprehending the factors that can impede the adoption of school projects. He further discussed that these evidence-based are alternatives in place of low-value practices to justify the success of any school-initiated project.

With great consideration and appreciation for the varied assistance from the sponsors, consistent support from stakeholders, and the efforts of the project coordinators of the ASPs, it is justifiable to recognize how the ASPs of Buenavista National High School achieved success as the Two-time First Runner-up Best Implementer in the entire division. Additionally, it is important to identify areas for improvement that are preventing the school from achieving the highest recognition in ASP implementation. There is hope that the various ASPs of the school can be benchmarked by other schools, finding the advantages to be beneficial in multiple ways.

Research Questions

This study was moving toward its primary objective of probing the successful implementation of the Adopt-a-School Program at Buenavista National High School.

Specifically, it sought to answer the following questions:

1. What are the practices of Buenavista National High School (BNHS) towards the implementation of the Adopt-a-School Program in the following phases?
1.1 Pre-Implementation
1.1.1 Root cause analysis
1.1.2 Approaches
1.1.3 Partners
1.1.4 Document of partnership
1.2 Implementation Proper
1.2.1 Varied resources
1.2.2 Documentation
1.2.3 Problems encountered
1.2.4 Progress monitoring
1.3 Post Implementation
1.3.1 Completion of the program
1.3.2 Significant role
1.3.3 Completion monitoring as stated in the IRR
1.3.4 Evaluation
2. In the course of the implementation of the ASP, what assistance was coming from the donors in support of the following areas?

2.1 Learning environment;
2.2 Learning support;
2.3 Technology support;
2.4 Health and nutrition;
2.5 Reading program;
2.6 Training and development;
2.7 Direct assistance; and
2.8 Assistive Learning Devices for Students with special needs
3. What are the effects of the Adopt-a-School Program on the school's performance?
3.1 based on the perception of the participants; and
3.1.1 efforts of the school through its ASPs
3.1.2 ASPs addressed the problems
3.1.3 emulation of BNHS'ASPs
3.2 based on the School Report Card (SRC)
3.2.1 decreased in drop-out
3.2.2 increased in enrolment
3.2.3 increased in participation rate of stakeholders
3.2.4 doubled numbers in awards and recognition
3.2.5 increasing sources of ASP funds
4. What are the keys to the successful implementation of Buenavista National High School's Adopt-a-School Programs?
4.1 Collaboration of the community members
4.2 Efforts of the proponent or organizer
4.3 Accountability
5. From the success stories of the Adopt-a-School Program at Buenavista National High School, what Adopt-A-School Program could be benchmarked by other schools?

METHODOLOGY

This chapter presents the research design in terms of methodology, research locale, research population and sample, research instrument, and data-gathering procedures.

Research Design

This study employs a qualitative research design, specifically the Transcendental Phenomenological Design through epoche, to explore the success stories of implementing the Adopt-a-School Programs at Buenavista National High School. This methodology is preferred because the researcher aims to capture the stories of the ASPs' program beneficiaries as they experienced becoming a part of these extended services of the school to its learners, family of the learners, stakeholders and other community members. According to Heotis (2020), phenomenology and hermeneutics, especially the philosophical ideas of Edmund Husserl and Martin Heidegger, form the foundation for phenomenological research methodologies. Husserl's central thesis is that one can investigate and describe the essential elements of one's experience while suspending

presuppositions to understand the essence of an event. On the other hand, the primary goal of choosing a phenomenological methodology was to encapsulate the entire meaning of the participants' experiences as shared in their own words.

The researcher deemed a phenomenological methodology appropriate for this study, as it allows others to understand the meaning participants attribute to their actions, including their thoughts, feelings, beliefs, values, and assumptive worlds. To understand the essence of the studied phenomenon, the researcher aimed to provide an accurate and vivid description of the lived experience (Neubauer et al., 2019). The researcher must understand the deeper perspectives captured through face-to-face interaction (Alhazmi and Kaufmann, 2022). Also, the researcher discussed the importance of understanding the participants' stories regarding implementation, experiences, and lessons acquired in the Adopt-a-School Program. Thus, when describing that experience, the researcher remains free from theoretical or social constructs.

To complete this study, the researcher—a Guidance Designate who is actively involved in every ASP at BNHS—applied the epoche method by bracketing preexisting beliefs, attitudes, and feelings. Heotis (2020) emphasized Moustakas' elaboration that the researcher should be open, receptive, and naive when listening to participants share their experiences with the phenomenon under investigation. Moreover, Alhazmi and Kaufmann, (2022) advised researchers to engage in this reflection throughout the study and to make explicit our understandings, beliefs, biases, and assumptions. The researcher bracketed the data, gave each statement equal weight, and elicited insignificant responses. The researcher grouped the participant responses into themes, which served as the foundation for a textural description of the phenomenon. Neubauer et al. (2019), emphasized phenomenological reflection and imaginative variation in constructing structural themes and characterizations from the textural meanings that go beyond the façade and into the essence of the experience. The researcher's final step involves synthesizing meaning and quality, combining all fundamental structural and textural descriptions into a single statement that captures the essence of the program's entire implementation.

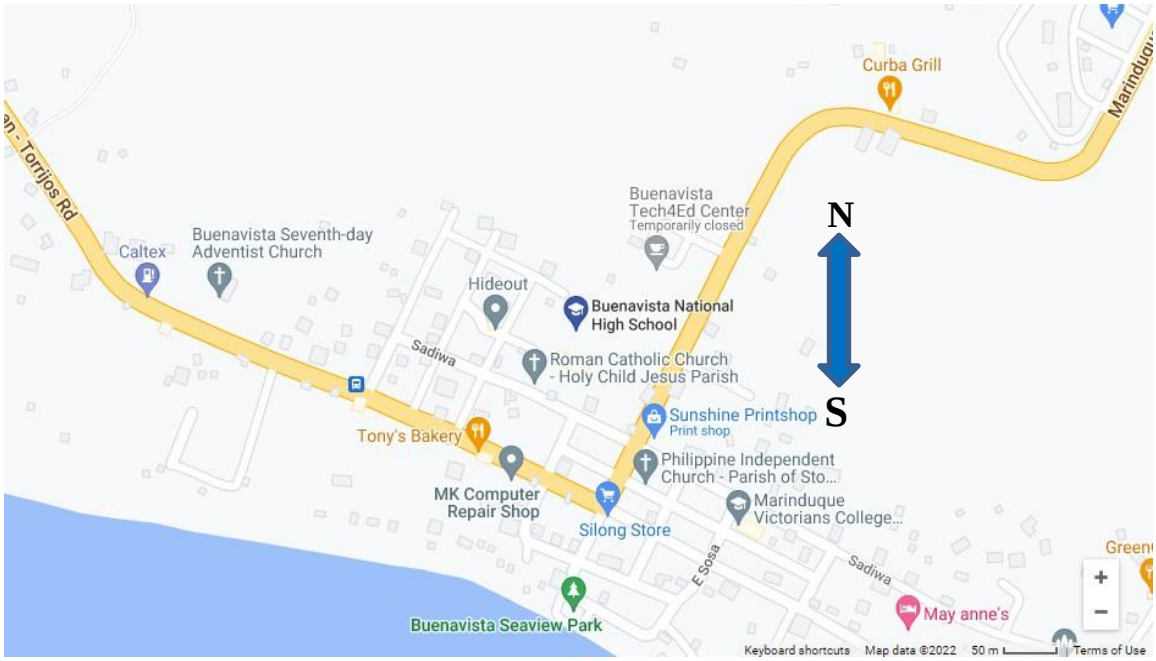
Research Locale

This study was conducted in the Buenavista District, specifically at Buenavista National High School (BNHS). This school is considered the most highly populated school in the district, with a total student population of 1502 for the school year 2022-2023, and it is expected to increase, with 63 teaching and non-teaching personnel per Plantilla.

The locale of the study was chosen because the school was awarded the 2021 and 2022 Brigada Eskwela Best Implementing School under the Mega School Category in the cluster and First Runner-Up in the division level by the Division Office for two consecutive years in the previous assessments of various schools with the implementation of the Adopt-a-School Program Brigada Eskwela.

Figure 2

Location Map of Buenavista National High School



Source:https://www.google.com/maps/search/Buenavista+National+High+School,+Buenavista,+Marinduque/@13.2519266,121.9412918,14z/data=!3m1!4b1?entry=ttu

Research Population and Sample

This study employed a purposive sampling technique in selecting the population. The beneficiaries of the Adopt-a-School Program (ASP) implemented by BNHS in different categories over the previous five years were considered. These categories include Healing and Firming Families for a More Holistic Education (HAFFMHE), Annual Send-off Programs for Provincial Players, Annual Brigada Eskwela, Annual Forum on Teenage Pregnancy and Early Marriage, and Concreting of BNHS Grounds.

The number of respondents for the face-to-face interview was fourteen (14), chosen from various beneficiaries with direct involvement and first-hand information about the ASP programs of BNHS. For HAFFMHE, different types of respondents were selected to represent each beneficiary type, including separated parents, single parents, and orphans. For the Send-off Program for Players, respondents included a coach, a Sports Coordinator from past and present, a MIMAROPARAA player for two consecutive years, and a silver medalist provincial player. For the Forum on Teenage Pregnancy, respondents included a former student who attended the forum and later became a beauty queen in college, as well as a former student who attended the program and is now a mother. For the Concreting of the School Ground, respondents included the school head, the President of the PTA, the Alumni Association Treasurer, and the President of the Supreme Student Government when the project was implemented. For Brigada

Eskwela, both internal and external stakeholders were consulted. Internal stakeholders included the present principal, the BE Coordinator, and the ASP School Coordinator. External stakeholders included a church deacon representing their group and an officer from civic organizations.

Research Instrument

The researcher conducted structured, in-depth phenomenological interviews using a validated self-made questionnaire with the beneficiaries. Audio-video recording was utilized to better understand the interviewees' answers. The questions were directed toward the participants' experiences, feelings, beliefs, and convictions about BNHS' implementation of ASPs.

The interview guide questionnaire consists of the following parts: pre-implementation, implementation proper, post-implementation, assistance from donors to support ASP implementation, and effects of the project based on the perception of the participant.

The first part comprises pre-implementation questions, reflecting the procedures and preliminaries made by the different personalities involved before conducting the ASP. This includes the reason for the need to conduct the ASP, who was involved in identifying BNHS as the beneficiary school, what made the school qualified for the program, and the documents to confirm the transactions between the beneficiaries and the sponsors.

The subsequent section covers implementation questions, addressing the procedures for accomplishing the ASP. These questions encompass the sufficiency of supplies for the project, the problems encountered, and the remedies or precautions taken by the implementing bodies during the implementation, as well as the documents and procedures used to track the progress of the program being implemented.

The following set of questions pertains to post-implementation, measuring the effectiveness of the project implementation according to the adherence of the implementing bodies to the department's protocol. This part includes sharing the interviewees' experiences of being part of the ASP, their perceived importance of their role in implementing the ASP, and the procedures and documents used in monitoring the projects.

After the questions on the different phases of the project's implementation, the confirmation of the common forms of assistance provided to the school in accomplishing the ASPs was identified and validated. The sufficiency of the assistance was measured, and interventions were made if problems were encountered with regards to the supplies.

Finally, the last part of the interview guide determined the beneficiaries' perceptions of the effects of the project on their lives. This included the realizations they had after benefiting from or engaging in accomplishing the programs, the factors that, for them,

contributed to the success of the project, and their beliefs or confirmation that the ASPs must be implemented by other schools.

Data Gathering Procedures

In gathering the data for this study, the researcher followed the primary steps outlined below:

First, the researcher requested an endorsement from the Dean of the Graduate School. This endorsement was then forwarded to the principal of BNHS for approval. The content of the research study underwent assessment and evaluation until permission was granted. It was ensured that no government funds would be used during the activity in accordance with DepEd Order No. 9 Series of 2005. Classes were not disrupted, and proper coordination with the school administrators was arranged before the conduct of the activity.

Triangulation was utilized, incorporating interviews, observations, and document analysis. Face-to-face interviews played a crucial role in collecting in-depth information about the successful implementation of the Adopt-a-School Program (ASP) at Buenavista National High School, eliciting the perceptions and descriptions of the participants' experiences.

Although success stories could be investigated through observation, shared interactions, and literature, the researcher conducted in-depth interviews with open-ended questions with the participants. The researcher engaged directly with the participants, posing a few open-ended questions using a validated self-structured questionnaire to ultimately understand the respondents' stories. Audio recordings were utilized with their permission to fully evaluate and comprehend the interviewees' statements regarding the ASP of BNHS.

Furthermore, observational notes regarding the participants' techniques for recounting their experiences, behavior during the interview, and similar information were utilized as supplementary data. Positive outcomes of the ASPs were even observed based on their way of life and responses that reflected the outcomes of the ASP in their personal development.

To provide a figurative justification for the successful implementation of the ASP in BNHS, data related to the different projects implemented in the previous five years was obtained from the respective offices. This included the total number of beneficiaries for each project, the total number of volunteers, the total number of consistent donors, the total cash amount incurred, the total amount of goods in cash, the total number of Deeds of

donations executed, and the total number of MOAs signed. These data were presented through tabular presentations and graphs.

Statistical Treatment of Data

In presenting the findings of the study, a thematic analysis framework was utilized since the study focused on the experiences of the respondents. This method was chosen due to its constant-comparative nature, involving systematic reading and re-reading of transcripts (Braun et al., 2019). The thematic analysis process was conducted systematically to ensure the quality of the final product. Whether this was applied to interviews or focus groups, is based on the premise that participants' memories are valuable for inquiry, synthesis, and in-depth description of their experiences. This approach assumes that information recorded in documents or other artifacts accurately reflects reality at the time it was created and should be treated with the same level of confidence as participant-spoken memories. Lochmiller (2021) emphasized the importance of the researcher's interpretation of recorded data from participants or found in documents as compelling. The researcher followed similar procedures by conducting interviews with open-ended questions and analyzing data from documents related to the ASPs.

Lochmiller described the analysis process involving three phases: setup, analysis, and interpretation. The credibility and trustworthiness of the reported information must be highly regarded to conduct thematic analysis. No alterations or substitutions were made to the respondents' statements, who were beneficiaries of various ASPs at BNHS. To provide a comprehensive understanding of the respondents' experiences and feelings, a tabular presentation of statements is included in Chapter Four.
This procedure involves organizing the dataset for analysis, including transcribing identifying references from audio and video sources along with handwritten field notes. Bracketing the researcher's beliefs about the successful implementation of ASPs in BNHS ensured the integrity of the analysis.

After bracketing, the focus shifted to intuition, with an emphasis on attributing meaning to the phenomenon. Grouping invariant horizons into themes allowed for a composite description of the essence of all participants' stories. This description served as the core of the ASP success story at the school, potentially useful for benchmarking activities by other schools.

Data analysis followed, with coding and categorizing to make sense of the significant meaning of the phenomenon. Greening (2019) described this as the third step in the phenomenological process, involving analyzing and describing the data. The researcher persistently worked with detailed data to emerge essences and themes from respondents' statements, striving for a thorough description of the phenomenon.

Participants' quotes were included for vivid and convincing findings description, with all responses given equal value and non-overlapping, non-repetitive statements listed. Through taking notes, the participants behavior was used for digesting information that is

applied in their actual daily lives after their experiences with the ASPs of the school. As a result, this helped with long-term, in-the-moment mental processes by facilitating the coding of information, which relieves mnemonic processes and aids in the creation of the answer. Data from documents were presented through graphs, tables and figures, with comparisons made for a more detailed description of events. Line graphs depicted movement, change, and trends in support for the ASP project.

Finally, the social significance of the findings was emphasized, describing the positive effects experienced by beneficiaries and validating the benchmarking of projects.

RESULTS and DISCUSSION

This chapter presents the statistical data relative to the problems posited. The corresponding analyses and interpretations of the data were incorporated into this chapter.

The first section discusses Buenavista National High School practices in implementing Adopt-a-School Programs, followed by an examination of the common forms of assistance provided to the school. It explores the effects of the ASPs on the school's performance, as perceived by beneficiaries and reflected in the School Report Card data. The latter part of the chapter delves into ASPs and practices that could serve as benchmarks for other schools.
Emerging themes, based on participants' accounts of the entire process justifying the successful implementation, are supported by documents vividly detailing each project and phase. Various graphs, tables and figures are presented for each project to assess implementation success visually. Additionally, narratives of participants and beneficiaries of the projects are included, complementing the data to complete the triangulation process of analysis.

For every challenge concerning learners, the school implements intervention programs through ASPs. Similarly, in the execution of various Adopt-a-School Program, Buenavista National High School endeavors to make a difference to achieve the objectives of each ASP launched. The entire process typically comprises three stages: pre-implementation, implementation, and post-implementation.

Practices of Buenavista National High School Towards the Implementation of Adopt-A-School Program

The very first phase of any school program or project is very crucial. This will determine the success or failure of the objective set by the ASP. It is an essential preparatory process that aims to collect information and requirements. The primary goal is to justify the need for conducting the ASP and how to successfully carry out the objectives of the program.

Pre-implementation Phase

The pre-implementation stage conceptualized the various projects that justified the

requirements to implement the proposed project. This stage comprises of the root-cause analysis, the partner agencies that supported the school, the various civic organizations, other stakeholders, reasons for selecting BNHS as a recipient of the program, people involved in the selection of BNHS as a beneficiary, and the signing of the MOA. Likewise, in this stage the different forms used in each part of the phase were taken into consideration, scrutinized and analyzed as a requirement and an attachment that could justify the implementation of the specified phase of implementation.

The various ASPs stated herein were formulated based on the needs of the learners, as stated by Harrington and De Bruler (2019), who said that student-centered learning is an educational philosophy or approach to learning that places students' needs and interests at the forefront of the operations and decision-making of a school or district. Added hereto is the concrete support of the various components of the community in the implementation of each ASP. Astbury (2022) emphasized that, in the end, schools will attain more effective primary output delivery over a longer period by forging deeper and more positive ties with stakeholders—both locally and nationally. This reiterates that stakeholders play a big role in the success of each project in the school that has effects on the educational outcomes of the learners.

Table 1 presents the Adopt-a-School Programs of Buenavista National High School and their beneficiaries.

Table 1

Adopt-a-School Programs of Buenavista National High School and Their Beneficiaries

Adopt-a-School Program	Total No. of Beneficiaries
HAFFMHE	215
Send-off Programs for Players	220 varies annually
Forum on Teen-age Pregnancy and Early Marriage	400 Varies according to the annual enrollment
Concreting of BNHS Ground	1500 School Population, Stakeholders, Teachers
Brigada Eskwela	Varies according to annual enrollment

Source: Junior and Senior High School Guidance Offices of Buenavista National High School

The different ASPs cited in Table 1 underwent data gathering and root-cause analysis to justify the needs for their implementation. as stated by the implementing authorities.

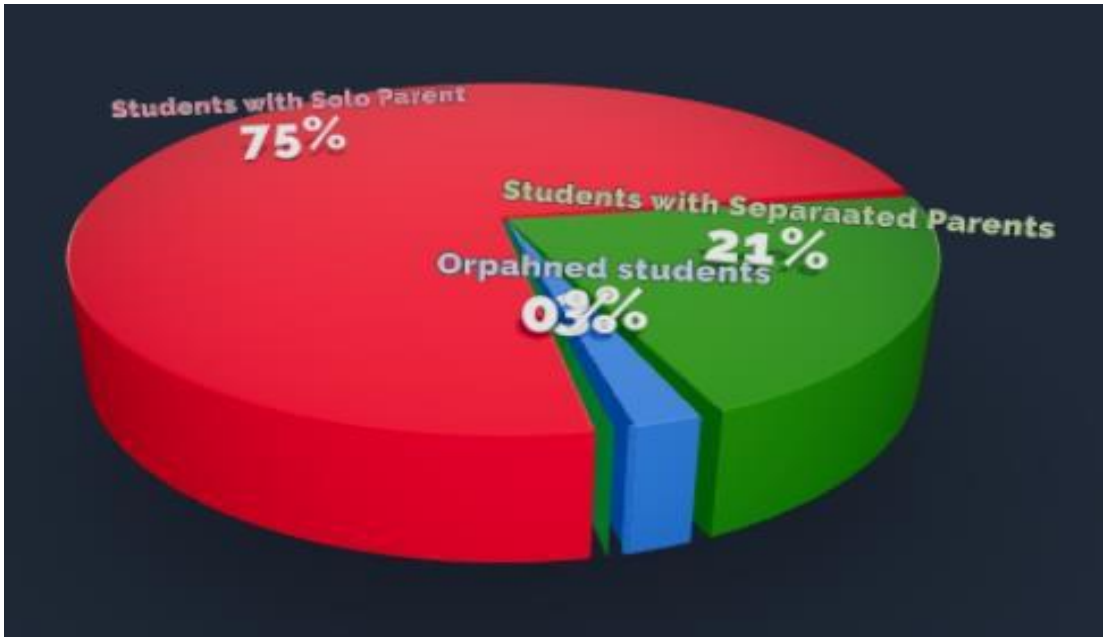
ASPs cited have varied numbers of beneficiaries. Among these are the Send Off Program for Players, Forum on Teenage Pregnancy and Early Marriage, and Brigada Eskwela.

The number of beneficiaries for Brigada Eskwela and the Forum on Teenage Pregnancy and Early Marriage varies according to the school enrollment, same with Send Off Program for Players.

Figure 3, "Beneficiaries of Healing and Firming for a More Holistic Education," shows the percentage of beneficiaries.

Figure 3

Beneficiaries of Healing and Firming for a More Holistic Education



Sources: Junior High School and Senior High School Guidance Offices

In the pie graph the greatest percentage of the program's beneficiaries are students with a single parent; with a total number of 163 students out of the 215 beneficiaries Additionally, the program included 46 students with separated parents and six orphaned students. The total number of beneficiaries was 14.33% of the total student population. The project was spearheaded by the Senior High School Guidance Office with the coordination of the SHS Coordinator.

For the annual Send Off Program for Players, the number of beneficiaries varies according to the events the players will compete in at the provincial meet. This program includes the coaches and all members of the delegation. Previously, beneficiaries were

from different secondary schools in the district, but in the recent program, it included both elementary and secondary schools in the entire district, due to a strong request from the district supervisor. This is another proposed annual program by the Guidance Office.

The Forum on Teenage Pregnancy and Early Marriage ASP varies in the number of beneficiaries according to the school's annual enrolment. This is an annual ASP of the school in coordination with the Population Commission through the Buenavista Teen Center and the Guidance Office.

The ASP for Concreting of the School Grounds benefits the entire school population, including internal and external stakeholders. This project provides lasting services that can be enjoyed by various components of the educational system if the school continues to serve the community. The program was initiated by a former school head in cooperation with the Brigada Eskwela implementing bodies.

Since Brigada Eskwela is now a year-round ASP, a greater population benefits from its provisions. This initiative incorporates various other ASPs of the school, involving different implementing bodies, offices, organizations, and stakeholders.

The school always considers the urgency of the ASPs' implementation, the number of beneficiaries, and the positive outcomes that the project may bring to the lives of the beneficiaries. This means all aspects of the learning process and members of the community are considered before confirming the ASP's implementation.

Data in Table 2 are the interviewees' responses during the face-to-face interview about the pre-implementation stage of the ASPs.

Table 2

Pre-implementation Phase of Adopt-a-School Program in Terms of Root Cause Analysis

Theme	Definition	Responses
1. Convened	Referring to the attendance of the concern individuals during the root-cause analysis upon identifcation of the problem	*"Naga-root-cause analysis. Ang mga involve ay ako, Physical Facilities Coordinator, MDRRM School Coordinator, Barangay Councilor, SSG President, Teacher's Association President etc. May data kitang hawak from the identified problems at ito ay mga totoong data. Genuine data."* - The Present Principal *"Opp. Naga convene lahat ng committees ng school before ang actual Brigada Eskwela para I-analyze yung mga needs ng school at paano nag- arise ang ganong needs."* - BE School Coordinator *"Mayroon. Bumabaha sa campus. Ayaw padaanin ang kanal sa central school. Sa barangay naman ay, yung dinadaanan ay subdivision. Hindi pwedeng gastusan ng barangay kasi no public fund sa pwedeng gamitin sa private entity."* - Former Gen. PTA President of BNHS

		"May root-cause analysis with Mr. Lining. Nilapit sa mga teachers sa meeting. Nilapit din sa PTA, LGU and Alumni. Supplementary materials lang sa PTA, Barangay at mga students. Kung meron limited
2. Convened	Referring to the attendance of the concern individuals during the root-cause analysis upon identification of the problem	*"Walang share ang SSG. Alumni ang main partner, the labor, and materials ay galing sa kanila. Even the planning ay sa Alumni, through Engr. Arvin Siena."* - Former BNHS TIC (Concreting of School Ground
3. Absence	Concerned person failed to attend the root-cause analysis	*"Wala po akong na-attendan na meeting noon. Basta po ang unang-unang recall ko ng project, prinoposed ko po sya ay way back before 'nung ako pa lang po ay Grade 10, humangad po ako bilang President. Prinesent, prinoposed ko po 'nung debate. After po nun ay wala na po akong natatandaan na meeting of some sort about the project."* - Former SSG President (Concreting of School Ground)

Theme	Definition	Responses
		"Walang root-cause analysis. Originally ang plano ay bibili ng lote. Konti ang nakalap ng pondo. Nasa three hundred thousand lang ang pondo. Kulang para sa school lot dahil 1.5 milyon halos ang halaga ng lote. Hanggang nakapag-desisyon na pagandahin na lang yung school groung o yung school? Hanggang hindi na rin nangyari dahil nag-usap na sila ni Ma'am Saporna about sa maputik na ground ng school. Tapos sabi ni President, why not ipa-semento na lang yung ground laanan ng pondo." - Alumni Treasurer (Concreting of School Ground)
4. Attendance not required	Presence of the person for the stage is unnecessary	*"Hindi po ako kasama sa root-cause analysis. Papasok lang po ako kapag may donation na."* - ASP School Coordinator

The participants, who were the beneficiaries of the ASPs, justified that consultations were held by the various committees involved before implementing the Adopt-a-School Program (ASP) at Buenavista National High School (BNHS). This is anchored to DepEd Order No. 026, series 2022 titled Implementing Guidelines on the Establishment of School Governance Council, the School-Based Management (SBM) supports the participation of stakeholders, equips the local community to own the decisions taken, and encourages the growth of current networks in the schools. In these, include root-cause analysis as part of the BNHS' SBM Team.

It has been confirmed by the BNHS principal that a root cause analysis was done. *"Naga-root-cause analysis."*

It was also reiterated in the statement of the School BE Coordinator. *"Opo. Naga convene lahat ng committees ng school."*

When the various ASPs started to implement them, even the former PTA agreed that root cause analysis was being done. He mentioned one of the analyses:

"Bumabaha *sa campus. Ayaw padaanin ang kanal sa central school. Sa barangay naman ay, yung dinadaanan ay subdivision. "Hindi pwedeng gastusan ng barangay kasi no public fund sa pwedeng gamitin sa private entity."*

Similarly, the Resource Gap Analysis Tool of ASP, prescribed by DepEd in implementing ASP which was stated in the IRR, was used to confirm that there is a need for a program due to the lack of funds. According to the principal, it usually involves the principal, physical facilities coordinator, SMDRRM coordinator, Faculty, PTA, SSG, Alumni officers, Barangay officials, and stakeholders.

Table 3 contains the data gathered related to the ASP Teenage Pregnancy and Early Marriage Cases in Buenavista National High School.

Table 3

Teenage Pregnancy and Early Marriage Cases in Buenavista National High School from School Year 2018- 2019 to School Year 2021-2022

School Year	Teenage Pregnancy		Early Marriage		Total
	JHS	*SHS*	*JHS*	*SHS*	
2021- 2022	3	0	0	0	**3**
2020 - 2021	1	0	0	2	**3**
2019 - 2020	0	2	0	0	**2**
2018 - 2019	1	5	0	0	**6**
TOTAL	**5**	**7**	**0**	**2**	**14**

Source: Junior High School and Senior High School Guidance Offices of Buenavista NHS

Prior to the conduct of the ASP, data were gathered relative to the emerging problems that hinder the learning of the students. The urgency of conducting the project was evident due to the increasing number of teenage pregnancies both in the junior high school and in the senior high school. In the School Year 2018-2019, most of the cases of teenage pregnancy involved the senior high school students with five cases and one case in the junior high school. These figures made the offices concerned to conduct the ASP.

After the initial conduct of the ASP in the following school year, School Year 2019-2020, the cases somehow dropped to 40% in the senior high school with two cases and a zero case in the junior high school. In the following school year, a zero case in teenage pregnancy was achieved by the senior high school with a one case in the junior high school. In the school year 2021-2022, the cases in the junior high school gradually increased thrice the case in 2020-2021 which is one while the senior high school maintained its zero case in teenage pregnancy.

On the other hand, early marriage cases among students were rare aside from the two cases in the senior high school in the school year 2020-2021. This could be attributed to

the minor ages of the students in the junior high school. The couple cannot be married although they lived together as a family.

The documents collected confirmed that the school consistently employs RCA because the members of the School-Based Management (SBM) team believe in its effectiveness. One key advantage of RCA is that it enables teams to take appropriate actions to correct issues and prevent their recurrence, resulting in fewer errors and less rework (TechArcis, 2021).

However, there were instances when some officers did not attend or were not informed about the consultations, even though implementing an ASP at BNHS requires the involvement and engagement of most stakeholders.

One such instance was highlighted by the SSG President, who stated: *"Wala po akong na-attendan na meeting noon..."*

The SSG Adviser, a faculty member, represented the SSG President. Another officer who did not attend in one of the root cause analyses was the Alumni Treasurer. She said during the interview that:
"Walang root-cause analysis. Originally ang plano ay bibili ng lote."

This is because only their alumni president was consulted. Nevertheless, after the consultation, the body was immediately informed about the plan regarding the problem relayed by the teacher-in-charge.

Another key implementer who did not attend the consultations was the ASP School Coordinator.
"Hindi po ako kasama sa root-cause analysis…"

She was informed regarding the problem during faculty meetings, as stated by the former TIC of BNHS.
"May root-cause analysis with the BE School Coordinator…"

The Department of Education emphasized that root cause analysis is necessary to unravel the ultimate source of the problem as stated in Section F, Roles and Responsibilities of All SGC Members of DepEd Order No. 026 Series of 2022, pursuant to the Governance of Education Act of 2001.

The latter was not observed in some circumstances based on the statements of the SSG President and the ASP Coordinator of the School though most of the key personalities were able to represent their offices in every root-cause analysis.

Table 4 below contains the statements of the respondents regarding the different partner agencies of BNHS that supported the school's ASPs.

Table 4

Pre-implementation Phase of ASP in Terms of Partner Agency Who Supported the School as One of the Approaches of Buenavista National High School

Theme	Definition	Common Responses
1.Volunteerism	The act of involving themselves voluntarily as a group or individual in accomplishing ASPs of BNHS without further notice	*"Madami. Unang-una na ang PNP, BFP, LGU at Municipal Government Unit, Eagles, Akrho, Tau Gamma, Iglesia Ni Cristo, Marinduque Riders Club, mga private business owners, public individuals, Senior Citizen, Alumni, Kuya Kuy's Adventures, FCB, Office of the Vice-Governor, Casa John."* - BNHS' Present principal
		"Mga group of fraternities ay willing mag-render ng service like Akrho, Tau Gamma, Religious Group INC, Eagles, Riders Marinduque Club. Usually ay labor and assistance. Minsan school supplies pag maigi siguro ang budget." - BE School Coordinator
2. No Partner Agency	The ASP was solely accomplished by one body or organization of stakeholders	*"Alumni. They preferred to give back something to their alma mater. Nag pledge ang mga batches through the initiatives of the Alumni President. Nakikita ko duon na they love the school, whatever is good for the school, whatever is good for the student's parang that certain goal. Na ganito ang pagtingin ko sa school. Ganito ang ambag ng BNHS sa akin. Kung tutuusin it is not just thousands but hundred thousand."* - Former BNHS' TIC
		"Ang mostly po na nakikita ko nung naga implement na ay LGU. May engineer na present, Engr. Reynan Siena, Alumni President, Engr. Arvin Siena. Wala po akong nakitang PTA President nun." - Former SSG President
		"Walang ka partner agency ang alumni. Pero yung first part yata nung concrete ground ay sa PTA nun. Meron din daw share ang teachers at the classroom." - Alumni Treasurer
		"First part of the concreting of the school ground, walang partner agencies. Nagbenta ng t-shirt for seventy-five pesos, twenty-five pesos ay napunta for the concreting. Apat na quadrants, one for each year level. First year muna, naghati-hati sa paggawa ng ground. Ang labor ay through volunteerism. Walang counterpart ang alumni sa first part of the project." - Former PTA President

In the pre-implementation phase of the Alternative Learning System Program (ASP) at Buenavista National High School (BNHS), it is common for partner agencies such as the Philippine National Police (PNP), Bureau of Fire Protection (BFP), Local Government Unit (LGU), and Municipal Government Unit (MGU) to be involved. This aligns closely with Section 2 of Republic Act No. 9418, also known as The Bayanihang Bayan Program (BBP), which aims to institutionalize strategies for rural development and strengthen volunteerism, emphasizing the participation of various sectors in public and civic affairs. This consistent involvement of government agencies may be attributed to their awareness of BBP and their commitment to participating in school activities, particularly during Brigada Eskwela. Such engagement aligns with their obligations under the Results-Based Performance Management System (RBPMS), specifically in terms of community and inter-agency linkages, as mandated for government employees.

In addition to government volunteers, several civil society organizations and private sectors frequently contribute to the ASPs at BNHS. These include The Pathway, Akrho, Tau Gamma, Riders Club of Marinduque, Kuya Kuy's Adventure, Senior Citizens Association of Buenavista, and Iglesia Ni Cristo, among others.

The principal said that:
“Mga group of fraternities ay willing mag-render ng service.”

Along with these volunteers, the Alumni, PTA, and SSG are always present and supportive of the school's programs and projects. The former TIC said that:
“Alumni. They preferred to give back something to their alma mater. Nag pledged ang mga batches through the initiatives of the Alumni President.”

Alumni played a significant role in supporting Buenavista National High School (BNHS), particularly during the concreting of the school grounds, showcasing the valuable assistance alumni can offer. Jotform Education (2021) underscores the potential for graduates to contribute financially and otherwise as they progress in their careers, suggesting that school administrators should strategize ways to leverage alumni resources effectively. This involvement of alumni was prominently observed in the Alternative Learning System Programs (ASPs) at BNHS, where alumni members extended various forms of assistance to the school to ensure the successful completion of projects.

Mourya (2021) highlights the importance of specific leadership approaches when working with volunteers in non-profit organizations, emphasizing the need to cultivate enthusiasm and motivation as volunteers are not monetarily compensated. Aranda (2019) supports this assertion, noting that different motivations for volunteering can impact outcomes differently, with self-determined motivations leading to better health and lower burnout rates among volunteers compared to those with control motivations.

The ASPs at BNHS greatly relied on volunteerism, involving groups, organizations, and individuals in service provision. The collective participation of various stakeholders significantly contributed to the success of each ASP. BNHS well-established connection with its parents, stakeholders and community members greatly contributes to achieving

every set goal, endeavor and ASP. While one respondent noted the absence of partner agencies in supporting a Parent-Teacher Association (PTA) initiative, it underscores the immediate partnership between the school and parents' organization in addressing school needs.

Table 5 presents the school year with equivalent forms of assistance and services extended to the school with monetary equivalent, and number of partners or volunteers.

Table 5

Buenavista National High School Brigada Eskwelas' Forms of Assistance and Service with Monetary Equivalent and Number of Partners from School Year 2019-2020 to School Year 2021-2022

SCHOOL YEAR	FORMS OF ASSISTANCE	MONETARY EQUIVALENT	NO. OF PARTNERS
2021- 2022	**Generated Resources**		
	>Assistance to Learners	3, 950. 00	
	>Assistance to Teachers	21, 850.00	
	>Assistance to School	55, 220.00	
	Subtotal 1	**81, 020.00**	
	Volunteer Services and Value-Added Activities	1, 6697, 481.26	
	DRRM Implementation	9, 000. 00	
	Community Home Partnership	239, 040.00	
	WinS	0.00	
	Brigada Pagbasa	270, 000.00	
	GRAND TOTAL	**2, 296, 541.26**	**129**
SCHOOL YEAR	**FORMS OF ASSISTANCE**	**MONETARY EQUIVALENT**	**NO. OF PARTNERS**
2020-2021	**Generated Resources**		
	>Assistance to Learners	61, 795.00	
	>Assistance to Teachers	135.00	
	>Assistance to School	65, 060.00	
	Subtotal 1	**126, 990.00**	
	Volunteer Services and Value-Added Activities	**29, 027.63**	
	DRRM Implementation	9, 000. 00	
	Community Home Partnership	545, 000.00	
	WinS	16, 000.00	
	Brigada Pagbasa	97, 650.00	
	GRAND TOTAL	**823, 667.63**	**52**
2019-2020	**GRAND TOTAL**	**871, 210.00**	**47**
2018-2019	**GRAND TOTAL**	**65, 015.00**	**29**

*Latest 2 school years are in a more detailed presentation to justify the award received of the school
*Later years of ASPs implementation were not uploaded due to the unavailability of the ASP database

Sources: Brigada Eskwela Summary of Donations - Office of the Principal, Brigada Eskwela Database of BNHS, ASP School Coordinator

The data clearly demonstrate the increasing number of volunteers over the past four years of implementing the program. These indicate a steady rise each year: 2019 recorded 29 partners, 2020 saw 47 partners, 2021 reported 59 partners, and 2022 documented 129 partners. These figures underscore the enduring bond between the school and its community and stakeholders.

Paraiso (2022) emphasizes the positive impact of community involvement on academic achievement and school improvement, noting that collaboration among families, communities, and schools fosters student encouragement, participation in advanced programs, and improved attendance. This involvement is key to addressing school-related challenges, fostering strong partnerships, and mitigating dropout rates.

The progressive increase in the number of Brigada Eskwela partners and the corresponding monetary contributions each year reflects the unwavering support of BNHS stakeholders. Furthermore, statements from volunteers representing various organizations, partner agencies, and other stakeholders affirm the full support of the community towards the school's Alternative Learning System Programs (ASPs). The concurrent rise in volunteer numbers and monetary assistance, underscores the coordinated efforts and strong support from community members for the benefit of learners and the school.

In Table 6 presented are the approaches that made BNHS the beneficiary school of the volunteers for the ASP.

Table 6

Pre-implementation Phase of the Adopt-a-School Program in Terms of Approaches for Selecting the School as a Partner for the Program

Theme	Definition	Common Responses
1. Sense of Connection and Strong Partnership	Strong connection between BNHS and its stakeholders Involving the stakeholders in the process of planning, implementing, and accomplishing an ASP for BNHS	*"Sa palagay ko ay dahil sa open communication sa kanila. Pangalawa ay transparency, yung nakikita nila kung saan napupunta yung inabigay nila. Another ay accountability, yung properly accounted ang donations nila. May report tayo. Strong partnership, yung nakikita nila, kung paano kita mag-reach out sa kanila; ako ang gadala ng sulat. Kung hindi makapunta ay inatawagan ko sila. Yung ramdam nila na kailangan natin sila. Aside dun sa nakikita nila ang needs ng school."* - Present Principal *"Siguro po dahil sa pangangailangan ng mga bata. Bago pa kami pumalaot sa mas malawak na programa na wala naman kaming pondo, why not ito na ang pagawa dahil ito na ang kailangan. Maliban sa may nagawa na tayo ay ito talaga ang kailangan."* - Alumni Treasurer *"Karamihan po sa myembro nila, ng mga grupo ay alumni ng BNHS. Dahil siguro rin ay nabibigyan sila ng recognition. May mga certificates po na ina-issue ang school*

		natin para marecognize ang effort nila." - School BE Coordinator *"Karamihan ay alumni ang members or employees nila kaya alam ang pangangailangan ng school. Dahil din siguro nasa bayan tayo at malapit, magandang puntahan."* - School ASP Coordinator

Theme	Definition	Common Responses
2. Alternative way	Internal stakeholder's another approach of realizing a project	*"Maganda naman ang adhikain natin at kung tutuusin ang mga t-shirt natin ay maganda naman at mura."* - Former PTA President

The strong connection between Buenavista National High School (BNHS) and its alumni, stakeholders, and community members community is very evident with the statements of the beneficiaries in Table 6. This made them decide to make BNHS the recipient of their services and led them to select BNHS as the recipient of their services and projects. According to Giving Compass (2022), volunteers have the freedom to choose how they support the school for the benefit of its students and the institution. This motivates volunteers to actively participate in every Adopt-a-School Program (ASP) at BNHS. Alumni and stakeholders, regardless of their affiliations with various organizations, offices, or companies, strive to contribute and ensure the success of every ASP, providing motivation, hope, and resilience (Giving Compass, 2022).

As revealed in the statements of respondents in Table 6, the alumni treasurer shared the rationale behind their full support for concreting the school grounds, despite having other plans for the organization's funds. There was a sense of urgency regarding the project, which was deemed essential for the benefit of the learners. Regardless of their preference, the needs of the school are their priority.
"Siguro po dahil sa pangangailangan ng mga bata. Bago pa kami pumalaot sa mas malawak na programa na wala naman kaming pondo, why not ito na ang pagawa dahil ito na ang kailangan…"

According to Jotform Education (2021), alumni can support their alma mater in various ways, including reconnecting with current students and devising strategies to aid the school in achieving success in all its endeavors. This phenomenon is evident not only in Buenavista National High School (BNHS) but also in numerous other educational institutions.

Two respondents highlighted that most members in volunteer organizations are BNHS alumni. As such, they possess a strong sense of voluntary engagement in addressing the needs of BNHS.

The ASP Coordinator of the school has faith with the alumni members.
“Karamihan ay alumni ang members or employees nila kaya alam ang pangangailangan ng school.”

Same statement was uttered by the School BE Coordinator, *“Karamihan po sa myembro nila, ng mga grupo ay alumni ng BNHS.”*

On the other hand, the present school head of BNHS believes that not only open communication plays a vital role in making the school a recipient of programs but also transparency.
“Sa palagay ko ay dahil sa open communication sa kanila. Pangalawa ay transparency, yung nakikita nila kung saan napupunta yung inabigay nila …”

Another important aspect was the proper financial reporting of most projects and the personal connection with the stakeholders. An action that can be made possible by exhibiting moral principles in the management of finances, such as being truthful, reliable, and possessing a high degree of integrity when acquiring, allocating, using, analyzing, and reporting on school finances (Bhoke, 2021).

“Another ay accountability, yung properly accounted ang donations nila. May report tayo…”

Buenavista National High School (BNHS) employs various approaches to promote ongoing projects and encourage support and participation from the community. However, personal connections and proactive efforts to engage with the community foster strong bonds and partnerships. Personalizing communication somehow bonds the school to its stakeholders and advances volunteering for school needs. Volunteers are often motivated by a sense of volunteerism when inquiring about participating in Brigada Eskwela (BE) initiatives. Some organizations and volunteers await the school's invitation or request for their services. Upon notification, whether orally or in writing, they mobilize their resources, exemplified by the solidarity demonstrated by the Iglesia ni Cristo brethren, who unite as one body to contribute. Likewise, most of the organizations and brotherhoods in the community or where alumni are members are one call away in every ASP of the school.

BNHS also maintains connections with stakeholders through various channels, including a community radio station named Radyo Kamalindig, the school's Facebook page managed in coordination with the Division Office, and Messenger. Radyo Kamalindig serves as a platform to disseminate information about school activities to the public. The stakeholders and community members are constantly updated to the whereabouts of the school through this Chanel. With regards to social platforms, at present, the school's Facebook page boasts nearly 4,240 followers, with posts reaching approximately 14,127 individuals and garnering 5,716 engagements. These platforms serve as effective means of informing volunteers about the ASPs conducted by the school. Because of the easiest way of connecting with others through the technology, its vast scope contributes to the feasibility of every program launched.

These different approaches employed by Buenavista National High School in the implementation of the school's ASPs truly get the support of the different stakeholders. Aside from the established credibility of the school after serving the community for more than fifty years, the school has non-stop and varied ways on how to continuously get hold of the connection with its immediate support system members. The school sees to it that the involvement of stakeholders in every endeavor is present. This factor is the strongest tie that binds the school to its serving community.

In Table 7, statements of the participants indicate who was involved or what made BNHS the beneficiary of the Adopt-a-School Program. This emphasizes volunteering as the main factor of involvement.

Table 7

Pre-implementation Phase of ASP in Terms of Partners Involved in the Selection of BNHS as Beneficiary

Theme	Definition	Common Responses
1. Volunteerism	Volunteers and decide to render their services to BNHS in the implementation of the ASPs	*"Usually ay sila na ang naga-offer ng services once na malaman nila na naga-start na ang Brigada Eskwela. Dun nakikita yung volunteerism talaga. Sa marketing strategy natin na pag-ere sa Radyo Kamalindig at sa Fb account natin nalalaman nila dahil may access sila. Yung malalapit binibigyna ng letters."* - School BE Coordinator *"Alumni at PTA ang nagakusang nagawa. Yan 'yung SBM. Katulad nung Teachers' Day, sila na ang nagkusa, ababa mo na sa kanila, sa stakeholders ang operations. Kusa na silang nalapit. LGU and MLGU din kusangnalapit. Eagles din ay nagakusa. Example ay yung clothes for a section of students. Private donors."*- Present Principal *"Private company, organization of the Siena Brothers."* - Former TIC
2. Stakeholders Choice	Initiative of the stakeholders and volunteers to choose the school they would be rendering their service	*"Endorsed ng destinado, pinagtibay ng Tagapangasiwa."* - INC Deacon *"May body po ang municipal council. So, halimbawa ay ang maga render ng service lamang ay buong municipal council, ang maga-organize, ang ga validate po kung saan sila maga ano ay yung council chairman."* - Regent for Alumni Affairs Tau Gamma Phi Provincial Council *"Sila ang nagde-decide (Chairman ng alumni and other officers) ibinababa na lang sa amin."* - Alumni Treasurer

Volunteering encompasses various terms across languages, yet its essence remains relatively simple to understand in English. According to Mourya (2021), volunteering involves individuals dedicating their free time to assist others, whether informally within communities or formally through organized efforts by institutions. The decision to

volunteer should always be left to the individual. Similarly, Muller (2018) defines volunteering as the provision of services without monetary compensation, emphasizing that it is a voluntary act and not obligatory. Those who volunteer extend assistance to others, beyond their immediate family or relatives, as highlighted in the work of DepEd ASP Toolkit Procedures.

In the Department of Education (DepEd) ASP Toolkit Procedures for Participation in the Adopt-a-School Program, adopting private entities have the freedom to select the school, region, and focus area for their efforts. The Adopt-a-School Program Secretariat maintains a list of priority schools and their specific needs to assist private businesses in their selection process.

During the pre-implementation phase, most respondents at BNHS concur that immediate partners and volunteers typically engage with schools upon learning about ASP or Brigada Eskwela through various project promotion strategies.

The School BE Coordinator states that:
"Usually ay sila na ang naga-offer ng services once na malaman nila na naga-start na ang Brigada Eskwela."

They provide this service to the BNHS every year. The principal confidently added during the interview.
"Alumni at PTA ang nagakusang nagawa. Yan 'yung SBM"

Khan (2020) placed emphasis on the vital role of parents in promoting school-community relationships. He stressed that it works as a link between school and community. Moreover, he pointed out that parental involvement in constructive areas proved positive for schools. The active participation of the PTA Officers and every parent truly helps to make others move and do their parts as components of the education circle.

On the other hand, other organization leaders coordinated with the school personnel and informed the members once their participation was confirmed.
"Sila ang nagde-decide (Chairman ng alumni and other officers of the brotherhood) ibinababa na lang sa amin."

Another volunteer organization is the Iglesia Ni Cristo (INC). According to the interviewed deacon, they usually wait for the final decision of their leader in the provincial district office, which is coordinated with the church leader in the area.
"Endorsed ng destinado, pinagtibay ng Tagapangasiwa."

While volunteer groups may formally secure requests from schools for documentation purposes, their primary objective is to actively participate in the school's projects. This demonstrates their willingness to contribute and respond to the school's needs, as highlighted by Republic Act No. 9418, also known as the Volunteer Act of 2007. This legislation institutionalizes strategies for rural development, strengthens volunteerism, and promotes corporate social responsibility by providing time, expertise, and services to recipient schools.

Becoming involved in Buenavista National High School's (BNHS) initiatives, regardless of the form of assistance, motivates volunteers and stakeholders to work towards the successful completion of projects launched by the school or initiated by stakeholders for the benefit of students. Aranda (2019) identified several variables—such as values, knowledge, self-esteem improvement, social aspects, and fulfilment of functions—as key predictors of satisfaction with volunteering.

Table 8 presents statements from respondents regarding the circumstances under which the Memorandum of Agreement should be utilized in the implementation of the Adopt-a-School Program (ASP).

Table 8

Pre-implementation Phase of ASP in Terms of Execution of Memorandum of Agreement and Kick-Off Program

Theme	Definition	Common Responses
1. No MOA	MOA means the Memorandum of Agreement expected to be executed by both parties, the recipient and the donor, endorsing the program by the sponsor or donor to Buenavista National High School with agreed duties and responsibilities for the consistent functionality of the project or ASP.	*"Wala pong MOA na pinipirmahan."* - Present Principal *"Wala pong MOA ang Send-off Program for Players and Teenage Pregnancy dahil mga short term ASPs ito."* - ASP Coordinator *"Wala pong opening ceremony at MOA."* - Former SSG President *"Wala pong MOA. Hindi ang ko aware na may MOA before. May financial report na pinasa for reporting sa school as a form of donation from the Alumni."* - Former TIC
2. No Opening due to Pandemic	Opening program or Kick-off was not observed because of pandemic.	*"Walang opening ceremony dahil sa Covid19."* - Former PTA President
3. With Kick-off	Kick-off program is the opening program of an ASP like Brigada Eskwela Kick-off program was observed based on the statements of the respondents.	*"May opening or kick-off program ang Brigada Eskwela."* - Present Principal *"With kick-off ceremony kapag Brigada Eskwela"* - ASP Coordinator *"May kick-off program. May attendance."* - BE Coordinator *"May kick-off program ang Brigada Eskwela. Nakaka-attend po kami."* - INC Deacon *"May kick-off ang Brigada Eskwela. Umaattend po kami."* - *Regent of Tau Gamma* *"Pero Brigada Eskwela meron pong Kick-Off."- Former SSG President*

4. Other Response	Statement conflicts with the other respondents.	*"Wala pong documents referring to the endorsement of the project, concreting of the school ground. Walang financial report maliban sa nag-closed na ako ng account."*- Alumni Treasurer

The opening or kick-off program marks the start of the implementation proper of the ASP project. Among the fourteen respondents, six confirmed that kick-off ceremony was held, and they even attended it.

The representative of Tau Gamma confidently stated, *"May kick-off ang Brigada Eskwela. Uma-attend po kami."*

This is like the reply of the INC Deacon, *"May kick-off program ang Brigada Eskwela. Nakaka-attend po kami."*

A concise program typically involves the attendance of Buenavista National High School (BNHS) teaching staff, project proponents, beneficiaries, and stakeholders. The project's scope of work, budget, and timeline are identified at this stage, marking the beginning of project implementation.

DepEd Order No. 66 series of 2003, included in the DepEd ASP Program Toolkit, mandates the signing of a Memorandum of Agreement (MOA) prior to the implementation of larger projects. The MOA establishes collaboration arrangements, such as service partnerships or agreements for technical support and training, as outlined in Republic Act No. 8525, known as the "Adopt-a-School Act of 1998." This legislation emphasizes that a MOA should be executed between the adopting entity and the school's head, subject to assessment and approval by the Schools Division Superintendent.

Four respondents confirmed the absence of an MOA in the concreting project of the school grounds. One respondent noted the absence of documentation endorsing their project, while another attributed it to the pandemic, indicating challenges in implementation despite consistent observation of Kick-Off Ceremonies.

To ensure alignment with departmental guidelines outlined in R.A. 8525, documents were scrutinized and analysed at each project implementation level.

Table 9 presents the varied forms of documents per implementation level of the Adopt-a-School Programs of Buenavista National High School.

Table 9

Buenavista National High School Adopt-a-School Programs and Brigada Eskwela Documents Used in Every Phase of the Implementation

ASP	Pre-implementation						Implementation			Post-implementation		
	Root Cause Analysis	Resource Gap Analysis	Project Proposal	DOD & DOA	Resource Mobilization	MOA	Daily Accomplishment Report	Attendance of Volunteers/ Beneficiaries	Monitoring Form	Evaluation Form	Endorsement Papers	Financial Report
Brigada Eskwela	/	/	Not Required	/	/	Not Required	/	/	/	/	/	/

Concreting of School Ground	/	/	x	x	x	x	x	x	x	x	x	x

ASP	Pre-implementation						Implementation			Post-implementation		
	Root Cause Analysis	Resource Gap Analysis	Project Proposal	DOD & DOA	Resource Mobilization	MOA	Daily Accomplish-ment Report	Attendance of Volunteers / Beneficiaries	Monitoring Form	Evaluation Form	Endorsement Papers	Financial Report
Send off Program for Players	/	/	/	Not Required	/	Not Required	Not Required	/	/	/	Not Required	/
Forum on Teenage Pregnancy and Early Marriage	/	/	/	/	Not Required	Not Required	/	/	/	/	Not Required	/
HAFFMHE	/	/	/	/	Not Required	Not Required	/	/	/	/	Not Required	/

Source: BNHS' Principal's Office, BE School Coordinator, ASP School Coordinator, Guidances Offices, SSG Office

Establishing a foundation for quality, traceability, and historical recordkeeping is crucial in documenting individual documents as well as the overall documentation of projects (Verma, 2024). Table 9, detailing Buenavista National High School's Adopt-a-School Programs and associated documents for each implementation phase, highlights the specific documents required and observed during project implementation.

Most Adopt-a-School Programs (ASPs) at BNHS fall under short-term projects that do not necessitate the implementation of Memorandum of Agreements (MOAs). Because of this, during the pre-implementation phase, common required forms include Root Cause Analysis, Resource Gap Analysis, Project Proposal, Deed of Donation, Deed of Acceptance, and for Brigada Eskwela (BE), a Resource Mobilization Form.

Archiving school project documents means they are available for anybody to refer to when working on similar projects or other related programs and projects. When a program or a project is completed, proper documentation and accomplishment reports and documentation must be filed and data in your school records management system be readily available anytime (Moensted, 2023).

If the project involves a school and its learners and it is a public school, everyone has the right to access every whereabouts that involves the school and its learners. This means the public has the right to its documentation, this is school-based management system.

Each ASP at BNHS underwent root cause analysis and resource gap analysis, as stated by the respondents in Table 9. Some documents were not applicable or required for certain ASPs, such as the absence of a project proposal for BE due to its annual nature and distinct implementation guidelines. Conversely, the Concreting of the School Grounds project primarily utilized Root Cause Analysis and Resource Gap Analysis, with other forms being less evident in its pre-implementation phase, as noted by respondents and observed during document scrutiny.

The former TIC mentioned during the interview:
"Wala pong MOA. Hindi ako aware na may MOA before. May financial report na pinasa for reporting sa school as a form of a donation from the Alumni"

She hesitated to demand the document since the Alumni Association initiated to accomplish the said project.

For other ASPs of the school, the School ASP Coordinator confirmed the needless of securing the MOA since most of the provisions were consumables and in short term.
"Wala pong MOA ang Send-off Program for Players and Teenage Pregnancy dahil mga short term ASPs ito.", stated by the ASP Coordinator.

In compliance with Section D Statement of Goals, Policies, and Principles of the Guidelines for Building Partnerships for the K–12 Basic Education Program outlined in DepEd Order No. 40 Series of 2015, all school-level partnerships are mandated to be governed by a Memorandum of Agreement (MOA), while partnerships at the division, regional, and national levels should, at a minimum, be covered by a Memorandum of Understanding (MOU). It is imperative that all cooperative endeavors adhere to prevailing laws and DepEd directives, especially those concerning child protection.

This statements clearly cited the needs of proper documentation in relation to conducting school-related programs that requires partnership or involvement of sponsoring agency or organizations, specially Adopt-a-School Program that involves great value of assistance. This is also embedded in the guidelines of conducting the ASP.

Table 10presents the documents utilized by Buenavista National High School to verify the transfer of donations to the school.

Table 10

Implementation Phase of Adopt-a-School-Program in Terms of the Documents to Confirm Transfer of Donations

Theme	Definition	Common Responses
1. Documented	ASPs of BNHS were mostly well documented or followed the procedure of the department in accepting donations as stated in the ASP Guidelines	*"Deed of donation, acceptance. No MOA. No MOU or Memorandum of Understanding. Office to Office."* - the present principal *"Deed of donations for consumables. Deed of acceptance for non-consumable, long term. Madalas ay pahatid lang ang items pero noted and reported."* - ASP Coordinator *"Property Custodian at ASP ay may napapirmahan na Deed of Donation. Ang mga through G-cash o transmittal ay may confirmation sa messenger. Pinapadalhan din po sila ng DOD na pinipirmahan ng representative nila."* - BE Coordinator *"Usually po ay attendance, types of service rendered."* - Tau Gamma Regent

		"Meron pong documents na napirmahan sa school, attendance. Kumpleto." - INC Deacon
Theme	**Definition**	**Common Responses**
2. Undocumented	Other officers of the governing bodies were not informed about the endorsement document in another project.	*"Ang napansin ko po sa concreting ay walang documents akong nakikita as SSG President. Baka po sa principal meron.* *Ang papel ko po as SSG nun ay magsa-ayos nung mga students.",* the former SSG President *"Walang documents."* - Former TIC *"Wala pong document refers to the endorsement of the project. Walang financial report maliban sa klinosed ko na ang account namin dito sa province. Binayaran lahat. Kasama ko si ___sa pag closed sa account."* - Alumni Treasurer
3. Unaware Officer	The officer was not aware about the endorsement document	*"Hindi ko alam kung meron"* - Former PTA President

The data in Table 10 provides a summary of the documents utilized during implementation, including those that were successfully accomplished and those that were not. This summary is based on the statements of respondents. Five out of the nine respondents confirmed witnessing the implementation of project documentation and even signed the necessary forms.

For short-term assistance, a Deed of Donation (DOD) is typically completed by the donor.

"Property Custodian at ASP ay may napapirmahan na deed of donation.", stated by the BE Coordinator.

During the interview, the principal commented,
"Deed of donation, acceptance. No MOA. No MOU or Memorandum of Understanding. Office to Office".

These were all the usual documents being accomplished during ASPs in BNHS. In most ASPs of BNHS, DOD was being accomplished by the donors to be forwarded to the resource mobilization group in BE. In contrast, in other ASPs, the form may be directly given to the BNHS's ASP Coordinator and are subject to consolidation for updating the BNHS' ASP database.

According to the deacon volunteer,
"Meron pong documents na napirmahan na forms sa school, attendance. Kumpleto."

The volunteers' attendance sheets for BE, ASP, and HAFFMHE were signed after they received their supplies.

But three of the respondents expressed the opposite reaction. According to them, there were no documents observed during the endorsement of one of the projects, the concreting of school grounds, nor getting the attendance of the *workers.*

“Ang napansin ko po sa concreting ay walang documents akong nakikita.” commented by the former SSG President, when he was asked about the project’s documentation.

Furthermore, this was confirmed by the statement of the former TIC,
“Walang documents.”

According to the Alumni Treasurer, the laborers in the latter part of the project were being compensated by the Alumni Association.

Most of the ASPs of BNHS were short-term and thus did not require MOA. The common forms needed during the implementation were the resource gap analysis tool, project proposal, deed of donation, deed of acceptance, financial report, and attendance sheet.

Although BE is an ASP, this does not require each school to make a project proposal because it is DepEd’s flagship ASP project. Other projects, like the Forum on Teenage Pregnancy, are coordinated annually with the LGU and the Population Commission (POPCOM), and a MOA has not yet been executed but rather between The Buenavista Teen Center (BTC) and POPCOM.

The documents that were utilized during the implementation and the documents that failed to be accomplished were summarized in Table 9, Buenavista National High School Adopt-a-School Programs and Brigada Eskwela Documents Used in Every Phase of the Implementation. This was confirmed by the statements of the respondents in Table 10, Implementation Phase of Adopt-a-School-Program in Terms of the Documents to Confirm Transfer of Donations. Among the nine respondents (9) who answered the question referring to documentation of ASP, five (5) of them confirmed that they witnessed the implementation of documenting the projects and they even signed in the forms.

For short-term assistance, a DOD is accomplished by the donor.

“Property Custodian at ASP ay may napapirmahan na deed of donation.”, stated by the BE Coordinator.

During the interview, the principal commented, "Deed of donation, acceptance. No MOA. No MOU or Memorandum of Understanding. Office to Office”. These were all the usual documents being accomplished during ASPs in BNHS.

In most ASPs of BNHS, DOD was being accomplished by the donors to be forwarded to the resource mobilization group in BE. In contrast, in other ASPs, the form may be directly given to the BNHS’s ASP Coordinator and are subject to consolidation for updating the BNHS’ ASP database.

According to the deacon volunteer,
“Meron pong documents na napirmahan na forms sa school, attendance. Kumpleto.”

The volunteers' attendance sheets for BE, ASP, and HAFFMHE were signed after they received their supplies.

But three (3) of the respondents expressed opposite reaction. According to them, there were no documents observed during the endorsement of one of the projects, the concreting of school grounds, neither getting the attendance of the workers.

"Ang napansin ko po sa concreting ay walang documents akong nakikita." commented by the former SSG President, when he was asked about the project's documentation. Furthermore, this was confirmed by the statement of the former TIC *"Walang documents."*

According to the Alumni Treasurer, the laborers in the latter part of the project were being compensated by the Alumni Association.

Most of the ASPs of BNHS were short-term and thus do not require MOA. The common forms needed during the implementation were the resource gap analysis tool, project proposal, deed of donation, deed of acceptance, financial report, and attendance sheet.

Although BE is an ASP, this does not require each school to make a project proposal because it is DepEd's flagship ASP project. Other projects, like the Forum on Teenage Pregnancy, are coordinated annually with the LGU and the Population Commission (POPCOM), and a MOA has not yet been executed but rather between The Buenavista Teen Center (BTC) and POPCOM.

At present, the Rural Health Office of the LGU of Buenavista, under the leadership of the detailed public physician, is taking the initiative of conducting the forum in the different secondary schools of the district in partnership with the POPCOM. The sense of needing to conduct the program in every school was anticipated due to the progressive cases of teenage pregnancies and early marriage, making the municipality the second in rank among the six municipalities in the entire province as revealed by the RHU. In the previous conduct of the project, it was the LGU that requested the presence of the school's target population.

Implementation Proper Phase

This phase denotes the process of putting a project into action to produce the deliverables. Project coordinators, proponents, and ASP members managed resources and measured performances under the guidance of the BNHS' principal to ensure that the project stayed within its planned scope and budget.

The work of the project is carried out, and the adopt-a-school project plan is put into action during the implementation. It is critical to keep everything under control and communicate as needed when implementing. Continuous progress monitoring allows for necessary adjustments to be made, which are then documented as deviations from the original plan. This is the step where a project manager, usually the head of the school, spends most of his time.

During the implementation phase of an ASP the following documents must be evident as stated in the guidelines: Daily Accomplishment Report, Attendance Sheet of Volunteers or Beneficiaries and Monitoring Form. These forms were mostly accomplished during the implementation of the Brigada Eskwela as shown by the documents presented during the

data gathering phase of this study. This was supported by the statements of the respondents during the face-to-face interview being reflected in the next section of this paper.

Table 11 containing the statements of the respondents during the face-to-face interview about the sufficiency of the supplies for the different Adopt-A-School Programs.

Table 11

Implementation Phase of Adopt-a-School-Program in Terms of Sufficiency of Supplies for the Implementation of the Project

Theme	Definition	Common Responses
1. Sufficiency of Outsourced Supplies for the	Sufficiency of materials; outsourced and from MOOE depending on the number of volunteers	"Kalimitan ay sobra. Pag may excess ay inatabi muna. Maga-isip muna ng isang proyekto o baka may isang guro na nangangailangan at may project sila sa room ay duon abigay." - present principal
Theme	**Definition**	**Common Responses**
implementation of the project	and the scope of work they can cover during their scheduled period	*"Sapat ang materials dahil natapos ang project through alumni." - the former TIC.* *"Sapat naman ang naging amount incurred. May nai-forward pa na natirang budget sa susunod na PTA Officers." - Former PTA* *"Sapat naman ang pondo. Natapos ang project."* - Alumni Treasurer *"Sapat ang gamit para sa labor na nakalaan. Mabilis matapos ang gawain."* - INC Deacon *"Sapat naman po sa palagay ko. Nung tapos na po yung pag concrete ng ground ay may mga tira pa pong sacks of cement. Hindi ko lang po alam kung saan nagamit yung sobra. Hindi po kami na-inform as SSG."* - Former SSG President
2. Insufficiency of DepEd Supplies	Lacking in some materials provided by the MOOE that were being outsourced	*"Usually ay kulang ang materials for repairs. Dahil sa repairs ay maraming kailangan. Katulad po nyan ay repairs or replacement ng jalousies, doorknobs, and electric supplies. Kalimitan ay to follow na lang yung iba. Bukod sa services ay may materials din silang dala."* - BE Coordinator *"Kulang po kadalasan ang supplies from DepEd kaya ina-outsource. Kapag kulang pa rin po ang na-outsourced, teachers ang nagadagdag. Ipapasok na donation na yun nung teacher reported as donation ng teacher."* - ASP Coordinator
3. Refreshments Never Fails	Foods for the volunteer were assured every time	*"Hindi ko po naman masasabi na sobra. Hindi ko rin po masabina kulang. Pay minsan po ay depende sa pagkakataon. Minsan po ay may kinakailangang gamit. Minsan ay kulang. Ang hindi po nawawala dyan tuwing naga volunteer kami ay, ang maganda po dyan ay lagi silang may pa-meryenda sa amin. So naa-appreciate namin yun, dahil parang yun lang ang ganansya namin sa aming serbisyo."* Tau Gamma Regent

The ability of the school will be tested during the implementation of a program, especially when most of the supplies will be outsourced. Reyes (2023) stated that the renowned management expert Peter Drucker famously advised to do the best and outsource the rest. A school truly needs the cooperation of the entire village to achieve success in every endeavor.

About 88% of the respondents' population confirmed the sufficiency of the supplies when conducting an ASP program.

With the positive response of the community, resources for the various ASPs of BNHS were commonly sufficient, as stated by the present principal.
"Kalimitan ay sobra. Pag may excess ay inatabi muna. Maga-isip muna ng isang proyekto o baka may isang guro na nangangailangan at may project sila sa room ay duon abigay."

This was supported by the statement of the INC Deacon,
"Sapat ang gamit para sa labor na nakalaan. Mabilis matapos ang gawain."

The statement of the SSG President on the concreting of the school grounds was parallel to the statements of the other respondents,
"Sapat naman po sa palagay ko. Nung tapos na po yung pag concrete ng ground ay may mga tira pa pong sacks of cement."

On the other hand, supplies from DepEd were commonly not enough, as commented by the ASP Coordinator,
"Kulang po kadalasan ang supplies from DepEd kaya ina-outsource."

In the ASPs stated herein, sufficiency of the materials was achieved with the assistance of the donors.

The sufficiency and insufficiency depend on the circumstance, as stated by one group of volunteers,
"... minsan po ay depende sa pagkakataon…, ang maganda po dyan ay lagi silang may pa-meryenda sa amin. So naa-appreciate namin yun, dahil parang yun lang ang ganansya namin sa aming serbisyo."

There were circumstances when volunteers provide for the lacking materials just to maximize the time they would render. Sometimes the teachers provided the lacking materials just to ensure completion of the work.

"Kapag kulang pa rin po ang na-outsourced, teachers ang nagadagdag. Ipapasok na donation na yun ng teacher, reported as donation ng teacher."

This denotes that the volunteer themselves found ways to remedy the problems that came along the ways of implementing the ASP.

Table 12 presents the problems encountered and remedied during the implementation phase of the ASPs.

Table 12

Implementation Phase of Adopt-a-School-Program in Terms of the Problems Encountered During the Implementation

Theme	Definition	Common Responses
1. Problems Encountered	Hindrance in any form that meddled during the implementation of the projects Nature-related problems that hinder the implementation of the ASP	*"Natural or nature-related problems commonly like naga-ulan, mainit, etc. Paghanap ng skilled workers fit the job."* - the present principal. *"Yung weather. Laging naga-ulan nung inagawa 'yung grounds."* - - the Alumni Treasurer *"Documentations ang common problems kapag may projects. Ang nangyayari ay isa o dalawang tao lang ang gumagawa ng report although may mga tao dun sa iba't-ibang tao ang naka-assign. Hindi pa rin na-aadress. A-inform dapat ang designated person about the functions and roles. Kung ano ang function mo dun ka lang."* - the ASP Coordinator *"Security ng mga bata at safety ng mga bata. Always remind the learners to be safe. Nag-meeting ang faculty."* - Former TIC *"Ang common problems po ay materials. Marami po ang labor supplies. Namo-monitor ang percentage ng work done sa daily accomplishment report. Usually, po ay sa materyales ang problema. Wala nang magamit na materyales ang volunteer sa labor."* - BE Coordinator *"Kalimitan kulang ang gamit sobra ang skilled workers. Inasabi po sa guro ang kulang at inabili ang kulang na gamit."* - INC Deacon *"Nung naga-implement po ay on-going ang mga klase, tapos ang problema po ay hindi makapag-flag ceremony sa ground. Sa tapat or pasilyo ng room ang formation ng mga students during flag ceremony. Ang isa pa pong problema ay pag napasok ang mga estudyante ay medyo siksikan ang mga daan, crowded ang hallways. Kinausap po kami ni Ma'am Laarni para makatulong sa traffic ng mga bata 'tas one pathway lang gagamitin."* - Former SSG President *"Ang normaling nai-encounter namin halimbawa sa internal problem kasi dito na 'yung mga residente, mga brod coming from Bagacay ay yung transportation allowance. Minsan ay ina-shoulder po ng aming pondo."* - Tau Gamma Regent
2. No Problem Encountered	There was awareness of the stakeholders regarding the project	*"Wala namang problems encountered dahil alam naman ng lahat na kaylangan yan."* - Former PTA President

In any project, program, or endeavour, risk equals success. A good school leader or project manager can achieve this by employing the appropriate strategy. Furthermore, school administrators demonstrate effective leadership by delegating authority to others and engage in collaborative, cooperative, participative, democratic, and focused leadership styles (Senjaya, 2019).

Among the common hindrances encountered during the ASP implementation of BNHS were natural risks that are out of human control, the unending needs for materials once the work started, and the very challenging documentation for every phase of the program.

"Natural or nature-related problems commonly like naga-ulan, mainit, etc. Paghanap ng skilled workers fit for the job."

This was seconded by the Alumni Treasurer stating,
"Yung weather. Laging naga-ulan nung inagawa 'yung ground."

A few identified differentiated challenges occurred while implementing the cited ASPs of BNHS.

Among these were:
"Ang common problems po ay materials. Marami po ang labor supplies.", according to the School BE Coordinator.

This was supported by the statement,
"Kalimitan kulang ang gamit, sobra ang skilled workers. Inasabi po sa guro ang kulang at inabili ang kulang na gamit.", commented by the one of the leaders of volunteers on problems occurred and the safety of the students.

Another form of challenge is the security of the learners during the concreting of the school grounds as stated by the former TIC of the school.

"Security ng mga bata at safety ng mga bata. Always remind the learners to be safe. Nag-meeting ang faculty."

On the part of the brotherhood member volunteers, the common problem was the budget for fare of the group,
"Ang normaling nai-encounter namin halimbawa sa internal problem kasi dito na 'yung mga residente, mga brod coming from Bagacay ay yung transportation allowance. Minsan ay ina-shoulder po ng aming pondo."

For the ASP Coordinator of BNHS, the challenge that must be given thorough attention is the proper documentation of every ASP.

"Documentations ang common problems kapag may projects. Ang nangyayari ay isa o dalawang tao lang ang gumagawa ng report although may mga tao dun sa iba't-ibang tao ang naka-assign. Hindi pa rin na-aadress. A-inform dapat ang designated person about the functions and roles. Kung ano ang function mo dun ka lang."

To guarantee that all parties involved are aware of the goals, deliverables, schedule, progress, and other aspects of the project, documentation is crucial. Inadequate paperwork can make it simple for misunderstandings and miscommunications to happen, which can cause delays or even project failure (Moensted, 2023).

Somehow, on the part of the former PTA President, the awareness of everyone about the project prohibited any problem.
"Wala namang problems encountered dahil alam naman ng lahat na kaylangan yan."

This was supported by Barret (2023) who stated that goals that are specific, measurable, attainable, relevant, and time-bound (SMART) help to ensure that stakeholders are "on the same page" about the planned work.

A thorough planned program will surely achieve its set goal and minimizes its conflict. BNHS proved that all are subject to adjustment and adherence to the set objectives regardless of the ASP will truly yield a positive outcome.

No one is perfect, not even highly trained school managers, but for a school, each component has a responsibility to use all their capabilities to ensure that the project does not fail. After all, the school is counting on this to work. When proposing a project to prospective sponsors, the proponent is essentially promising to execute it successfully, and failure to do so for any reason will affect the credibility of the person, group, or organization. Careful planning and strong leadership can go a long way in ensuring the success of an adopt-a-school project.

Table 13 summarizes the various hindrances or common problems encountered, interventions made and the stakeholders who took the appropriate actions in pursuing the different Adopt-a-School Programs of Buenavista National High School.

Table 13

Adopt-a-School-Programs of Buenavista National High School: Common Problems Encountered, Interventions and Stakeholders Who Made the Intervention

ASP	Common Problems Encountered During Implementation	Intervention	Stakeholder Who Made the Intervention
Brigada Eskwela	Insufficiency of materials for the repair and repaint	Donation of necessary materials	Volunteers, Donors, SSG & PTA
	Over supply of skilled workers to render their services during the day	Rescheduling of the labor service provider	PTA,Volunteer Organizations
	Transportation of group of volunteers from other towns	Provision from the groups' fund	Volunteers & Organizations
	Documentations of the outsourced materials (personal tapping and direct endorsement of the materials to the teacher-adviser)	Centralized documentation and endorsement of the donations	ASP Coordinator and BE Committee Members

ASP	Common Problems Encountered During Implementation	Intervention	Stakeholder Who Made the Intervention

Send off Program 2023	Additional members of the delegation (beneficiaries) who were not included in the memorandum	Consummation of the buffer pack of goods	Donors and Sponsors
Forum Teenage Pregnancy & Early Marriage 2019	Behavior of the students during the forum	Speakers strategic approach in getting the attention of the attendees	Partner Agencies - RHU and PNP
HAFFMHE	Cancellation of the delivery of goods from donors outside the province due to bad weather	Outsourcing the necessary supplies for the completion of the project	Organizers of the ASP
Concreting of School Grounds	Resource constraint to cover the concreting of the entire grounds Nature-related e.g. heavy rain, insufficiency of materials	Outsourcing the necessary supplies for the completion of the project Rescheduling of the scheduled work	Alumni, PTA and SSG PTA Officers, Alumni and Project Coordinators

Source: BNHS ASP School Coordinator, BNHS BE School Coordinator, Guidance Designates, PTA Officers, Groups of Volunteers

Barret (2023) emphasized the significance of planning in the proverb "if you fail to plan, plan to fail," particularly applicable to launching new projects in schools. A well-defined plan and a dedicated implementation team are crucial for project progression. The proactive approach of BNHS school administrators in planning and executing projects significantly contributed to achieving set goals, notwithstanding challenges encountered in their Adopt-a-School Programs (ASPs).

Table 13, "ASPs of Buenavista National High School: Common Problems Encountered, Intervention and Stakeholders Who Made the Intervention," illustrates the various issues encountered during BNHS ASP implementations, alongside interventions and involved stakeholders ensuring project success. Stakeholder involvement, including PNP, RHU, PTA, SSG, Alumni, Volunteers, and other organizations, played a pivotal role in refining and completing projects.

Despite anticipated difficulties, maintaining positivity towards goal attainment is imperative, necessitating teamwork and unity to overcome obstacles. Alomes (2020) advocates for meaningful interaction and collaboration among all education stakeholders to foster effective learning environments and systems. Every facet of the learning environment must contribute to achieving success in educational endeavors, as observed in BNHS ASP implementations.

During Brigada Eskwela (BE) implementation, common challenges included material shortages and transportation costs for organization members, often covered by the volunteering group funds. Weather-related factors also impacted activities such as school ground concreting.

Table 14 below elucidates the respondents' statements related to the monitoring of Buenavista National High School's Adopt-a-School Programs.

Table 14

Implementation Phase of Adopt-a-School Programs in Terms of Monitoring of the Project

Theme	Definition	Common Responses
1. Project Monitoring	Refers to updated progress of the project's implementation	*"Pagdating sa monitoring aside sa may assign ka bilang head ay ginagawa mo talaga ang monitoring and implementation para ma-monitor ang progress at quality. Ako mismo ang napili. Halimbawa ay sa kulay. Nasabi ko "Gusto ko'y ganyan." Inabigay at ina-check ko ang design. Inapabago ko, inapapalitanpag hindi ko nagugustuhan o palagay ko hindi matibay. Sa BE may daily monitoring progress."* - the present principal *"Monthly Report and Partnership Database. Monthly posting of donations."* - ASP Coordinator *"Every day tsine-check ang report gamit ang daily accomplishment report form."* - BE Coordinator *"Pinupuntahan naman natin. Bawat year level ay may assigned day at mino-monitor naman kung may ginagawa talaga. May attendance naman ang mga vlunteers. Hinahabol para sa graduation yung concreting 'nung school ground."* - Former PTA President. *"Usually naman din po ay nata-track din naman namin yung progress. So, halimbawa, kasi po ay ina-recognized din po 'yung effort. Halimbawa'y nakatanggap ng certificate, meaning ay naging successful po ang mga projects."* - Tau Gamma Regent *"Attendance at may monitoring ng trabaho. May mga teachers na natingin sa trabaho ng volunteer."* - INC Deacon
2. No monitoring	Other personalities failed to monitor the project	"*Wala po. Umalis na rin si Sir President. Nag-online na lang siguro sila sa evaluation and endorsement."* - Alumni Treasurer *"Sa side po ng SSG ay wala kaming document na hawak about tracking of the project. Maybe sa side po ng gumawa o sa principal."* - Former SSG President *"May plan naman shinare through verbal, walang document. Nakahiyang mag demand dahil wala tayong share sa project."* - Former TIC

Monitoring is the ongoing evaluation of a project or program in respect to the predetermined timeline for implementation. It is also a useful management tool that, when utilized correctly, ought to offer ongoing input on how the project is being carried out and help identify potential obstacles and triumphs so that choices can be made quickly (Otieno, 2019).

Most of the ASPs were monitored by the implementing authorities and there were circumstances when monitoring was not required and observed as revealed by the statements of the respondents.

The school principal and other implementing officers monitored the Adopt-a-School Program (ASP). Progress report forms were being accomplished and submitted as reflected in Table 9, Buenavista National High School Adopt-a-School Program and Brigada Eskwela Documents Used During the Entire Implementation.

“Pagdating sa monitoring, aside sa may assigned ka bilang head ay ginagawa mo talaga ang monitoring and implementation para ma-monitor ang progress at quality”.

As for the ASP,
“May Monthly Report and Partnership Database. Monthly posting of donations.”

The BE Coordinator supported the statement,
“Every day tsine-check ang report gamit ang Daily Accomplishment Report Form ng Brigada Eskwela.”

Even the former PTA President has the same stance on this,
“Pinupuntahan naman natin. Bawat year level ay may assigned day at mino-monitor naman kung may ginagawa talaga. May attendance naman ang mga volunteers.”

Appendix S, "Brigada Eskwela Form 06 Daily Accomplishment Report Form," and Appendix Q, "Brigada Eskwela Form 04 Daily Attendance of Volunteers Monitoring Form," were utilized to track project progress, aligning with implementing guidelines for Brigada Eskwela (BE). Per BE guidelines, all relevant forms were submitted to the division office for evaluation once a school was nominated for Best Brigada Implementer.

Contrastingly, no specific document within the Adopt-a-School Program (ASP) toolkit was designated for project monitoring. The ASP Toolkit outlines fourteen sections for implementation, with related documents including the MOA (Appendix L), DOD (Appendix J), DOA (Appendix K), and Resource Gap Analysis (Appendix I). In the absence of a dedicated ASP Monitoring Form, monitoring efforts relied on observation, with each implementing body office contributing to the process.

SSG and alumni members occasionally faced limitations in accessing project monitoring yet remained vigilant in coordinating for student safety and welfare.
“Sa side po ng SSG ay wala kaming document na hawak about the tracking of the project.”, recalled by the former SSG President.
For the treasurer of the alumni, she was unaware if there was communication about the status of the project.
“Wala po. Umalis na rin si Sir President. Nag-online na lang siguro sila sa evaluation and endorsement.”

The former school TIC's statement somehow supported the alumni treasurer's statement,
“May plan naman shinare through verbal, walang document. Nakahiyang mag demand dahil wala tayong share sa project.”

A project's ability to succeed depends on thorough and ongoing project monitoring.

With careful project monitoring, a school head can obtain important information about how a project is progressing and utilize that information to make well-informed decisions.

Table 15 presents the Management and Evaluation Framework of the Department of Education and the responsibilities of each implementing offices to ensure the success implementation of any program of the government in relation to education.

Table 15

Basic Education Monitoring and Evaluation Framework Section VIII Roles and Responsibilities of Offices

National	Secretary	Planning Service	All operating units
Regional	Regional Director	Quality Assurance Division	All operating units
School Division	Schools Division Superintendent	School Governance and Operations Division	All operating units
School	School Head	School Head	All personnel and stakeholders in the school

Note: Reprinted from “DepEd Basic Education Monitoring and Evaluation Framework (BEMEF),” by M.A. Llego.Copyright 2024 by “TeachePh.”

Table 15, entitled "Basic Education Monitoring and Evaluation Framework Section VIII Roles and Responsibilities of Offices," delineates the Measurement and Evaluation (M&E) System and the corresponding lead, process owner, and responsible offices within the Department of Education's (DepEd) Basic Education Monitoring and Evaluation Framework (BEMEF). Aligned with Republic Acts (RA) 9155, the "Governance of Basic Education Act of 2001," and RA 10533, the "Enhanced Basic Education Act of 2013," DepEd undertakes significant projects, programs, and activities to ensure accessibility and quality improvement in basic education, with all operational units at governance levels accountable for achieving this objective. Table 15 illustrates how measurement and evaluation will be conducted across educational offices, with corresponding lead roles, process owners, and responsible offices. BEMEF is intricately linked to the planning and budgetary strategy of the Department.

At the school level, the school head assumes immediate responsibility for project monitoring and evaluation, as indicated in the table. Various measures were implemented to ensure projects were monitored and completed according to departmental protocols. Despite some individuals lacking direct access to project monitoring, they observed project progress, with representatives from their bodies attending monitoring sessions. The absence of a monitoring form for regular ASPs did not impede the school's ability to track progress, as implementing officers were present throughout the process. Otieno (2019) advised implementing officers and project managers to collaborate on establishing suitable monitoring and assessment systems.

Continuous and thorough project monitoring is vital for project success. Florida Tech (2018) emphasized that school heads can gather crucial insights into project progress through meticulous monitoring, enabling informed decision-making. BNHS's holistic involvement in its ASPs significantly contributed to achieving set goals.

The set goals will not be achieved without assuring that a project is proceeding according to schedule and that its tasks are being performed through project monitoring. In this, numerous indicators need to be tracked, including the budget, the completion time, and the quality standard. The significance of each varies based on the project's nature. Anticipating future needs is another aspect of project monitoring.

The subsequent table, Table 16, summarizes notable beneficiary experiences regarding ASP implementation which discovered after monitoring the ASPs.

Table 16

Implementation Phase of Adopt-a-School-Program in Terms of Experiences of the Beneficiaries

Theme	Definition	Common Responses
1. Self-fulfilling	The sharing of feelings experienced by the various components of the ASP of BNHS	*"Sa Pre and un ang mga ang re hen sio ns. Ang hirap sa planning. May mga negative thoughts ang mga na-tap. Sino 'yung mga taong masuporta sa iyo? Identification ng stakeholders. Technical working group ay kailangan po na, may gawain pala kaso alumni na ang nag-accomplished." - the Former TIC Sa implementation, may mga pagkakataon na kulang ang mga gamit at pagbabahagi ng tao. Kusa na silang pumupunta during implementation kung ano man ang maitulong nila. Every year yun kahit na dumaan sa maraming administrasyon. Nag-offer na sila sa Brgy. Eswela na dahil na-announce naman sa national tv."* - BE Coordinator *"Pre. Thinking na imposible masolusyunan ang pag-concrete ng ground. I grabbed the opportunity when they offered the project. As a taga-naman. Meron ngakaming malaking amount, kaya may ang pinanggagalingan sa school. Maraming plano para sa school. Implementation. Kinakabahan bek, 'di mat p s. May responsibilidad akong kasama sa trabaho ng kumausap. Kung sakali ay MOOE ang option para matapos.* *"Nung pre-implementation, malaking honor 'yung prinoposed ko. Nakaka-proud na sinuportahan ng LGU ang project natin. Overwhelming. Nung during, na-dis appoint po kami kasi may proposal po kaming sinubmit para sa paggawa kaso wala kaming nagawa. Okay lang din kasi there's nothing we can do rin dahil students kami. The least that we did was pag-facilitate ng mga students para di magka-problema sa paggawa. Okay naman po it was a big help for the students and the teachers."* - the Former SSG President *"Masaya. Nakaka-inspire ang mga ginagawa nila. Masasaya ang mga guro. Nagagawa ang mga dapat gawin." (Masaya at nakangiti na naghahayag).* - INC Deacon *"Ano po sya ay, ahm, magandang experience kasi nakakatulong ka eh. Ang pagtulong po ay malaking bagay. Kumbaga, tumulong ka sa school, pero eventually hindi naman 'yung school ang natulungan mo kundi yung mga bata nanag-aaral dun so magiging multiplier effect 'yung iyong tulong.*

		So, accomplishing po sya, isang magandang bagay na ginawa mo sa iyon kapwa at sa community na kinabibilangan mo. "Sa post-implementation ay self-fulfilling kasi nakapagbigay ka ng serbisyo na walang kapalit. (Nakangiti na may pag-aalinlangan) - Tau Gamma Regent
2. Challenging	There was problem encountered but was managed	*"Mahirap mag-implement ng project lalong-lalo na kung di-gusto ng nakararami. 'Yung 50 pesos ay ang hirap singilin. Ayaw din ni Sir Matibag magpasingil. Medyo challenging. Voluntary. Kesa mag-solicit ay nag-fund raising tayo. Para naman sa school yan, sa bata at sa nakararami."* - Former PTA President *"Post implementation ang pinakamahirap. 'Pag di properly documented. Minsan ay through GC."* - the ASP Coordinator

During the implementation phase of Adopt-a-School Programs (ASPs), beneficiaries' and respondents' experiences were classified into two categories: self-fulfilling and challenging, reflecting on their responses.

For implementing bodies, the most rewarding aspect post-ASPs was fulfilment, as indicated by their responses. Aranda et al. (2019) identified key indicators of self-fulfilment, including values, knowledge, self-esteem enhancement, social factors, and particularly the accomplishment of tasks.

Apprehensions were prevalent during each implementation phase, particularly among implementing bodies. From the initial step of problem identification, ideas to address the issues seemed boundless.

During the pre-implementation phase, primary concerns revolved around obtaining body approval for the idea, feasibility of project implementation, strategies for fundraising, and identification of potential partners.

"Sa pre andun ang mga apprehensions. Ang hirap sa planning. Mahirap mag-tap ng tao. May mga negative thoughts ang ibang mga na-tap…", smilingly uttered by the present principal.

For the former TIC, on concreting of the school ground.
"Pre. Thinking na imposible masolusyunan ang pag-concrete ng ground. I grabbed the opportunity when they offered the project."

The former TIC expressed that the pre-implementation phase was the most challenging aspect of ASP implementation for her. This sentiment aligns with the findings of Barret et al. (2023), who suggested that individuals exhibiting a strong commitment to a course of action, even in the face of adverse outcomes, may be experiencing escalation of commitment.

For the former SSG President, as a student,
"Nung pre-implementation, malaking honor 'yung prinoposed ko. Nakaka-proud na sinuportahan ng LGU ang project natin. Overwhelming."

During the implementation period, the following concerns surfaced; sufficiency of the funds to cover the entire project, possible alternative source of fund in case of insufficiency, and the possibility of utilizing the MOOE in case of insufficiency.

"…may mga pagkakataon na kulang ang mga gamit at panahon.", answered by the present principal.

The same worry was felt by the former PTA President,
"Mahirap mag-implement ng project lalong-lalo na kung di-gusto ng nakararami. 'Yung 50 pesos ay ang hirap singilin. Ayaw din ni Sir Matibag magpasingil. Medyo challenging. Voluntary…"

For the school BE Coordinator, there was a sense of assurance that the project would be completed due to the regular cooperation of the stakeholders.
"Buhos na tulong ng tao. Kusa na silang pumupunta during implementation kung ano man ang maitulong nila. Every year yun kahit na dumaan sa mahirap na taon. Maraming regular na nagbibigay at regular na tumutulong. Nag-o-offer na sila…"

For a group of volunteers like the Tau Gamma, helping the school means assisting all the components of the school, especially the learners. When people recognize and appreciate their efforts, volunteers are most at ease (Muller, 2018).

"…Kumbaga, tumulong ka sa school, pero eventually hindi naman 'yung school ang natulungan mo kundi yung mga bata na nag-aaral dun so magiging multiplier effect 'yung iyong tulong. So, accomplishing po sya…"

On the other hand, the post-implementation phase is the less-worrying phase most of the time. It is somehow crucial when it comes to documents that would justify the credibility of the project's implementation. The principal said:
"Sa post-implementation, reporting, and consolidation of documents ng bawat in-charge ang challenge. In post-implementation. Documentation and consolidation difficulty. Feeling tapos na, may gawain pa pala kaso alumni na ang nag-accomplished."

The above statements of the implementing bodies proved Barret et al. (2023) claim that the psychological characteristics that affect the escalation of commitment are determinants that center on how people's cognitive and affective processes may lead them to persist in their unsuccessful path. Because of those different inevitable aspects of implementing a project, the success of the project became more persistent.

"Sa post-implementation ay self-fulfilling kasi nakapagbigay ka ng serbisyo na walang kapalit.", the answer of the Tau Gamma Regent.

Same with the representative of the INC Volunteer Group.
"Masaya. Nakaka-inspire ang mga ginagawa nila. Masasaya ang mga guro. Nagagawa ang mga dapat gawin.", the Deacon was smiling when answering the question.

Challenging was the immense feeling felt by the former PTA President during the implementation period. For the ASP Coordinator it was during post-implementation period.

The Former PTA President though challenged had an option of performing his duties,
"Mahirap mag-implement ng project lalong-lalo na kung di-gusto ng nakararami. 'Yung 50 pesos ay ang hirap singilin. Ayaw din ng dating superentindent magpasingil. Medyo challenging. Voluntary. Kesa mag-solicit ay nag-fund raising tayo…"

This is the most difficult period for an ASP School Coordinator like me,
"Post implementation ang pinakamahirap. 'Pag di properly documented. Minsan ay through GC."

For volunteers, engaging in ASP implementation represents a profoundly self-fulfilling endeavor. Despite the absence of monetary compensation, Muller (2018) underscored that volunteers may seek reciprocal exchanges and equitable recognition for their efforts. Instead of financial remuneration, volunteers value non-monetary gestures from benefactors. They understand that their efforts are integral as volunteers within the school community.

Although project execution may entail complexity, most respondents reported experiencing a sense of fulfillment upon completion, knowing they contributed to the welfare of others. Engaging in community service bolsters volunteers' confidence, as they feel a natural sense of accomplishment from helping individuals and the broader community. This sense of pride and connection to their actions leads to increased self-esteem. Segal and Robinson (n.d.) noted that volunteers who feel confident in themselves are more likely to maintain a positive outlook on life and pursue their future aspirations.

Post-implementation Phase

The post-implementation phase marks the culmination of the project's scope, aligning with the plan outlined in the project proposal or Budget of Work. This phase involves consolidating project documentation across different levels, assessing implementation and functionality, and devising a maintenance plan. Otieno (2019) emphasized that the post-implementation phase is not about assigning blame but rather identifying successful aspects and areas for improvement. Lessons learned from this phase can inform future projects, including those covered by ASPs or other school-related initiatives.

This section delves into the collective experiences of project implementers, volunteers, stakeholders, beneficiaries, and other ASP components, highlighting their perspectives on participation and the value they attribute to project implementation. It evaluates whether projects were effectively monitored and evaluated for ASP completion. Additionally, the utilization of various forms throughout implementation phases is assessed to ensure compliance with ASP implementation guidelines outlined in the Implementing Rules and Regulations (IRR) of RA 8525.

Otieno (2019) stressed that post-project evaluation entails a systematic and objective analysis of project accomplishments. He emphasized the importance of reviewing project summaries and evaluations to determine if anticipated targets were met, extract lessons learned, and provide timely feedback for future endeavors. Through this process, encountered problems are addressed, and corresponding solution measures are proposed to enhance future project implementations and ensure desired outcomes are achieved according to the project plan.

The post-mortem or post-project review is also known as the post-implementation review. The Project Implementation Review is a crucial component of the overall project planning process since it provides significantly more significant insights than just determining if the project was successful. These insights are quite helpful because they can be used as lessons learnt in any future endeavors. This is carried out in the project closure phase.

Table 17 presents respondents' statements regarding the significant of their roles and how they performed during Adopt-a-School Implementation.

Table 17

Post-implementation Phase of the Adopt-a-School-Program in Terms of the Role in the Implementation

Theme	Definition	Common Responses
Significant Role	Every role performed by each component of the implementing bodies, regardless of the designation and distinction	*"Ang main role ng coordinator ay ma-inform ang mga committees kung ano ang gagawin during the BE 'tas pag na-inform na sila yun ready na for implementation. Kanya-kanya na sila. Ako lang 'yung parang moderator.* *Transparency ang talagang reason bakit bumabalik-balik sila sa school. Kitang-kita ng nag-donate kung saan napupunta ang kanyang binigay."* - BE Coordinator *"Accountability. Accountable ka sa lahat ng actions, situations, at undertakings at nangyayari sa project like BE."* - Present Principal *"It is worth it for the project. Taking the risk for the students, teachers, and school."* - Former TIC *"Ang importansya lang ng role ko ay sa report. Dun kasi ako mapapasok at Brigada Eskwela."* - ASP Coordinator *"Very important din po dahil kung hindi namin na-facilitate 'yung mga students kung saan madaan, mapunta ay malaking tulong na rin sa pag-concrete ng ground. Hindi na namroblema 'yung mga workers sa pagsasabi sa mga student's kung ano dapat at hindi dapat gawin. Nakapag-focus po sila sa paggawa nila."* - Former SSG President *"Mahalaga sya sa planning at pagda-direct nung mga myembro. Halimbawa, sino kailangan, ano dadalhin. So, para maging organisado. Kasi ito'y hindi isa o talong myembre, marami."* - Tau Gamma Regent *"Kasiyahan ng Dyos. Napupuri ang gawa ng kapatiran. Kapurihan ng panginoong Dyos 'yan."* - INC Deacon

3. Challenging Role	Personality and credibility of the leader was tested	*"Challenging. First PTA President in Marinduque from Buenavista. Una okay na lahat. Nag-shift lahat. Nasabi na sa tao need na baguhin. Tinitingnan din kasi ng tao kung may integridad ka, kakayahan. Pag nakita naman nila na may kakayahan ay susuportahan din nila. 'Pag wala ay di rin sila naniniwala. Sa panahon naman natin ay sinusuportahan kita at kung hindi naman ay itutuloy pa rin naman. Determination. Integridad. Capability. Key determinants na binibigay ng sumusuporta o nasasakkupan. Minsan ay iba-iba ang tingin ng mga tao. Perception nila yan."* - Former PTA President
4. Difficult	The duty requires time management and attention	*"Mahirap. Unang-una maya maya may padala, maya maya ang p.m ko dahil sa padala sa Palawan Pawnshop, kaya nanghihingi na ko ng isang booklet ng resibo. Iniiwan ko na lang tas binabalikan ko. Talagang busy. Talagang maayaw na ako. 'Yung pagbayad ng lang ng quarterly ng BIR, wala namang pumapasok na pera. Bakit nagbabayad pa kami? One-year na kami hindi nagre-renew."* - Alumni Treasurer

The responses of beneficiaries, stakeholders, and members of implementing bodies were classified into three categories: significant, challenging, and difficult roles. Each role was deemed significant in the implementation of every ASP, with each contributor playing a vital part in the overall success. Out of the eight respondents queried, six identified their roles as significant. Senjaya (2019) emphasized that for schools to thrive, parents and community members must share ownership of the outcomes generated.

The school head, involved at all levels, initiates a root-cause analysis in collaboration with subject coordinators and relevant office personnel. They conceptualize potential ASPs to address identified issues, collaborating with concerned offices and tapping into various organizations and stakeholders as potential partners in project realization, alongside the Parent-Teacher Association (PTA), Student Government (SSG), and other relevant entities. Above all, the school head is accountable for every individual and activity within the school, ensuring accountability remains a primary duty.

"Accountability. Accountable ka sa lahat ng actions, situations, at undertakings at nangyayari sa project like BE.", answered by the principal.

On the other hand, the former TIC has her strategy,
"It is worth it for the project. Taking the risk for the students, teachers, and school."

According to the former school head, it is one of the circumstances a school head must anticipate for a successful ASP.

For the BE Coordinator, as the school coordinator of BE, he serves only as the moderator. His main task is to inform the BE's various committees regarding their assignments and functions.

"Kanya-kanya na sila. Ako lang 'yung parang moderator. Transparency ang talagang reason bakit bumabalik-balik sila sa school. Kitang-kita ng nag-donate kung saan napupunta ang kanyang binigay."

On the other hand, proper dissemination must be ensured, or all components will not function well.

Moreover, for all the ASPs, the active participation of the PTA Officers and SSG is always anticipated. They serve as the prime movers that keep the project working until it is accomplished. For the former SSG president to him his role,
"Very important din po dahil kung hindi namin na-facilitate 'yung mga students kung saan madaan, mapunta ay malaking tulong na rin sa pag-concrete ng ground. Hindi na namroblema 'yung mga workers sa pagsasabi sa mga students."

The First PTA League President in the Division of Marinduque said that he was challenged due to the situation under Covid19.

"Challenging. First PTA President in Marinduque from Buenavista. Una okay na lahat. Nag-shift lahat. Nasabi na sa tao need na baguhin. Tinitingnan din kasi ng tao kung may integridad ka, kakayahan."

The key determinants of a leader for others to support every project are determination, integrity, and capability are the key determinants of a leader for others to support every school project (Ahmed, 2018). Other parents are evaluating the tolerance and capacity of their leader. The SSG President, though minimal, did their best to manage their co-students to help during the project's implementation.

"Very important din po…Hindi na namroblema 'yung mga workers sa pagsasabi sa mga students."

A leader's position is critical in directing the many organizations providing services for the project's completion.

"Mahalaga sya sa planning at pagda-direct nung mga myembro."

Moreover, for church-related organizations, recognition is to glorify God's name.

Muller (2018) highlighted that within voluntary groups, individuals with specific talents and qualifications often hold leadership positions, assuming responsibility for goal setting, decision-making, and serving as spokespersons. These leaders have elevated status, allowing them to guide other members, if followers accept this dynamic. To foster a sense of fulfillment conducive to effective teamwork and overall achievement, leaders must possess strong instincts regarding followers' expectations.

Massucco (2021) emphasized the importance of efficient communication tools, such as school apps, school messengers, text notifications, and electronic communication, for teachers and administrators. Regular updates on school events encourage greater parental involvement, promoting a stronger connection between the school and its stakeholders.

ChalkyPapers (2023) underscored the significance of collaborations between schools and communities, suggesting that such partnerships can yield fruitful outcomes in the

long term. This collaborative approach encourages stakeholders to engage more actively in school programs and provide additional support for learners.

Regarding volunteerism, Aranda et al. (2019) noted that motivations for volunteering vary, extending beyond altruism. Recent studies propose two motivational patterns - inward-oriented and outward-oriented - which correlate with volunteer satisfaction. Volunteers are more likely to feel valued, accepted, and satisfied in their roles when supported and supervised adequately by school members and stakeholders.

Table 18 shows how each respondent recounted in their statements the memorable moments they had experienced while contributing to every ASP of BNHS.

Table 18

Post-implementation Phase of the ASP in Terms of Remarkable Experiences Acquired

Theme	Definition	Common Responses
Varied Remarkable Experiences	Significant experiences of the respondents about ASP differ from each other, but everything is worth remembering	*"Isang sabi lang sa alumni ay talagang nagapadala ng suporta agad. Pati mga PTA ay talagang masuporta. Kahit sino naman. Marami pating naga presenta." (Smiling)* - present principal *"Yung pinarangalan ang BNHS as number 1 sa cluster tas second sa division. Sa loob ng sampung taon ay ngayon lang kita na-recognize. Sini-celebrate itong award na ito dahil pinagtulungan natin. The best na siguro ito ng pagiging coordinator. Pressured ngayong BE dahil baka iba naman kalabasan."* - BE Coordinator *"Grabbing the opportunity offered by the alumni because it is a once in a lifetime opportunity for the benefit of the many and the coming generations."* - Former TIC *"Masarap dahil nakakatulong."* - Alumni Treasurer *"May inabigay na certificate ang school. Dinisplay ko sa extension ng kapilya sa Bicas-bicas. (Nakangiti)* - INC Deacon *"Yung malakas ang outsourcing ang remarkable experiences ko dahil masarap mag-report 'pag maraming donations. Nakakalungkot pag akaunti."* - ASP Coordinator *"Mahirap mag-invest sa isang programa lalo 'pag involve ay pera. Public school at lahat ay hindi well-off. 'Pag maganda ang project kahit mahirap ang buhay pinagkakaisahan. Walang maliit na ambag sa maliit na proyekto. Kaya namang mag-ambag sa pag-boluntaryo. Hindi man pera, malaki na rin."* - Former PTA Coordinator *"During the implementation po ay di magamit ang ground kapag flag ceremony ay may mga classrooms po na nasa dulo. Ang suggestion ng mga SSG ay lakasan ang mic or puntahan sa mga classrooms dahil hindi na rin po sila malabas ng room. Inisa-isa ng mga SSG sa mga classroom teachers."* - Former SSG President

For the current principal, a significant moment was the consistent support received from the alumni. This support was demonstrated through prompt approval of requests after discussing issues with others, ensuring that no gap would go unfilled.

“Isang sabi lang sa alumni ay talagang nagapadala ng suporta agad. Pati mga PTA ay talagang masuporta. Kahit sino naman. Marami pating naga presenta.” (Smiling).

This justifies the experiences of the ASP School Coordinator, that the overflowing donations were her remarkable experience as a coordinator, making her feel delighted in encoding the donations in the database.

“Yung malakas ang outsourcing ang remarkable experiences ko dahil masarap mag-report ‘pag maraming donations.”

For the former principal,
“Grabbing the opportunity offered by the alumni because it is a once-in-a-lifetime opportunity for the benefit of the many and the coming generations.” was her outstanding experience.

Thinking of the more prolonged effects of the project. With similarities on the part of the School BE Coordinator,
“Yung pinarangalan ang BNHS as number 1 sa cluster tas second sa division. Sa loob ng sampung taon ay ngayon lang kita na-recognize. Sini-celebrate itong award na ito dahil pinagtulungan natin. The best na siguro ito ng pagiging coordinator.”

For the former PTA President, his remarkable experience was realizing the difficulty of investing in a program that involves money, especially in a public school with more not-so-well-off parents. He appreciated the willingness of each to share according to their abilities.

‘Pag maganda ang project kahit mahirap ang buhay pinagkakaisahan. Walang maliit na ambag sa maliit na proyekto. Kaya namang mag-ambag sa pag-boluntaryo. Hindi man pera, malaki na rin.”

For the former SSG President's remarkable experience, their effort of reaching out to students in each classroom for the announcements during the flag ceremony, which students could not attend due to the under-construction ground,
"Inisa-isa ng mga SSG ang mga classroom ng bawat teachers."

This made him realize the importance of their role as SSG.

For the alumni representative, it is a good feeling that they were able to help others. They want to give back, reconnect and inspire, especially the young minds. Some also conveyed a sense of identity that linked them to both the school and the neighborhood and the desire to help, advise and inspire students.

Lastly, for the volunteer groups, awarding a certificate of recognition is well-appreciated because it recognizes their efforts for the services they rendered.

"Dinisplay ko sa extension ng kapilya sa Bicas-bicas.", stated the Deacon.

The instrumental role played by individuals in elevating BNHS to its current stature as a distinguished learning institution is remarkable.

According to Why Volunteer/Inter in Lakshyam (n.d.), volunteering is described as a simple yet effective and rewarding way to contribute to a cause that holds personal significance. The organization highlights several benefits of volunteering, including increased empathy towards others, enhanced confidence and overall personality development, and the potential to add value to one's resume, giving it a competitive edge. Volunteers believe that there is a sense of fulfilment and satisfaction in giving back to others rather than receiving.

These insights into volunteering have facilitated remarkable experiences for volunteers and school constituents, who purposefully dedicate their time to charitable endeavours. Volunteering serves as an effective tool for bringing people and communities together, empowering them, and fostering their capacities. As noted by Daniel et al. (2019), building relationships with diverse individuals in various settings outside the classroom is essential for learning, growth, and development.

Table 19 reflects how each Adopt-a-School Program was monitored during the implementation.

Table 19

Post-implementation Phase of the ASP in Terms of Monitoring of the ASP Implementation

Theme	Definition	Common Responses
Well-monitored Project	The constant practice of monitoring the status of the project's implementation with documentation.	*"BE may monitor, may daily accomplishment report. HAFFMHE, meron din. Palagi nga ang update about the progress kaya lang hindi documented. Wala tayong general form para sa short-term ASP."* - Present Principal *"Very light monitoring of the quality of project's implementation and quality."* - Former TIC *"May monitoring at may mga forms po for each phase na ina-accomplish."* - BE Coordinator *"May progress report po ay sa kanila na. Hindi ko po sakop 'yun."* - ASP Coordinator *"Monitoring ay per year level na, per PTA Classroom President and Adviser. From time-to-time naman ay may natingin sa school, principal, teachers, officers, SSG."* - former PTA President *"May naga monitoring maya maya ng progress ng trabaho ng mga brads from the school personnel."* - Tau Gamma Regent

"Merong natingin-tingin. Maasikaso ang mga maestra. Tuwang-tuwa sila. Inaalam kung sapat ang mga gamit, kung nagmeryenda na kami." - INC Deacon

"Nadalaw po nung engineer every now and then. May nakikita po ako natingin-tingin sa mga nagawa ng project." - Former SSG President

"Meron po," - Alumni Treasurer

Each phase of the project received consistent feedback from respondents, indicating that monitoring was conducted for each project. A monitoring form was utilized by the person in charge during monitoring activities to ensure periodic review of the project's status. Individuals responsible for monitoring included the principal, teachers, organization officers, and volunteers, with provisions made for refreshments during monitoring sessions.

In the Revised Implementing Rules and Guidelines of Republic Act (RA) No. 8525, also known as the Adopt-a-School Program Act or DepEd Order No. 2 Series of 2013, Part IV outlines program administration. Rule 1 Section d pertains to monitoring and evaluation of the program, albeit without specifying forms for utilization, unlike in the ASP BE.

Additionally, under DepEd Order No. 29, Series of 2022, which pertains to the Adoption of the Basic Education Monitoring and Evaluation Framework (BEMEF), the school is designated as an accountable office responsible for providing directives and determining strategies to achieve agency performance targets, as defined in Section III. BNHS implemented monitoring for every ASP, either with a formatted monitoring form for DepEd or through alternative means, as confirmed by the present principal.

"BE may monitor, may daily accomplishment report. HAFFMHE, meron din. Palagi nga ang update about the progress kaya lang hindi documented. Wala tayong general form para sa short-term ASP."

The BE Coordinator supported this statement of the principal.

"May monitoring at may mga forms po for each phase na ina-accomplish."

Even the ASP Coordinator mentioned the progress report she observed, though this is not under her jurisdiction.

"May progress report po, ay sa kanila na. Hindi ko po sakop 'yun."

The implementation of BNHS' ASPs demonstrated a clear embrace of School-Based Management (SBM), as indicated by respondents' statements. This approach, as highlighted in the Consumer Guide from the Office of Research and Education, has the potential to enhance learning environments for students by engaging teachers, parents, and community members in critical decision-making processes (Llego, n.d.).

Through the transfer of significant decision-making authority and empowerment of various school components, stakeholder involvement progressively increased as they recognized the significance of their contributions to the educational system.

The former PTA President affirmed the monitoring of the project, underscoring the commitment to overseeing ASP implementation.

"Monitoring ay per year level na, per PTA Classroom President and Adviser. From time-to-time naman ay may natingin sa school, principal, teachers, officers, SSG."

The Tau Gamma Regent's statement was paralleled to the statement of the former PTA President.

"May naga monitoring maya maya ng progress ng trabaho ng mga brads from the school personnel."

On the part of the INC Deacon, he emphasized the active monitoring by the teachers.

"Merong natingin-tingin. Maasikaso ang mga maestra.Tuwang-tuwa sila. Inaalam kung sapat ang mga gamit, kung nagmeryenda na kami."

The former SSG President shared his observations on the participation of the other volunteers.

"Nadalaw po nung engineer every now and then. May nakikita po ako natingin-tingin sa mga nagawa ng project."

Even the alumni representative observed the same circumstances.

"Meron po."

Monitoring of forms for BE were submitted to the Division Office during the nominations of BNHS in the Division of Marinduque for Best Brigada Implementer.

Table 20 presents the statements of the respondents on how the ASPs were evaluated after its implementation.

Table 20

Post-implementation Phase of the Adopt-a-School Program in Terms of Evaluation of the Project After the Implementation

Theme	Definition	Common Responses
1. Evaluated	The last action that an ASP must attain after it has been accomplished This serves as the determinant in the re-implementation and	*"BE, may evaluation form ang Brigada."* - Present Principal *"Internal evaluation from the BNHS Faculty"* - Former TIC *"May evaluation form at narrative reports."* - BE Coordinator *"May evaluation po ng mga projects." - Tau Gamma Regent*

	termination of the ASP.	*"Inatingnan nila kung okay na ang trabaho, kung maayos o may aayusin pa."* - INC Deacon

Theme	Definition	Common Responses
		"Opo. During LAC session, tinatanong ang feedback from the teachers at kung ano ang sinabi na nakarating sa teachers.Positive ang common feedbacks like sa HAFFMHE, send-off tuwang-tuwa ang mga players, early pregnancy ay kasali ang JHS Grade 10. Concreting ay okay lang kaso feedback mali, na inuna muna dapat ang drainage bago concrete ground." - ASP Coordinator
2. Not Evaluated	Evaluation was not observed by the other respondents	*"Wala. Ang mahalagang evaluation dyan ay 'yung mga tao. Makikita ang effectiveness ay dahil hindi na sila napuputikan."* - Former PTA President *"Wala po. Umalis na rin si President. Nag-online na lang siguro sila sa evaluation and endorsement."* - Alumni Treasurer *"Wala po akong alam na evaluation 'nung project. Hindi kami pinatawag. Siguro po ay sa dating TIC."* - Former SSG President

To enhance future projects, it is crucial to conduct a thorough analysis of the project, focusing on areas where mistakes were made, and improvements can be implemented. Each project should serve as a learning opportunity for the team, allowing them to assess its success and areas for improvement (Florida Tech, 2018).

The ASPs of BNHS were divided into two categories for this phase: evaluated and not evaluated, based on respondents' statements. Most respondents confirmed that the school's ASPs were evaluated, with only three indicating otherwise.

While some respondents mentioned being unaware or unable to participate in the evaluation process due to absence, and one respondent had their own method of evaluation, it was evident that a definite evaluation was conducted for each project.

The present principal confirmed the availability of evaluation forms and narrative reports for the Brigada Eskwela (BE) projects. For ASPs, evaluation was conducted through feedback from various stakeholders due to the lack of a specific evaluation form for this purpose.

"May evaluation form at narrative reports."

This was seconded by the BE Coordinator,
"Opo. During LAC session, tinatanong ang feedback from the teachers at kung ano ang sinabi na nakarating sa teachers. Positive ang common feedback like sa HAFFMHE, send-off tuwang-tuwa ang mga players, early pregnancy ay kasali ang JHS Grade 10.", reiteration of the School Adopt-a-School Program Coordinator.

Feedbacking of the ASPs were done anchored to Table 15, Basic Education Monitoring and Evaluation Framework Section VIII Roles and Responsibilities of Offices body evaluated its ASPs, as suggested by the framework in school-based sessions during LAC sessions and after each ASP. Results were discussed and properly disseminated to the stakeholders during the General PTA Meeting.

If the ASP does not have an evaluation form, as most ASPs listed below do, internal and external evaluations were made during the LAC session cited by the ASP Coordinator.

"Positive ang common feedback like sa HAFFMHE, send-off tuwang-tuwa ang mga players, early pregnancy ay kasali ang JHS Grade 10. Concreting ay okay lang kaso ang feedback mali, na inuna muna dapat ang drainage bago concrete ground."

The Tau Gamma Regent confidently stated,

"May evaluation po ng mga projects."

For the other group of volunteers,
"Inatingnan nila kung okay na ang trabaho, kung maayos o may aayusin pa."

The recipients, donors, and implementing organizations of the implemented ASP made evaluations based on their comments and feedback.

According to the previous TIC of the school,
"Internal evaluation from the BNHS Faculty"

Although most of the key personalities were informed about the evaluation, there were some officers of the school bodies who were not.

"Wala po. Umalis na rin si President. Nag-online na lang siguro sila sa evaluation and endorsement."

The respondent, who is the current Treasurer of the alumni, was not notified about the review of the project,
"Wala po akong alam na evaluation 'nung project. Hindi kami pinatawag. Siguro po ay sa dating TIC."

The SSG was not told about the internal appraisal of the project's concreting. However, the SSG Adviser among the faculty members for most of the ASPs represented their organization.

The former PTA President viewed his way of evaluating an accomplishment,
"Wala. Ang mahalagang evaluation dyan ay 'yung mga tao. Makikita ang effectiveness ay dahil hindi na sila napuputikan."

As part of their responsibilities, faculty members evaluated the services and scope of work of volunteer organizations.

Eby (2022) emphasized that any evaluation worth undertaking should ultimately save a school time and money while producing better results. Evaluation serves as a mechanism for documenting outcomes and facilitating improvement, enabling others to learn from both successes and failures. This process facilitates the efficient allocation of limited time and resources (FloridaTech, 2018). Moreover, it provides guidance for all activities undertaken by the school administration committee, allowing for modification and enhancement of educational initiatives.

The present principal noted the absence of a monitoring and evaluation form for short-term ASPs in Table 19 but intends to develop one for school-based monitoring and evaluation in the next year of ASP implementation.

In order to improve on the next project, it is important to analyze the project and concentrate on the areas where it went wrong and made mistakes. Each project should allow the team to improve as it assesses its success (Florida Tech, 2018).

The ASPs of BNHS were categorized into two for this phase: evaluated and not evaluated, as evident in the statements of the respondents. Most of them confirmed that the ASPs of the school were being evaluated. Only three responded as not evaluated.

Although some of the respondents commented that they were not aware or failed to evaluate the ASP due to their absence from the process and one of them had his own way of evaluating, a definite evaluation was made for each project.

The evaluation form and narrative report for BE were available, as confirmed by the present principal of the school. For ASP, evaluation was through feedback of the different components due to the lack of a specific evaluation form for this.

“May evaluation form at narrative reports.”

This was seconded by the BE Coordinator,

“Opo. During LAC session, tinatanong ang feedback from the teachers at kung ano ang sinabi na nakarating sa teachers. Positive ang common feedback like sa HAFFMHE, send-off tuwang-tuwa ang mga players, early pregnancy ay kasali ang JHS Grade 10.”, reiteration of the school adopt-a school program coordinator.

Feedbacking of the ASPs were done anchored to *Table 15,* Basic Education Monitoring and Evaluation Framework Section VIII Roles and Responsibilities of Offices body evaluated its ASPs as suggested by the framework in school-based sessions during LAC sessions and after each ASP. Results were discussed and properly disseminated to the stakeholders during the General PTA Meeting.

If the ASP does not have an evaluation form, as most ASPs listed below do, internal and external evaluations were made during the LAC session cited by the ASP Coordinator.
“Positive ang common feedback like sa HAFFMHE, send-off tuwang-tuwa ang mga players, early pregnancy ay kasali ang JHS Grade 10. Concreting ay okay lang kaso ang feedback mali, na inuna muna dapat ang drainage bago concrete ground.”

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For the other group of volunteers,
“Inatingnan nila kung okay na ang trabaho, kung maayos o may aayusin pa.”

The recipients, donors, and implementing organizations of the implemented ASP made evaluations based on their comments and feedback.

According to the previous TIC of the school,
“Internal evaluation from the BNHS Faculty”

Although most of the key personalities were informed about the evaluation, there were some officers of the school bodies who were not.

“Wala po. Umalis na rin si President. Nag-online na lang siguro sila sa evaluation and endorsement.”

The respondent, who is the current Treasurer of the alumni, was not notified about the review of the project,
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The SSG was not told about the internal appraisal of the project's concreting. However, the SSG Adviser among the faculty members for the majority of the ASPs represented their organization.

The former PTA President viewed his way of evaluating an accomplishment, *“Wala. Ang mahalagang evaluation dyan ay ‘yung mga tao. Makikita ang effectivenessn ay dahil hindi na sila napuputikan.”*

As assigned to them, faculty members evaluated the volunteer organizations' services and scope of work.

Eby (2022) reiterated that any evaluation that is worthwhile must ultimately save a school's time and money and yield better results. It offers a mechanism to chronicle results and a means of improvement so that others can learn from one's achievements and failures. This allows for the efficient delegation of limited time and resources (FloridaTech, 2018). Additionally, it provides direction for everything the school administration committee does while modifying and enhancing educational initiatives.

The present principal mentioned the unavailability of a monitoring and evaluation form for short-term ASP in Table19 but will attempt to formulate one for school-based M&E in the next year of ASP implementation.

Assistance from Donors to Support ASP Implementation

This phase will discuss the provisions extended by the sponsors or partner groups, agencies and organizations in accomplishing the different ASPs of BNHS as allowed forms of assistance stated in R.A. 8525 extracted from the statements of the respondents during the face-to-face interview.

Table 21 includes the statements of the participants related to the provided forms of assistance for each ASPs.

Table 21

Common Form of Assistance According to Adopt-a-School Program

Theme	Definition	Common Responses
1. In-kind donation and services	Form of support resources that mostly extended to BNHS by partner agencies or organizations, donors, and stakeholders Consumable learning-support assistance and services for the learners that requires DOD but does not require MOA	*"Alumni: services, t-shirts, construction materials. Malaking percentage ang service."* - BNHS ASP School Coordinator *"Ang nakita ko po sa concreting ay mga equipments, provided nila, yung materials at workers."* - Former SSG President *"Labor; mason, carpentry, painters and clearing of school grounds."* - INC Deacon *"Usually, po ay in terms of human resources, labor, ganyan kung ano-ano."* - Tau Gamma Leader *"Learners' support. Readily available like electric fan, pagkain. Kadalasan ay madaling mapakinabangan. Mga short terms. Culture of volunteerism and gift-giving.* *Wala masyadong long term like pa-training mula sa stakeholders. Time, materials, labor ang kadalasan nilang inabigay. May mga long-term effect din siguro sa mga bata na di malimutan."* - Present BNHS Principal *"Maraming nagdo-donate. Yung mga maliliit na stakeholders ay nagbibigay ng certain amount: pa meryenda, bakery ay tinapay. May malalaking establishments like hardware ay pintura, paint brush, tinner, yero. Ang mga alumni ay cash donations."* - BE School Coordinator

The Buenavista National High School (BNHS) Adopt-a-School Program (ASP) and Corresponding Forms of Assistance outlined various types of assistance available, with most forms being short-term, except for the concreting of school grounds. The forms of assistance provided include cash, health and sanitation supplies, food supplies, school supplies, t-shirts, electric fans, television, training, and orientation. These forms of assistance are all covered by ASP Act provisions.

During document review, it was observed that the common form of assistance received by BNHS, as reflected in the ASPs, primarily consisted of in-kind forms of assistance,

with services being the predominant type. Respondents uniformly classified assistance in a similar manner.

In the case of Brigada Eskwela (BE), labor comprised the largest percentage of assistance, as indicated by data presented in Table 5, which outlines forms of assistance and service with monetary equivalents and the number of partners for school years 2019-2022.

The ASP Coordinator affirmed this observation during the interview, further substantiated by Table 21, which details the common forms of assistance according to the Adopt-a-School Program.

"Malaking percentage ang service. Usually, po ay in terms of human resources, labor, ganyan kung ano-anu."

The Tau Gamma representative and the INC Deacon elaborated on the specific forms of labor rendered, including masons, carpenters, painters, electricians, plumbers, welders, and helpers.

In-kind donations were prevalent during short-term ASPs. According to Jitasa (2021), in-kind donations refer to the transfer of assets, goods, products, or services provided by individuals, organizations, or businesses, which are non-monetary contributions made to nonprofit organizations. These donations vary according to the needs of the learners pursued in the ASPs.

The DepEd ASP Toolkit states that stakeholders can choose from a menu of options called packages within the software. These packages encompass various initiatives such as the construction of new school facilities, libraries, computer labs, staff development, nutrition programs, and the supply of instructional materials and learning kits. This approach ensures that the demands of the school are met in alignment with the capabilities and goals of the business sector.

The statements of the respondents further justified the forms of in-kind donations.

"Learners' support. Readily available like electric fan, pagkain. Kadalasan ay madaling mapakinabangan."

Moreover, the BE coordinator said that some stakeholders contribute in terms of food and cash donations.
"Yung mga maliliit na stakeholders ay nagbibigay ng certain amount: pa meryenda, bakery ay tinapay. May malalaking establishments like hardware ay pintura, paint brush, tinner, yero. Ang mga alumni ay cash donations."

According to the former SSG President on concreting of the school ground,
"Ang nakita ko po sa concreting ay mga equipments, provided nila, yung materials at workers."

Corroborated by the current principal and reflected in the ASPs provided herein are rare donations for the long term.

"Wala masyadong long term like pa-training mula sa stakeholders. Time, materials, labor ang kadalasan nilang inabigay. May mga long-term effect din siguro sa mga bata na di malimutan."

Table 22 projects the different Adopt-a-School Programs of Buenavista National High School and the various forms of assistance provided by the ASPs to the beneficiaries

Table 22

Adopt-a-School Programs of Buenavista National High School and The Corresponding Forms of Assistance Provided

		ADOPT-A-SCHOOL PROGRAMS OF BNHS				
		Send-Off Program for Provincial Players	**Forum on Teenage-Pregnancy and Early Marriage**	**HAFFMHE**	**Concreting of BNHS School Ground**	**Brigada Eskwela**
FORMS OF ASSISTANCE PROVIDED FOR THE ASP	**Learning Environment**				CHB, Corrugated Metal, Cement, Tie Wire, Labor	Labor, Electric Fan, Sinks
	Learning support					School Supplies
	Technology Support					Television
	Health and Nutrition	Foods and Health Supplies	Reproductive Health Awareness & Snacks	Food Supplies		Health & Sanitation Supplies, Clothes
	Reading Program					Books
	Training and Development	Orientation of Provincial Players		Parenting Seminar		
	Direct Assistance	Cash Assistance for MIMAROPA RAA Players				
	Assistive Learning Devices for Students with Special Needs					Eyeglasses

Source: Junior High School and Senior High School Guidance Offices

The form of assistance provided varies per project to address the specific needs of learners, ultimately benefiting parents and teachers as well.

The ASP Send Off Program for Players aims to offer moral support and assistance to the Buenavista district delegation in the annual Provincial Meet. Provisions include food and health supplies, player orientation, and cash assistance for MIMAROPARAA players.

The Forum on Teenage Pregnancy and Early Marriage focuses on raising awareness about reproductive health to reduce cases of teenage pregnancies and early marriages. Program provisions include reproductive health lectures and snacks for participants and speakers.

The Healing and Firming for a More Holistic Education (HAFFMHE) program facilitates communication between the school and student families to enhance understanding and collaboration for an optimal learning environment. The program provides responsible parenthood lectures and addresses basic family needs.

Brigada Eskwela (BE) is an annual program consisting of short-term and long-term assistance based on donor or sponsor provisions, covering various ASP provisions.

The Concreting of the School Grounds aims to enhance school facilities and promote students' physical and socio-emotional well-being through school activities. Provisions include sacks of cement, corrugated steel, labor, and a mixer.

HAFFMHE and Concreting of the School Grounds are one-time implementation projects, with the possibility of HAFFMHE being re-implemented depending on project outcomes.

In each ASP, BNHS aims for longer-term effects to improve learners' lives and foster community advancement.

Effects of the Adopt-a-School Programs on the School's Performance

This section examines the outcomes of the various ASPs implemented by BNHS, alongside the school's performance as indicated by figures in the School Report Card. It delves into the effects of the distinct ASPs on beneficiaries and evaluates the effectiveness of projects and programs based on beneficiary appreciation and perception.

As suggested by Eby (2022), reviewing the project scope, assessing project requirements, examining the project budget, and gauging client and internal satisfaction are key methods for evaluating project success.

The initial components of BNHS' ASPs were discussed in earlier sections of this paper. The subsequent statements from beneficiaries assess whether project interventions under BNHS' ASPs have led to longer-term impacts and sustainable changes for beneficiaries and, eventually, target extension beneficiaries, as indicated in the SRC and in respondent statements.

These assessments include positive effects on beneficiaries, whether emotional or intellectual, as articulated during interviews. They also aim to determine whether intended problems have been successfully addressed. Ultimately, successful implementation of BNHS' ASPs will be reflected in the emulation of BNHS' ASPs by other institutions.

Based on the Perception of the Participants

The various Adopt-a-School Programs at Buenavista National High School were reviewed and assessed by the respondents based on their perceptions. This includes the advantages and disadvantages of implementing the ASP. The benefits of the participants being beneficiaries of the ASP were highlighted. Likewise, the impressions and reactions of the respondents during the face-to-face interview were taken into consideration because the researcher believes that these have great impacts on the credibility of the project's success.

Table 23 reflects the efforts of the school implementing body in conducting the different Adopt-a-School Programs based on the statements of the beneficiaries of the programs.

Table 23

Efforts of the school through its Adopt-a-School Programs

Send Off Program for Players		
Theme	**Definition**	**Common Responses**
Reached out and inspired sports delegation members	The main objective of the Send Off Program for Players	*"Nagulat po ako, kami 'nung ina-nounce na may send-off program. Nakaka-touch naman po ang mga sinabi ng mga guro sa programa bago mag distribute ng goody bags. Naisip ko first time na nangyari ito sa akin, yung maramdaman ko ang suporta ng lahat, hindi lang ng coach. Sabi ko, Wow! Kailangan kong maging best player."* (Smiling. Overwhelmed). *"Mas na-inspired po akong makipag-compete sa Provincial at MIMAROPARAA dahil naiisip ko nakakahiya naman na todo suporta ang mga guro,magulang at buong Buenavista tapos hindi ko abigay 'yung the best ko.* *Bilang player mas disiplinado po ako dahil naisip ko hindi lang pangalan ko o ng event namin ang dala ko, kundi buong bayan ng Buenavista. Sabi ko 'pag nakapagtapos ako at nagka trabaho, ako naman ang susuporta sa mga players."* - Provincial and two-time Basketball MIMAROPAARAA player *"Malaki po ang naitulong ng send-off programs for players ng BNHS. Mas ginanahan po akong makipag-compete sa bawat event. Mas pinaunlad nito ang bawat manlalaro ng BNHS.* *Masaya po dahil mas na-inspire ang mga manlalaro ng BNHS. Naibigay nila ang tulong panganagilangan ng mga players."* - Taekwondo Player - Provincial Silver Medalist *"Unang-una natuwa ako dahil coach, ako ay natuwa dahil may tumugon sa pangangailangan ng aming mga players.* *Ganun pa man at nakakahiya na dapat ang coach o teacher ay mag-provide ng sarili nilang panganagilangan, nakakatuwa dahil kasama ang mga coaches sa binigyan ng tulong.* *Ang alam ko pong focus ng programa ay BNHS lang. Subalit dahil mahusay ang nag-organisa ng proyekto at pilantropo ang mga sponsors. Ako po'y lubos ang kagalakan na ang buong cluster ng Buenavista ay nabibiyayaan ng ganitong programa. Sana po sa sunod pa ay higit duon at hindi lamang high school kundi kasama na rin ang elementarya."* - BNHS PESS Coordinator and Coach

Healing and Firming Families for a More Holistic Education (HAFFMHE)		
Theme	**Definition**	**Common Responses**

Realization and Appreciation of Parental Roles	The beneficiary parent realized her role as a parent through the ASP of the school. The beneficiary appreciated the effort made by the school by holding the ASP.	*"Malaki ang naitulong. Naibahagi ang konting pangangailangan ng aming mag-ina tulad ng spaghetti, bigas, sardinas, gatas, kape, asukal, noodles at mga biscuits."* *"Masaya po ako. Napa-aga ang punta ko sa school. Naisip ko na dapat maaga at mapila pa para makapirma sa attendance. Sinabihan ko mga anak ko na mag-aral mabuti at 'pag sila sy nakatapos at naging maayos ang buhay ay sila naman ang matulong sa iba."* *"Nagapasalamat ako at napasama sa mga nakatanggap. Ito pa naman 'yung panahon na walang-wala kami dahil sa dami ng gastos ' nung na hospital at namatay ang asawa ko."* (Naiiyak na nagsasalita. Garalgal ang boses) - widowed *"Mas na-appreciate ko ang pag-aral dahil may mga taong gustong tumulong sa amin kahit papano."* *"Masaya dahil napasama sa nabigyan ng mga biyaya."* - orphaned
Forum on Teenage Pregnancy and Early Marriage Forum		
Theme	**Definition**	**Common Responses**
Self-realization and awareness	The beneficiary realized something after benefiting from the ASP	*"Natutunan at nalaman ko ang mga maaaring mangyari kapag naging isang batang ina. Ipinakita 'dun 'yung mga posibleng mangyari kapag ma-aga ang pagbubuntis.* *Naisip ko sana hindi mangyari sa akin 'yun. Pero sa hirap ng buhay ay hindi rin naiwasan.* *Na-realize ko na tama at maganda ang mga ipinakita ni Dra. sa mga videos dahil 'yung iba nasubok lang nang nasubok hindi naiisip ang akalabasan ng kanilang ginagawa"* - Former student of BNHS who attended the forum on Teenage Pregnancy and Early Marriage *"Nagkaroon ako ng self-realization at self- awareness about sa teenage pregnancy. Natutunan ko kung paano ba ito maiiwasan at 'yung mga kaakibat na responsibility if ever na mangyari ito. Malaki ang impact nito sa pagkatao ko ngayon dahil naging mulat ako sa reyalidad ng buhay . . . mapalad ako dahil isa ako sa mga mag-aaral na nabigyan ng pagkakataong mauto at maging bukas ang kaisipan patungkol sa isyung ito."*- Former student of BNHS who attended the forum and was hailed as 2022 Miss World Tourism Philippines

In every ASP launched by BNHS, beneficiaries reported feeling inspired, challenged, appreciated, and realizing new insights, as reflected in interview statements. These effects stem from the diligent efforts of the implementing bodies, consistent donor support, and contributions from all involved in realizing each project. The positive outcomes following each program's implementation have motivated BNHS and its implementing bodies to continue pursuing their objectives through annual implementation.

Dumpit (2021) assured a strong correlation between school improvement and community involvement, noting that increased school improvement results from both community involvement and the Adopt-A-School Program. Organizations adopting BNHS programs benefit from positive public relations through their engagement with a critical community component. Lubienski et al. (2018) confirmed that schools benefit from this involvement, as students gain enrichment from programs that expand their knowledge base, and school staff and faculty receive necessary support.

Interviewee responses highlighted their appreciation and recognition of BNHS's efforts, particularly for the Send Off Program, which motivated players to excel and increased the number of awards received by the school and district in the Provincial Meet. A former Provincial and two-time Basketball MIMAROPAARAA player expressed his overwhelming appreciation for the program during its first implementation, underscoring the program's positive impact on the participants.

“Nagulat po ako, kami ‘nung ina-nounce na may send-off program. Nakakatouch naman po ang mga sinabi ng mga guro sa programa bago mag distribute ng goody bags. Naisip ko first time na nangyari ito sa akin, yung maramdaman ko ang suporta ng lahat, hindi lang ng coach.”

Another athlete, the former Taekwondo Provincial Medalist, made a positive comment about the program.
“Malaki po ang naitulong ng send-off program for players ng BNHS. Mas ginanahan po akong makipag-compete sa bawat event. Mas pinaunlad nito ang bawat manlalaro ng BNHS.”

According to Amaro (2020), engaging in high school athletics offers enduring and indisputable advantages, particularly when athletic administrators foster a climate that both encourages and tests the growth attitude. When individuals receive this kind of help, they form behaviors that last into high school.

One of the players said,
"Sabi ko, Wow! Kailangan kong maging MVP." (face lighted).

The players were even reminding themselves to be more disciplined because of what they heard from the speakers during the send-off program. Moreover, they pledged themselves to do the same thing.

"Bilang player mas disiplinado po ako dahil naisip ko hindi lang pangalan ko o ng event namin ang dala ko, kundi buong bayan ng Buenavista."

One of them said,
“Sabi ko ‘pag nakapagtapos ako at nagka trabaho, ako naman ang susuporta sa mga players.”

The unanticipated domino effect of the program on the players and the community was a success on the part of BNHS.

Beneficiary players of the Send-Off Program claimed the success of the program by the changes and realizations they had based on their experiences in the ASP. They felt the community's enthusiastic support gave them a hard push to do their best during the provincial meet, thinking the entire district of Buenavista was competing with them.

Even one of the coaches appreciated the efforts extended by BNHS to the players.

“Unang-una natuwa ako dahil coach ako. Ako ay natuwa dahil may tumugon sa pangangailangan ng aming mga players.”

On the other hand, the School PESS Coordinator and coach were both delighted and inspired by the effort extended, which benefited both the players and the coaches. This positive outcome was contrary to the coach's initial expectation that only BNHS players would benefit. The program's benefits were extended to include not only the BNHS coaches but also the coaches and players from secondary schools throughout the entire district. This broader impact underscored the program's inclusive and far-reaching influence, contributing to a more comprehensive and supportive environment for all participants involved in the district's athletic programs.

“Ang alam ko pong focus ng programa ay BNHS lang. Subalit dahil mahusay ang nag-organisa ng proyekto at pilantropo ang mga sponsors, ako po’y lubos ang kagalakan na ang buong cluster ng Buenavista ay nabibiyayaan ng ganitong programa. Sana po sa sunod pa ay higit duon at hindi lamang high school kundi kasama na rin ang elementarya.”

The PESS Coordinator expressed a desire for the program to be extended to the entire district in the next year of its implementation. This wish was realized the following year when the district supervisor aimed to benefit the delegation of the entire district. Amaro (2020) emphasized that schools providing athletic opportunities and support help players and students maintain lifelong habits. The progressive achievements in the Provincial Meet and the athletes' positive evaluations of the ASP reflect the value they place on the support extended to them. This support leaves a lasting impact on their lives, as they remember being encouraged and supported during their competitive years.

For the ASP Healing and Firming for a More Holistic Education (HAFFMHE) beneficiaries, the program was successful due to the realization of parental roles and the appreciation expressed by parents. This activity aimed to bridge the connection between the school and special members of the parent community, such as solo parents, widowed parents, and orphaned students. Dagupon and Garin (2022) define a solo parent as someone who lives alone or without a partner, raising a child or children on their own. In most cases, this role is taken up by mothers.

ChalkyPapers (2023) explained that the partnership between the community and the school benefits both sides. Schools significantly impact neighborhoods by meeting the critical need for local children's education. As a result, communities can help schools establish mutually beneficial relationships, creating a positive learning environment and helping students internalize values and cultural norms. One of the intangible contributions of BNHS to the community through this ASP is that parents became more inspired to do their best for their children, working both as mother and father.

Overall, the involvement of the community in supporting ASPs like HAFFMHE fostered a more inclusive and supportive environment, encouraging parents to take an active role in their children's education and well-being. This collaboration between the school and the

community is essential for creating a nurturing environment that benefits students and their families.

A separated parent said,
“Para po sa akin ay successful ang programa. Mas na-appreciate ko po ‘yung mga anak ko. Na kahit walang suporta ang ama nila ay mas na-appreciate ko malasakit ng BNHS. Naiisip pa nila ang mga kalagayan ng bawat estudyante bukod pa sa aturo nila.”

Another indicator of the programs’ success was the intangible contribution to the parents that they felt being challenged because of what BNHS did for their children and being thankful for having been included among the beneficiaries.

“Successful po ang programa. Mas na-realize ko bilang magulang na dapat mas magsikap ako. Kung ibang tao nga may malasakit sa amin dapat mas may malasakit kami sa myembro ng pamilya.”

“Hindi ko po inaasahan na ako po’y mapasama sa ganung programa para sa mga single parents sa BNHS. Kaya ako po’y nagapasalamat”

This activity had a profound impact on one of the parents because when the activity occurred, it was weeks right after the death of her husband. The widow said,
“Ito pa naman ‘yung panahon na walang-wala kami dahil sa dami ng gastos ‘nung nasa hospital at namatay ang asawa ko.” (Crying talking. The voice was scratchy).

“Malaki ang naitulong. Naibahagi ang konting pangangailangan ng aming mag-ina tulad ng spaghetti, bigas, sardinas, gatas, kape, asukal, noodles at mga biscuits.”

The widowed encouraged her children to do the same once they succeeded in life.
“Masaya po ako…Sinabihan ko mga anak ko na mag-aral mabuti at ‘pag sila ay nakatapos at naging maayos ang buhay ay sila naman ang matulong sa iba.”

The statement of the widowed parent strongly supports Little (n.d.) that everyone gains when educational institutions and neighborhood organizations collaborate to enhance learning. Partnerships truly help to increase program quality, make better use of resources, and better align goals and curricula by strengthening, supporting, and even transforming individual partners.

Not only the parents were able to appreciate the program, but also the children.
“Mas na-appreciate ko ang pag-aral dahil may mga taong gustong tumulong sa amin kahit papano. Masaya dahil napasama sa nabigyan ng mga biyaya.”

The program may not have fully met the beneficiaries' needs, but it provided them with assistance that was deeply appreciated for its purposes and intentions. Dumpit (2021) acknowledged that the government and schools might not be able to offer a straight remedy without outside help. Therefore, the school head must ensure that partnerships and volunteerism in schools through community participation are crucial to maintaining and raising the standard of public education.

Regarding the beneficiaries of the Teenage Pregnancy and Early Marriage Forum, the realization on their part is the best indicator that proved the program's success. The forum made them fully aware of their reproductive health and related topics, helping them become sexually responsible individuals and parents someday. This initiative by BNHS could help reduce the worldwide cases of unplanned pregnancies. Nearly half of pregnancies worldwide are unplanned, and over 218 million women lack access to birth control. There are many innovative instances of advancement in reducing the unmet need for family planning, promoting gender equity, and lowering birth rates, from Guatemala to Kenya and the Philippines (Peluso, 2023).

One of the beneficiaries, who became a mother at an early age months after attending the forum, admitted that she was informed about the consequences but ironically failed to practice what she heard. The realization came after facing the results of her actions. This underscores the importance of such forums in providing critical information and the ongoing need for support and education to help young individuals make informed decisions.

The Teen Pregnancy and Early Marriage Forum highlights the importance of continuous education and support. While the immediate impact might not be visible for all attendees, the long-term benefits and the gradual shift in awareness and behavior can contribute to reducing teenage pregnancies and promoting responsible sexual behavior. This aligns with global efforts to address unplanned pregnancies and improve reproductive health education.

“Successful po ang programa. Natutunan at nalaman ko ang mga maaaring mangyari kapag naging isang batang ina. Ipinakita ‘dun ‘yung mga posibleng mangyari kapag ma-aga ang pagbubuntis.

“Na-realize ko na tama at maganda ang mga ipinakita ni Doktora sa mga videos dahil ‘yung iba nasubok lang nang nasubok hindi naiisip ang akalabasan ng kanilang ginagawa”, she uttered with hesitation on her face.

Though there was regret on her part, realization was the only thing that was left.

"Naisip ko sana hindi mangyari sa akin ‘yun. Pero sa hirap ng buhay ay hindi rin naiwasan," she added.

Unlike the other beneficiary, a former student of BNHS who attended the forum and was hailed as the 2022 Miss World Tourism Philippines, realized the possible outcomes right before she got involved into a difficult situation. She directly stated,

“Para po sa akin ay successful ang programa. Nagkaroon ako ng self-realization at self-awareness about sa teenage pregnancy.Natutunan ko kung paano ba ito maiiwasan at ‘yung mga kaakibat na responsibility if ever na mangyari ito. Malaki ang impact nito sa pagkatao ko ngayon dahil naging mulat ako sa reyalidad ng buhay.”

“Para sa akin, mapalad ako dahil isa ako sa mga mag-aaral na nabigyan ng pagkakataong matuto at maging bukas ang kaisipan patungkol sa isyung ito.” (Smiling.)

Her appreciation for learning about life through attending the ASP on Teenage Pregnancy and Early Marriage was evident in her smile. This program not only addresses the current conditions of the beneficiaries but also impacts their future. Khan et al. (2019) emphasized that young adults' reproductive health involves their ability to recognize and manage risks and implications associated with it. A girl's adolescent experiences significantly influence her life and the lives of her family members.

The beneficiaries confirmed during face-to-face interviews that the ASPs of BNHS positively contributed not only to the learners but also to their families and community members. This feedback highlights the far-reaching impact of the programs, which extend beyond immediate educational outcomes to broader social and familial benefits. It can be inferred that if families benefited from the programs, community therefore benefited in the implementation of the ASPs.

The BNHS ASPs have shown that well-designed and thoughtfully implemented programs can create a ripple effect, fostering a supportive environment for learners, their families, and the wider community. These initiatives not only enhance educational experiences but also contribute to the holistic development of individuals, equipping them with the knowledge and skills needed to navigate various life challenges.

School and community partnerships can provide students today with a better education and help with the demands put on the schools to meet expectations set by the Department of Education. Through communities in schools, students can have access to resources that can help them succeed in school. The benefits of community and school partnerships are numerous. The community can support educators in an ever-evolving world where there is increased pressure on them to ensure that pupils meet high standards of excellence.

Table 24 contains the statements of the participant beneficiaries of the programs justifying that the problems affecting the learning of the students were remedied by the Adopt-a-School Programs of Buenavista National high School.

Table 24

Adopt-a-School Programs Addressed the Problems

Send-off Program for Players		
Theme	**Definition**	**Common Responses**
Problem addressed	The ASP was able to remedy,solve and give solution to the problem	*"Opp. Malaking bagay sa isang player 'yung may basic needs ka ng baon papunta sa competition katulad ng shampoo, sabon, toothpaste, toothbrush, deodorant, medyas, face towel, biscuit, milo energen at gatorade. Nakakabawas bigat sa isipin ng player 'yung mga pangangailangang ganun. 'Pag MIMAROPARAA nga po ay may cash allowance pa ako." (Somewhat like surprised by the added assistance as a regional player)* - Provincial and MIMAROPARAA Player *"Opp. Dahil binigyan din po kami ng dagdag kaalaman at impormasyon bago pa mag-distribute ng mga goody bags. Nabibigyan ng karagdagang pangangailangan ang mga manlalaro."* - Taekwondo Player

		"Naniniwala po ako na nakatugon ito pero yung' sasabihin po natin na 100% na pagtugon sa pangangailangan ng mga players ay siguro po'y hindi naibigay ang lahat 'yung isangdaang porsyento. Subalit nagpapasalamat pa rin ako dahil ano pa man ang kinaya ng budget ng programang ito, ay napakalaking tulong sa mga mag-aaral, players at coaches." - Coach and PESS Coordinator
Healing and Firming Families for a More Holistic Education- HAFFMHE		
		"Opo dahil sa mga pagkukulang ng mga magulang sa kanilang mga anak ay natutugunan ng mga teachers." - separated *"Nakatulong po sa amin kahit limitado ang naibigay ay nakatulong sa amin."* - widowed *"Natutugunan ang problema na dapat solusyunan. Nakakain kami dahil nabigyan at nakalibre ng pagkain,"* – orphaned
Forum on Teenage Pregnancy and Early Marriage		
		"*Natutugunan po dahil napaliwanagan po ang mga kabataan at nang matakot din po na mangatipan at magbuntis."* - former student *"Isa itong hakbang upang matugunan ang problema sa ating lipunan sapagkat dahil dito nagkaroon ng ka alaman ang mga kabataan patungkol sa lumalaganap na teen age pregnancy."* - former student

Government school systems, such as BNHS, have limited resources to achieve their objectives, making efficient resource use a primary goal of school activities. Through the ASPs of BNHS, issues arising from the school's budget scheme were addressed, and appropriate actions were taken. Astbury (2022) confirmed that these alternatives and strategies to rectify the issues are more suitable as short-term solutions, but they are still preferable to students' achieving goals that exceed the school's financial capabilities.

One hundred percent of the beneficiaries and respondents agreed that the ASPs had addressed the problems. The ASP Send Off Program for Players enabled the players to focus solely on their preparation for the competition, without being distracted by any other aspects. One beneficiary player commented and overwhelmingly expressed:

"Malaking bagay sa isang player 'yung may basic needs ka na baon papunta sa competition."

The MIMAROPARAA Player commented,
"Nakakabawas bigat sa isipin ng player 'yung mga pangangailangang ganun."

Added to this assistance to him as a player was pocket money for the regional event.

"Pag MIMAROPARAA nga po ay may cash allowance pa ako," he added to his statement.

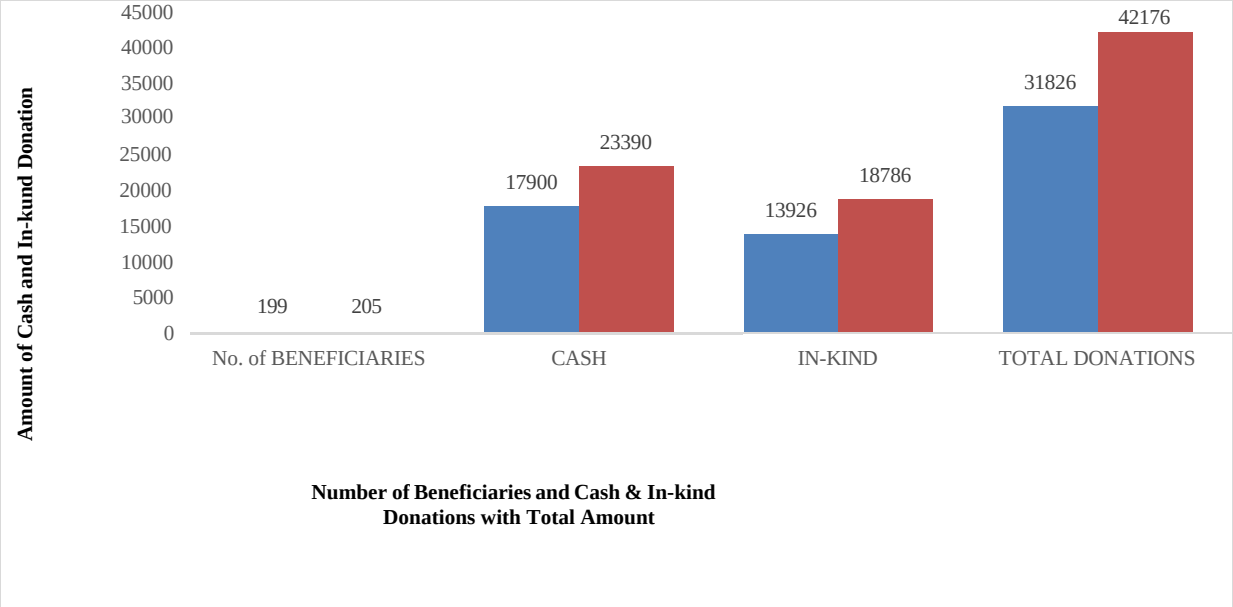
For the former provincial medalist in Taekwondo, there was more than the goods during the send-off program,
"Nabibigyan ng karagdagang pangangailangan ang mga manlalaro…binigyan din po kami ng dagdag kaalaman at impormasyon bago pa mag-distribute ng mga goody bags."

According to Amaro (2020), three of the most significant participation takeaways that students carry with them into their post-graduation years are: (a) a greater sense of self-confidence in forming relationships with others and possessing an increased capacity for empathy; (b) improving self-awareness and consequently understanding the impact of their actions on others; and (c) laying the groundwork for enduring fitness routines.

Figure 5 illustrates the graph of in-kind and cash donations for provincial players of Buenavista District.

Figure 5

Cash and In-Kind Donations for Send-Off Program for Players School Year 2018-2019 and School Year 2019-2020



Legend:

School Year 2018-2019 School Year 2019-2020

*No Provincial Meet in SY 2020-2022 due to Covid19 pandemic

Source: BNHS Sports Coordinator, Guidance Offices of Buenavista NHS and the Division of Marinduque Sports Committee

Figure 5, "Cash and In-Kind Donations for the Send-Off Program for Players, School Year 2018–2019 and School Year 2019–2020," illustrates the progress of in-kind and cash donations over the previous years of implementing the Send-Off Program for Players. The graph reflects the progressive support of donors and sponsors for the players, indicating a positive community response and successful implementation of the ASP.

In the school year 2018–2019, there were 199 beneficiaries of the program. The school, through the Guidance Offices, incurred seventeen thousand nine hundred pesos (P 17,900.00) in cash donations and received in-kind donations worth thirteen thousand nine hundred twenty-six pesos (P 13,926.00), totalling thirty-one thousand eight hundred twenty-six pesos (P 31,826.00). For the school year 2019–2020, there were 205 beneficiaries, with total cash donations of twenty-three thousand three hundred ninety

pesos (P 23,390.00) and in-kind donations worth eighteen thousand seven hundred eighty-six pesos (P 18,786.00).

The data reveal an increase in cash donations in the second year of implementation and a decrease in in-kind donations. This trend indicates that the organizers and proponents of the ASP successfully gained the trust of donors and sponsors. The increasing total amount of donations over the years justified the community's support for the BNHS project. The latest Send-Off Program saw an even greater total of ninety-four thousand five hundred sixty-five pesos and twenty-five centavos (P 94,565.25).

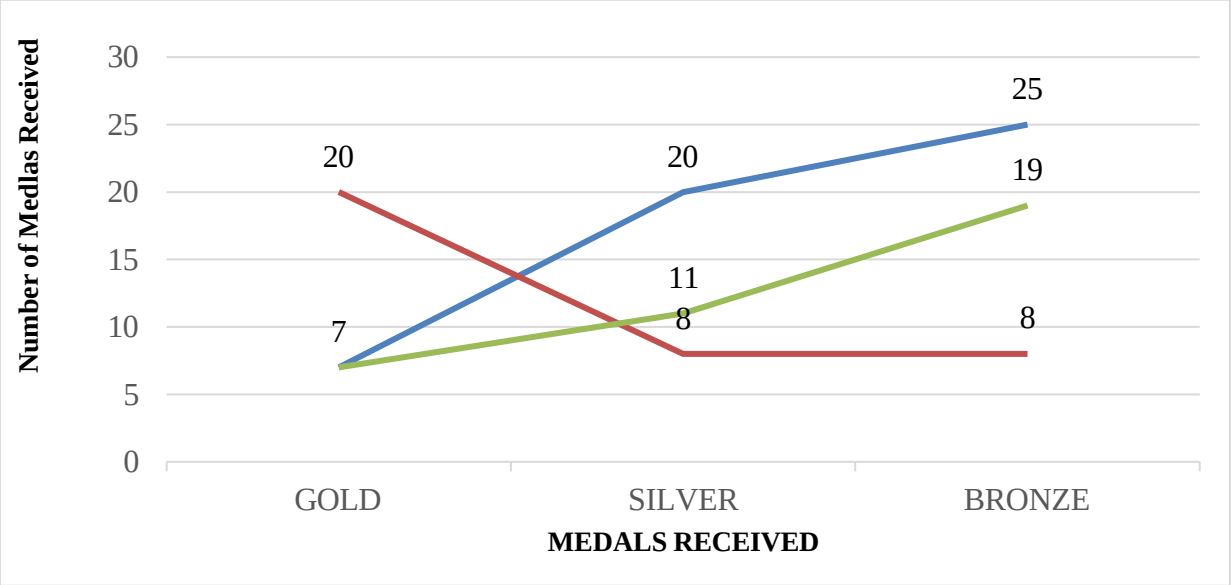
The School PESS Coordinator at BNHS noted that while the problem has not been fully addressed, the efforts put into the project are appreciated.

"Subalit nagpapasalamat pa rin ako dahil ano pa man ang kinaya ng budget ng programang ito, ay napakalaking tulong sa mga mag-aaral, players at coaches."

Figure 6 shows the trend of the medals received by Buenavista District in the previous implementations of the ASP.

Figure 6

Medals Received by Buenavista District in the Provincial Meet from School Year 2018-2019 to School Year 2022-2023



Legend:

2018-2019 2019-2020 2-2023

*No Provincial Meet in 2020-2022 due to Covid19 pandemic

Source: DepEd Division of Marinduque Sports Committee

For the ASP Send-Off Program for Players, there was noticeable progress in the number of medals received by the district, where most of the players came from BNHS, as reflected in Figure 6, "Medals Received by Buenavista District in the Provincial Meet From 2018 to 2023." This figure clearly shows a positive impact following the implementation of the ASP.

Each year, the line graph in Figure 6 indicates a progressive increase in the total number of medals won by the Buenavista District. This significant improvement in the performance of players and coaches in the Provincial Meet is evident from the data. In 2018, Buenavista District earned 19 bronzes, 11 silvers, and seven gold medals. In 2019, the district earned 20 bronzes, eight silver, and eight gold medals. By the latest 2023 games, the district had earned 25 bronzes, 20 silvers, and seven gold medals. The consistent improvement in performance each year suggests that the ASP has had a positive influence on the players' achievements during the competition.

The beneficiaries of the program widely believed in its benefits. One program beneficiary, a separated parent, viewed the ASP as a substitute for a father's unfulfilled commitment to his children, highlighting the program's positive personal impact.

“Opo dahil sa mga pagkukulang ng mga magulang sa kanilang mga anak ay natutugunan ng mga teachers.”

The other beneficiary parent appreciated the assistance although it was limited. “Nakatulong po sa amin kahit limitado ang naibigay ay nakatulong sa amin.”

A beneficiary student and child stated that they were able to eat because of the ASP, *“Natutugunan ang problema na dapat solusyunan. Nakakain kami dahil nabigyan at nakalibre ng pagkain,”*

Beneficiaries of the Teenage Pregnancy and Early Marriage Forum believe that the project addressed the problem and that they learned something from the ASP.

“Natutugunan po dahil napaliwanagan po ang mga kabataan at nang matakot din po na mangatipan at magbuntis.” stated by one of the attendees of the forum.

Added to this is the perception of the beauty queen, another attendee.
“Isa itong hakbang upang matugunan ang problema sa ating lipunan sapagkat dahil dito nagkaroon ng ka alaman ang mga kabataan patungkol sa lumalaganap na teenage pregnancy.”

Figure 4, "Teenage Pregnancy and Early Marriage Cases in Buenavista National High School from School Year 2018–2019 to School Year 2022–2023," shows a declining trend in these cases during the implementation of the ASP. This indicates the program's success in raising awareness among students about their reproductive health.

Khan et al. (2019) stated that given the mutual interaction of health and education, the school-based approach has been effective in behavior-oriented education in numerous cases. Adolescent girls who receive health education in school are more conscious of

their personal health and better equipped to safeguard their reproductive health from potential risks.

Adopting a school has advantages for all involved. Adopting the school gives the person or the organization a receives positive public relations because of its connection to such a significant segment of the community. The involvement helps the school because it exposes pupils to enriching programs that broaden their knowledge. The teaching personnel and the school head receives assistance in their endeavors. The parents feel less burdened in the financial aspect due to the extended assistance of the adopting entity that caters the needs of their children. Most of all the children will feel the support not only from their parents but also from the entire community. This will somehow encourage them to make a change for the betterment of their status in life.

Table 25 presents the statements of beneficiaries regarding the adopt-a-school programs held by Buenavista National High School. Their feedback reflects the effectiveness of these programs and their contributions to the students, parents, and community members. Additionally, the beneficiaries expressed their thoughts on the potential for other schools to emulate such programs.

Table 25

Emulation of Buenavista National High School's Adopt-a-School Programs

Send-off Program for Players		
Theme	**Definition**	**Common Responses**
BNHS' ASPs Emulation	ASPs of BNHS will be imitated or will try to be implemented by other schools or institutions to radiate their positive effects, further strengthen connections between the school and the community, and yield a better outcome for the various aspects of the learning environment.	*"Siguro po ay dapat itong gayahin, palaganapin sa anumang paaralan sa lalawigan sapagkat malaking tulong po ito lalong lalo na sa DepEd na kung saan ay kapos o kulang ang budget ng departamento sa sports development kaya't kailangan po natin ng mga bukas palad na mga tao, naorganizer na tutulong sa mga ganitong programa para sa mga players."* - Coach *"Maganda pong gawin ng bawat school ito. Halimbawa sa lahat ng schools ng Buenavista Cluster. Kapag ganyan po*
Send-off Program for Players		
Theme	**Definition**	**Common Responses**
		mas marami maiibigay sa players ng BNHS dahil yung programa po sa atin ay pang buong Buenavista ay kasama pati ang mga coaches sa pina babaunan ninyo. Mas mararamdaman po pati ng mga players ang suporta ng bawat community nila, mas inspired." - Player *"Mas okay na ibahagi ng bawat paaralan ang ganitong programa. Nakaka-inspire sa mga manlalaro na mapagbuti ang kanyang paglalaro sa napiling event. Sa ganitong paraan hindi malayo na maka-produce ang Buenavista ng isang National Player."* - Player

Healing and Firming Families for a More Holistic Education- HAFFMHE		
Theme	**Definition**	**Common Responses**
BNHS' ASPs Emulation		*"Ako po'y naniniwala na dapat subukan o isagawa ng ibang paaralan. Makakatulong po ito sa mga magulang at mga mag-aaral. Dahil sa kakulangan sa kinikita. Isa itong karagdargang pangangailangan sa araw-araw. Lalo na at aisa akong nakita. Ako'y naga sari-sari store lang. Ang makatawid sa pangangailangan sa ilang araw ay malaking bagay na."* - Separated *"Opo. Marami ang makikinabang. Kung kaya ng school (BNHS) ay bakit hindi gawin dahil ang daming nangangailangan. Napakalaking tulong na po 'nun para sa isang pamilya at nagataasan ang mga presyo ng bilihin.Hindi po ako nahiya pumila at 'yun ay biyaya."* - Widowed *"Opo. Maraming matutuwa dahil makakatanggap sila ng biyaya galing sa school."* - Orphan
Forum on Teenage Pregnancy and Early Marriage		
Theme	**Definition**	**Common Responses**
BNHS' ASPs Emulation		*"Dapat na maging proyekto ng ibang schools ito para mas marami ang nakaka-alam ng magiging buhay nila at maging handa upang maiwasan ang mga posibleng dahilan upang maging batang ina o ama. PAra mas malaman nila ang hirap ng buhay. Mas maunti ang mababuntis ng maaga at matatakot dahil sa mga videos na napapanuod."* - Former student *"Nararapat lang na isagawa ito ng ibang mga paaralan, dahil ang pagco-conduct ng mga symposium at orientation ay isa sa mabisang paraan upang maiwasan ng mga kabataan ang maagang pagkakaroon ng anak at pamilya, kung saan dito papasok ang comprehensive sex education, self-awareness, STD/HIV prevention and youth development."* - Former student

One hundred percent (100%) of the respondents believe that ASPs at BNHS have beneficial impacts and that other schools or institutions may implement them.

The first Adopt-a-School program of BNHS to be tried out by the other schools is the Send-off Program for players. As stated in one of the player's responses,
"Nakaka-inspire sa mga manlalaro na mapagbuti ang kanyang paglalaro sa napiling event. Sa ganitong paraan hindi malayo na maka-produce ang Buenavista ng isang National Player."

With this kind of project, players could feel the support they need evident in another player's response,
"Mas mararamdaman po pati ng mga players ang suporta ng bawat community nila, mas inspired."

As a government institution, the school is tasked under Program Objective 1 of DepEd Order No. 25 s. 2015, or the Implementing Guidelines on the Special Program in Sports,

to not only develop the academic aspect of the child but also its sports skills. BNHS strongly supports this advocacy of the department and be one of those pushes that could encourage athletes to pursue their passion for sports.

According to one of the players, if Send Off Program will be implemented by other schools,

"…mas marami maiibigay sa players ng BNHS dahil yung programa po sa atin ay pang buong Buenavista…"

Based on one of the coaches, not only does the entire district benefit from the outputs of such kinds of projects related to sports but also DepEd in the larger sense.

"… malaking tulong po ito lalong lalo na sa DepEd na kung saan ay kapos o kulang ang budget ng departamento sa sports development …"

Likewise, HAFFMHE must try to implement in other schools to strengthen the connection among family members and lighten their burden in relation to everyday needs occasionally.

Schools have historically prioritized family and community engagement in grades K–12. However, as pupils get older, parental involvement in schooling tends to decrease. According to some research, parental participation dropped by up to 17% between middle school and the third through fifth grades. This pattern, along with the continued difficulties in academic recovery, highlights the necessity of including and assisting more district community members in the K–12 school environment (Hanover Research, 2023).

"Makakatulong po ito sa mga magulang at mga mag-aaral. Dahil sa kakulangan sa kinikita… Lalo na at aisa akong nakita… Ang makatawid sa pangangailangan sa ilang araw ay malaking bagay na.", a separated parent stated.

Even though the supplies received by the families were very limited, their value is immeasurable for the beneficiaries,

"Napakalaking tulong na po 'nun para sa isang pamilya at naga-taasan ang mga presyo ng bilihin.", the reply of a single parent.

For families with a single working parent, having relief from a few days of expenses for their basic needs is significant. Beneficiaries may perceive the support of both the school and the community towards families like theirs when they receive these items. The school demonstrates concern not only for the education of its students but also for the welfare of the entire family. Delgado (2019) noted in his paper that experts on parental involvement in education assert that a family's level of engagement in a child's education is the most reliable predictor of that child's success. When students feel supported by their parents, they become more motivated and develop a passion for learning.

Furthermore, during the Forum on Teenage Pregnancy and Early Marriage, respondents expressed agreement that the ASP should be adopted by other schools because it would greatly assist in educating the younger generation about these prevalent issues. One

respondent, reflecting on personal experiences of failing to apply learned lessons, responded affirmatively when asked if other schools should implement similar projects.

"Para mas malaman nila ang hirap ng buhay. Mas maunti ang mabubuntis ng maaga at matatakot dahil sa mga videos na napapanuod."

According to one of the respondents, it is better to educate teenagers because they will be warned not to do something abruptly and unprepared for an unexpected consequence.

The other respondent of the ASP believes that this must be done by other schools as an effective way of preventing teenagers from getting too early into forming families.

"…dito papasok ang comprehensive sex education, self-awareness, STD/HIV prevention, and youth development."

With the ongoing implementation trend of the ASP Forum on Teenage Pregnancy and Early Marriage by the RHU in Buenavista, secondary schools in the district may not necessarily need to adopt the program outright. Instead, they could integrate follow-up sessions into other subject areas to serve as constant reminders of the information and lessons learned from the forum. The RHU of the LGU has been extending its services to secondary schools in the district by emulating the ASP Program of BNHS, facilitated by the annual coordination between BNHS and the RHU. This collaboration is expected to lead to a reduction in cases related to teenage pregnancy and early marriage, and with follow-up initiatives at home, it may foster the development of more responsible couples in the coming years.

The ASPs have proven to be beneficial for the beneficiaries, who suggest implementing similar programs in other schools to better understand the outcomes, based on their positive experiences.

However, beneficiaries are not the sole beneficiaries of the ASPs; BNHS itself has gained intangible benefits from implementing them. While these may not be immediately evident in material aspects or recognition, they likely manifest in strengthened connections between the school and its clientele, their families, and the community at large. Various individuals involved in each project may have experienced realizations, and there are likely underlying benefits that only future generations can fully appreciate, especially through the community's response to BNHS's needs and those of its future clientele.

Based on the School Report Card (SRC)

San Miguel (2019) elucidated that the guidelines for conducting the planning process at the school level were established through the release of DepED Order 44 series of 2015, titled "Guidelines on Enhanced School Improvement Planning (SIP) and School Report Card (SRC)." The Department of Education reiterated that the SRC is a key component of the DepEd School-Based Management initiative, to be prepared twice a year by each school during the school year. Its purpose is to enhance shared governance, raise community and stakeholder awareness, and encourage greater community involvement in improving the learning environment at the school.

Parafina (2018) further elaborated that the SRC provides comprehensive information on all essential aspects of the school. In this paper, the summarized SRC data of BNHS somehow reflects the differences or contributions made by the ASPs of BNHS, which have contributed to the school's current level of performance as indicated in the SRC.

Table 26 presents the data included in the school report card of Buenavista National High School, essential for measuring and addressing the inquiries covered by this study. This data serves to justify the improvement in the school's performance in previous school years.

Table 26

Summarized Data on the School Report Card of Buenavista National High School from School Year 2018-2019 to School Year 2021-2022

School Year	Enrollment	Health & Nutritional Status		Teachers' Highest Educational Attainment		Funding Sources	School Award & Recognition	Status of Annual Implementation Plan	Stakeholders Participation
		Inside Normal	Outside Normal	With Masters Degree	Without Masters Degree				
2021-2022	1510	N/A	N/A	38	17	MOOE 1, 577,999.61, Donations 76, 560.00 HAFFMHE	2National 4Regional 4Division 1District	100% Completed	Contributions & Participations by Private & Public Sectors
2020-2021	1,500	N/A	N/A	45	9	MOOE-1,578.000.00 Donations - 61, 101.00	Not Available	100% Completed	Not Available
2019-2020	1354	768	103	33	21	MOOE-1,578, 000, Canteen-16, 938.00, Donations-47, 150.00, Others - 160, 000.00	1National IDivision 4District	100% Completed	Financial Support 47,150 Private Individual & LGU Municipality
2018-2019	1355					Alumni Donation 100, 000.00 School Grounds			

School Year	Availability of Books	Rate of Dropouts by Cause	Promotion Rate	Literacy Level		Learner-Teacher Ratio	Learner-Classroom Ratio	Learner-Toilet Ratio	Learner-Seat Ratio
				English	Filipino				
2021-2022	75.03	0.6 % Domestic Related Factors	100.00	N/A	N/A	40.38	6:27 Lacking 7 Classrooms	54:1 Lacking 2 toilets	100:71 Lacking if 429 seats
2020-2021	75.79	3.47% Cause-Individual-Related Factors	99.81	N/A	N/A	40.38	6:27	54:1 Lacking 2 toilets	100:71 Lacking 429 seats
2019-2020	83.78	3.84 Cause-Individual-Related Factors	95.37	40.38	57.93	40.38	6:27 Lacking 2 Classrooms	48:1	100:79 Lacking 283 seats
2018-2019	N/A	2.8 Cause-Individual-Related Factors	95.81	N/A	N/A	N/A	N/A	N/A	N/A

Source: Principal's Office of Buenavista National High School

In Table 26, "Summarized Data on the School Report Card of Buenavista National High School from School Year 2018-2019 to School Year 2021-2022," information has been compiled from the past four consecutive school years. However, certain aspects of BNHS's SRC mentioned in this paper, such as the teacher-to-student ratio, chair-to-student ratio, and books-to-student ratio, were not observed during the COVID-19 pandemic. Data for the SY 2018-2019 were particularly limited. The data summarized and presented here were gathered and provided to the researcher during the period when this study was conducted.

Each category of the SRC will be comprehensively discussed in the following sections, accompanied by graphical presentations to facilitate a better understanding of the data collected during face-to-face interviews with the respondents.

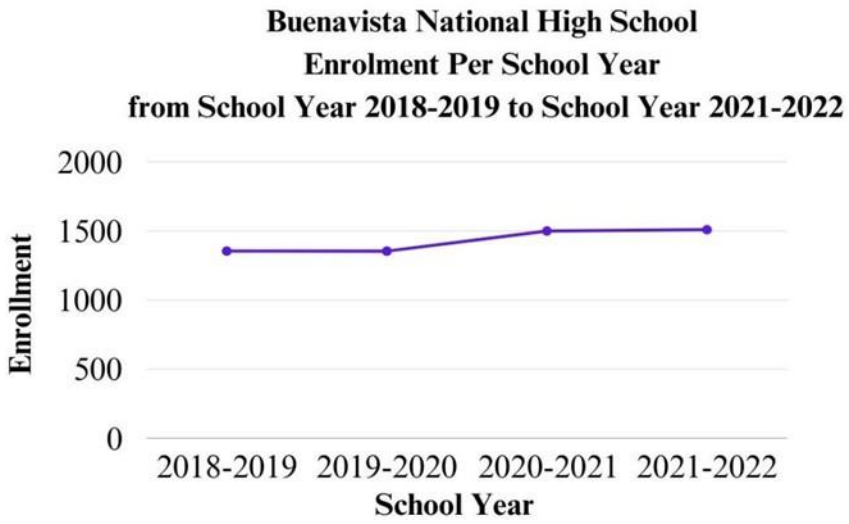
Enrolment Per School Year

Figure 6 is the graph of Buenavista National High School's enrolment from school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Below is the graph of Buenavista National High School's enrolment from school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Figure 6

Buenavista National High School
Enrolment Per School Year from School Year 2018-2019 to School Year 2021-2022



Source: Buenavista National High School School Report Card

In the school year 2018–2019, enrolment stood at 1,355 students. Subsequently, there was a slight increase 1,354 students in the school year 2019–2020, followed by a more significant rise 1,500 students in 2020–2021, and 1,510 students in 2021–2022. These figures indicate a progressive increase, suggesting that members of the community had confidence in BNHS's ability to accommodate their children and provide the necessary education for them to become competent individuals, despite other schools in the neighboring barangays**.**

Health and Nutritional Status

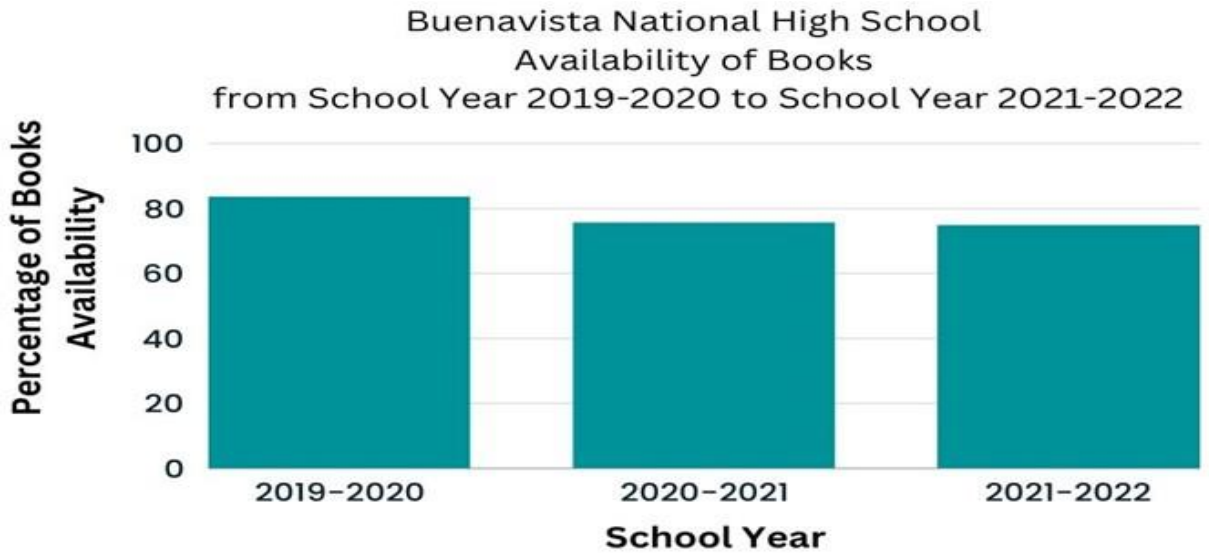
In the SY 2018-2019, no data were entered. However, in SY 2019-2020, there were 768 students within the normal range and 103 students outside the normal range, representing almost 25% of the total student population. Due to the pandemic, no weighing of students was conducted, making it difficult to gauge the effectiveness of the ASP's contribution to the school's progress. However, the ASP HAFFMHE was implemented in SY 2021-2022 to support the nutritional needs of learners, although this was not reflected in the SRC under donations, possibly due to the failure to update the school's SRC. The school anticipated a progressive improvement in the learners' nutritional status during the pandemic, with support from the Department of Education in the form of health supplies allocated from the MOOE, including face masks, alcohol, gloves, and sanitizers issued to both teachers and learners. Additionally, the LGU provided health supplies for learners, which were reflected in the SRC counterpart of the LGU.

Availability of Books

Below is the graph of Buenavista National High School’s availability of books from school year 2019-2019 to school year 2021-2022 extracted from the SRC of the school.

Figure 8

Buenavista National High School School Report Card
Availability of Books from School Year 2019-2020 to School Year 2021-2022



Source: Buenavista National High School School Report Card

There was a decline in the percentage availability of books. Data in the graph show that there was 83.78% in the SY 2019-2020, 75.79% in the SY 2020-2021, and 75.03% in the SY 2021-2022. Deliveries of modules and books were made in the SY 2022-2023. No ASP for books during these school years.

In addition to having no access to books during the pandemic, few students nowadays read books; instead, they read online using the application or through social media for their activities.

Teachers' Highest Educational Attainment

Next noteworthy element of the SRC is the number of teachers in each category of the Highest Educational Attainment. It shows that the number of faculty members who were taking masteral degrees progressively increased from 33 in SY 2019-2020 to 45 in the following year, SY 2020-2021. The number of teachers taking masteral degree decreased in SY 2021-2022, having 38 only. In this period, localization was availed of by some of the faculty members who were presently residing in distant municipalities.

The positive movement in the number of teachers with masteral degrees was due to the encouragement of the school head during LAC sessions for the faculty members to further their education because of the new guidelines for the promotion of teachers. Added to this is the awareness of the teachers that they need to further their knowledge in serving the technology-updated generation of learners.

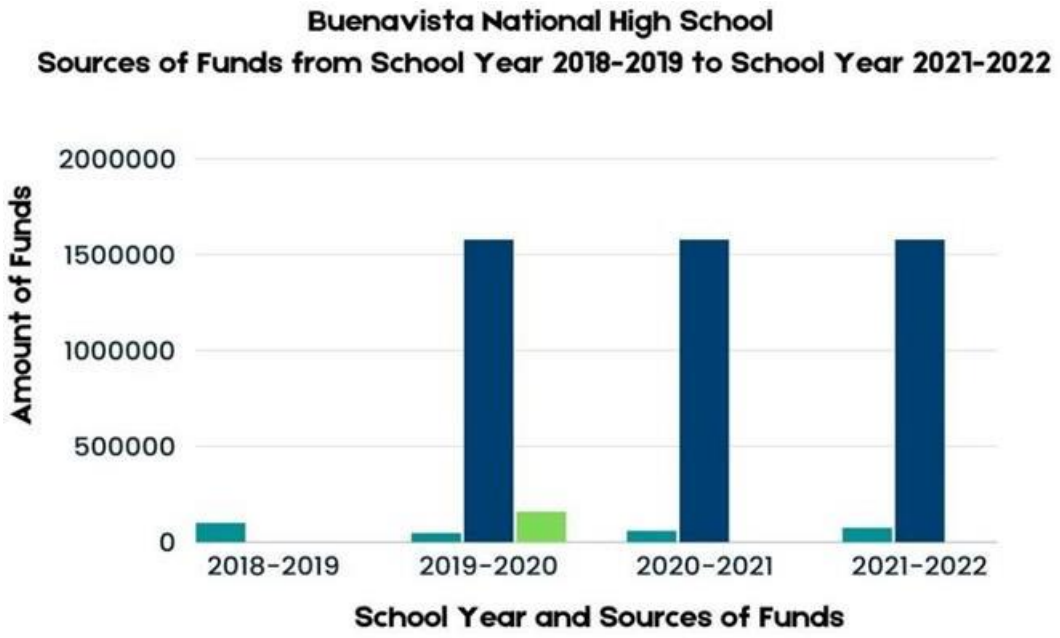
Funding Sources

Figure 8 reflects Buenavista National High School's funding sources from school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Below is the graph of Buenavista National High School's funding sources from school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Figure 8

Buenavista National High School
Funding Sources from School Year 2018-2019 to School Year 2021-2022



*Source:*Buenavista National High School School Report Card

The indicator "Sources of Funds" consistently included two main counterparts: Maintenance and Other Operating Expenses (MOOE) and donations, for the four previous school years at BNHS. The total funding sources ranged between 1,578,000.00 PHP to 1,803,000.00 PHP. Figure 8, "Buenavista National High School Funding Sources SY 2018-2019 to SY 2021-2022," directly reflects the percentage share of the ASPs of the school and the counterpart of the other resources. Donations through the ASPs were an indispensable portion of the funding sources for Buenavista National High School and any public schools.

In SY 2018-2019, donations from alumni, estimated at 100,000.00 PHP for concreting the school grounds, were not reflected in the SRC of the school.

In SY 2019-2020, the total fund was 1,802,088.00 PHP. In this included 1,578,000.00 PHP MOOE; 16,938.00 PHP from canteen shares; 47,150.00 PHP in donations; and other unspecified resources comprising 160,000.00 PHP.

For SY 2020-2021, the total funding source was 1,639,101.00 PHP. The MOOE allotment was 1,578,000.00 PHP, with total donations amounting to 61,101.00 PHP.

In the previous school year 2021-2022, the total funding source was 1,654,559.61 PHP. This comprised MOOE with 1,577,999.61 PHP, and donations worth 76,560.00 PHP.

These data reflect the increasing needs of BNHS over the previous four school years. As the demand of the learners increases, the ASP share also increases. This indicates that stakeholders and other community members can sustain the assistance needed by the school each year.

School Award & Recognition

Below is the graph of Buenavista National High School's school award and recognition from the school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Figure 9

Buenavista National High School School Report Card
School Award and Recognition from School Year 2018-2019 to School Year 2021-2022



Note: Only the number of awards per level was indicated not the rank obtained from the level.

Source: Buenavista National High School School Report Card

The School Awards and Recognitions received by BNHS are the most notable part of the SRC. Despite the challenges posed by the pandemic, the school continued to excel. In SY 2019–2020, BNHS received six awards: four at the District Level, one at the Division Level, and one at the National Level. However, in 2021-2022, BNHS achieved a remarkable 11 awards: two at the National Level, four at the Regional Level, four at the Division Level, and one at the District Level. This significant increase in awards nearly doubled the school's previous achievements.

The courage of the participants to compete during the pandemic can be attributed to the encouragement and support of the coaches, teachers, parents, and the school head, alongside the abundant talent among the students. Financial support provided through the ASP of the school also played a crucial role in enabling participation in these competitions.

Status of Annual Implementation Plan

The Status of Annual Implementation Plan maintained a one hundred percent (100%) yield by the school over the previous three school years, from 2019–2020 to 2021–2022. This clearly indicates that the school faithfully executed the set annual programs and projects in the School Improvement Plan through collaborative efforts from various components of the learning environment, both internal and external.

Stakeholders' Participation, as emphasized by Siles (n.d.), involves shared understanding and active involvement in decision-making processes, leading to empowerment and shared project ownership. This indicator strongly supports the successful implementation of the school's ASPs, consistently demonstrating their integral role in every aspect of the school's endeavors.

Before the pandemic hit in SY 2019–2020, the school received financial support totaling 47,150 PHP from private individuals and the LGU. However, there was a decline in stakeholders' participation in SY 2020–2021 due to the peak of COVID-19. Fortunately, after the pandemic subsided in SY 2021-2022, the school received a total 863,543 PHP from contributions and participation of the private and public sectors, once again facilitated through the ASPs of the school.

Stakeholders' Participation

Siles (n.d.) emphasized that stakeholder participation in the project entails having a shared understanding and taking part in the decision-making process. Empowerment and shared project ownership result from it, which means the project should begin with consultation and end with decisions made in unison in order to maximize involvement.

This indicator strongly justified the successful implementation of the school's ASPs by remarkably setting its consistent piece of the pie in every endeavor of the school. Before the pandemic enraged the school year 2019–2020, the school was able to avail financial support with a total worth of forty-seven thousand one hundred fifty pesos (47,150 PHP) from private individuals and from the LGU of the municipality. There was a gap in the

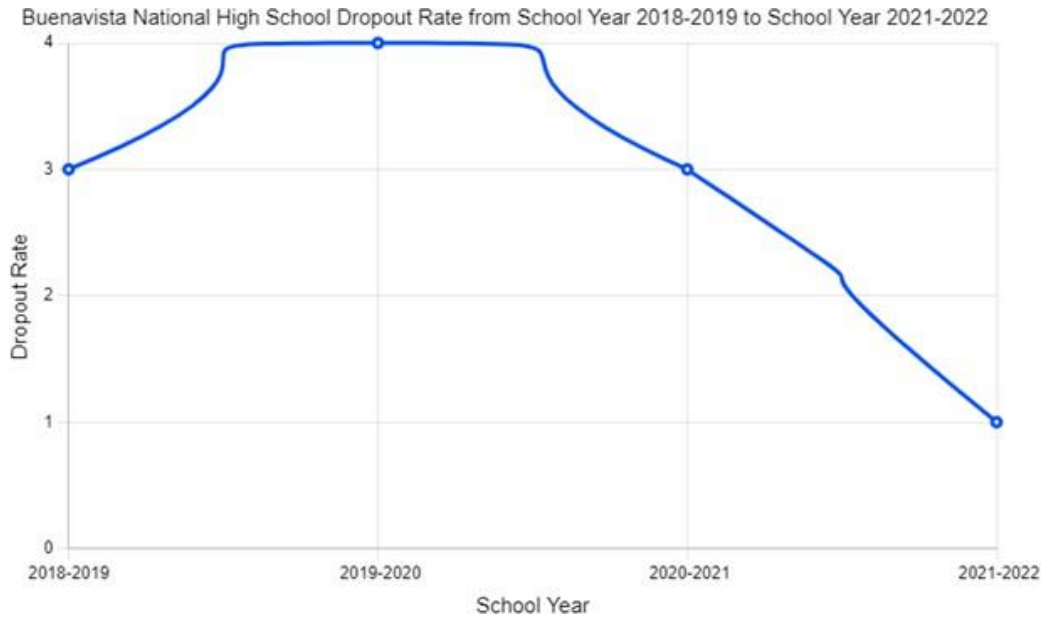
stakeholders' participation in the school year 2020–2021 due to the peak level of COVID-19. Right after the pandemic ends in the school year 2021-2022, the school was able to receive a total of eight hundred sixty-three thousand five hundred forty-three pesos (863,543 PHP) from the contributions and participation of the private and public sectors. Again, these were under the ASPs of the school.

Rate of Dropouts by Cause

Below is the graph of Buenavista National High School's dropout rate from school year 2018-2019 to school year 2021-2022 extracted from the SRC of the school.

Figure 11

Buenavista National High School
Dropout Rate from School Year 2018-2019 to School Year 2021-2022



Source: Buenavista National High School School Report Card

An indication of the efficacy of a nation's educational system is the percentage of students that drop out and miss school. They are important indicators of the challenges the nation's education system may face in the future (Samuel, 2023).

Another positive indicator of a performing school is the declining number of drop- outs. For BNHS, it decreased with a big difference from 52 students to 9 students. The increasing data on enrollment revealed that the school can encourage students to finish their studies despite the challenges they are facing. Nonetheless, data on the drop-out

rate showed a significant decrease from 52 in the first two years to 9 in the current school year, 2022-2023. This could be attributed to the situation during the pandemic and the campaign by BNHS to go back to school. The common reasons for students to drop out of school in the school years 2018–2019 and 2019–2020 were individual-related factors, while in the school year 2020–2021, it was domestic-related factors. These were the target objectives of the guidance offices in formulating the ASPs for the school.

Promotion Rate

BNHS maintained a high promotion rate ranging from 95% to 100% over the past four school years. This consistency indicates the school's commitment to advancing students to subsequent grades or graduation levels. The small fluctuations observed in the promotion rates are minimal and likely within the expected variation.

Literacy Level

Limited data were available for the literacy level aspect of the SRC, with data only available for SY 2019-2020 showing percentages in English and Filipino. This scarcity of data may hinder a comprehensive analysis of literacy trends over time.

Learner-Teacher Ratio

BNHS faces challenges in maintaining an ideal learner-teacher ratio due to a lack of classrooms. Despite efforts such as assigning co-advisers and maximizing available space, the average number of students per advisory remains high, ranging from 45-55 students. This situation underscores the urgent need for additional classrooms to improve the learning environment.

Learner-Classroom Ratio

The school struggles with inadequate classroom space, particularly for junior high school teachers who lack faculty rooms. The shortage of classrooms has persisted over the past two school years, with the current need estimated at ten (10) classrooms to meet DepEd's standards. The delay in classroom construction due to space constraints highlights the importance of collaboration with stakeholders to address infrastructure needs.

Learner-Toilet Ratio

Despite having functional and clean toilets, BNHS faces challenges in maintaining an adequate learner-to-toilet ratio, as the increasing student population has outpaced toilet facilities' capacity. The limited space available presents obstacles to expanding toilet facilities, indicating the need for creative solutions to address this issue.

Learner-Seat Ratio

BNHS experiences a shortage of seats, with the number of lacking chairs increasing over the past two school years. The school is exploring strategies to remodel existing chairs

to meet students' needs. However, the persistent shortage underscores the necessity for additional resources to ensure adequate seating for all learners.

Overall, while BNHS has made significant strides in various aspects of its SRC over the past four years, challenges such as infrastructure limitations persist. Collaboration with stakeholders and creative solutions will be essential in addressing these challenges to further improve the school's performance and meet the evolving needs of its learners.

Keys to the Successful Implementation of Buenavista National High School's Adopt-a-School Programs

For projects to be implemented successfully and yield the best results, a strong foundation is necessary. The implementing group can guarantee project success by efficiently managing a project strategy during the planning phase. Eby (2022) seconded that thorough planning can determine the success of any endeavor. While Florida Tech (2018) adheres to the statement that success is possible by maintaining its alignment and progress facilitated by providing everyone with clarity, openness, and consistency in the workflow process.

For BNHS, a strong connection with the community and stakeholders is the best to guarantee the success of every program or project launched by a school.

Table 27

Keys to Successful Implementation of the Project Send-off Program for Players

Send-off Program for Players		
Theme	**Definition**	**Common Responses**
Connection and Cooperation	The strong link between the school and the various aspects of the community that makes every ASP of BNHS successful	*"Palagay ko po 'yung pagtutulungan ng lahat ng myembro ng community. Hindi lang teachers, students, magulang at iba pang tao. Nag-i-extend sila ng suporta sa players sa abot ng kanilang makakaya."* - MIMAROPARAA Player
Proponent or Organizer's Effort	Efforts of the proponent or organizers played a major part for the success of the ASP	*"Naging successful ang programa at epektibo. 'Yung concern at pagtutulungan siguro ang nagbigay buhay upang maging successful ang bawat send-off program for players."* - Taekwondo Player *"Unang-una kaya naging matagumpay ang programa ay dahil sa organizer. Kung walang organizer ay hindi ito magpu-pursue kahit pa may mga donors. Hindi ito mama-materlialize. So, para sa akin dahil sa mga organizers ay naisasakatuparan ang mga gawain katulong ang mga donors."* *"Ako'y naniniwala na matagumpay ang programa dahil nagamit nila ang mga pangangailangan habang sila'y andun sa tatlo hanggang limang araw na palaro."* - Coach

Healing and Firming Families for a More Holistic Education- HAFFMHE		
Theme	**Definition**	**Common Responses**
Teachers" Effort Accountability	Components of the school took effort in extending services to the learners and their families. There is an assurance that BNHS is responsible and could deliver the service set for the specific ASP.	*"Naging matagumpay ang proyekto dahil nagsisikap ang mga guro na mabigyan solusyon ang mga problema ng mga mag-aaral maging akademik man o pangtahanan. Sa abot ng kanilang makakaya ay pilit nilang abutin ang bawat pangangailangan ng bawat mag-aaral."* - Separated *"Matagumpay ang proyekto dahil nabigyan ang lahat ng dapat makinabang at dahil 'yan sa pagsisikap ng mga guro."* - Widowed *"Maraming nangangailangan ang natulungan kaya naging matagumpay ang project na mga walang maayos na trabaho atkapos sa buhay."* - Orphan
Forum on Teenage Pregnancy and Early Marriage		
Theme	**Definition**	**Common Responses**
Successful ASP Effort of the school, Guidance and LGU	The assessment of the implemented project. The determining factors towards project's successful implementation	*"Successful ang programa dahil napanuod na nila at napakinggan nila ang mga maaaring mangyari sa buhay nila."* - Teenage Pregnancy Program Beneficiary *"Ang pagtutulungan ng LGU, paaralan at Guidance Office and naging susi upang maging matagumpay ang proyekto.Ang pagkakaroon ng madalasang symposium ukol sa isyu ay isang magandang paraan at ganun din ang pagkakalat ng kaalaman sa pinakamabilis na pamamaraan."* - Teenage Pregnancy Program Beneficiary

The Center for Educational Innovation (n.d.) enumerated the characteristics of successful team projects. Among the characteristics of successful team projects are well-defined collaboration, relevance and authenticity, and team accountability. At least two of these are being practiced by BNHS based on the statements of the respondents: collaboration and authenticity and team accountability.

The first key is the collaboration of the various components of the community. Senjaya (2019) affirmed that all stakeholders must engage fully and intelligently for a school administrator to be successful. In this include the MLGU,

LGU, teachers, parents, members of the different civic organizations, and others.

Collaboration, which is always practiced at BNHS and in any public school. In every endeavor of the school, coordination with the various organizations in the school is consistent. The programs of the school are extended to the community for collaboration and assistance. Organizations, whether school-related, government-related, or non-civic, are being involved out of willingness to ensure their participation in accomplishing the endeavor. The responses of the interviewees could justify the intensity of their participation in every project of the school.

"Palagay ko po 'yung pagtutulungan ng lahat ng myembro ng community. Hindi lang teachers, students, magulang at iba pang tao. Nag-i-extend sila ng suporta sa player sa abot ng kanilang makakaya."

Same with the comment of another beneficiary from teenage pregnancy and early marriage, *“Ang pagtutulungan ng LGU, paaralan at Guidance Office and naging susi upang maging matagumpay ang proyekto.”*

A further justification is provided by a remark from another player benefit stating that success was accomplished through the cooperation of the many components.

“…Yung concern at pagtutulungan siguro ang nagbigay buhay upang maging successful ang bawat send-off program for players.”

The second key determinant based on the statements of the respondents, accountability. Under the leadership of the school principal, accountability is always included as one of the main considerations of the implementing body. As a response from the principal for Table 6, Pre-implementation Phase of Adopt-a-School Program in Terms of Reasons for Selecting the School as Recipient of the Program, this is one of the possible reasons for choosing BNHS as a beneficiary of a project.

“Another ay accountability, yung properly accounted ang donations nila. May report tayo.”

The last key to the successful implementation of the school’s ASPs were due to the efforts of the proponents. The efforts exerted by the project proponent or organizers of the ASPs that paved for the success of the programs.

One remarkable response from a beneficiary coach reiterated that the ASPs of the school became successful because of the organizers' efforts.

“Unang-una kaya naging matagumpay ang programa ay dahil sa organizer. Kung walang organizer ay hindi ito magpu-pursue kahit pa may mga donors. Hindi ito mama-materlialize. So, para sa akin dahil sa mga organizers ay naisasakatuparan ang mga gawain katulong ang mga donors.”

Two of the parent beneficiaries of HAFFMHE stated that the success of the ASPs was solely attributable to the organizer’s' efforts to address student issues through these projects.

“Sa abot ng kanilang makakaya ay pilit nilang abutin ang bawat pangangailangan ng bawat mag-aaral.”

Teachers, organizers, and other members of BNHS cannot achieve success in every attempt, despite their efforts. A successful ASP requires the participation of each component: PTA, SSG, stakeholders, organizations, and the entire community. Indeed, it takes a village to educate a child.

According to Khan (2020), the phrase "project success" refers to the particular standard decided upon by the client and the project team prior to the start of the project. After the project is completed, teams use these requirements, benchmarks, and deliverables to gauge project success.

ASPs at the school can be considered successful, with more of the characteristics being practiced by BNHS. The responses of the respondents and figures in the data gathered could justify the success of its implementation and coverage.

Adopt-a-School Programs of Buenavista National High School that could be benchmarked by other schools

A versatile method for examining and enhancing practically any part of a project or program in the school is benchmarking. This will support any essential modifications made by the head of the school and the implementing bodies beneficial for enhancing any procedures or programs (Intuit Mailchimp, n.d.).

With regular benchmarking the school will enable to develop precise, quantifiable short-term strategies grounded in current performance rather than past results, allowing for gradual performance gains over time. Transforming a performance deficit into performance leadership is the goal of surpassing the top performers (Gradecam, 2020).

Buenavista National High School is one of those schools that aims to better their services their clientele and at the same time widen and strengthen their connections with their stakeholders and members of the community in which the institution is rendering its services. For educational institutions to succeed and expand, benchmarking is essential. It gives schools the authority to set realistic goals, evaluate student performance honestly, and pursue greatness constantly.

In the dynamic realm of education, educational institutions are perpetually endeavoring to enhance their efficacy and furnish their students with optimal learning opportunities. In this circumstance, benchmarking is a useful tool that can help in this pursuit of excellence. By comparing performance and procedures with those of other organizations, benchmarking will enable BNHS to promote a continuous improvement culture.

ASPs of Buenavista National High School that may be benchmarked by other schools could be justified by the statements of the respondents after experiencing being part of the program as a beneficiary or as an implementer of the ASP. The respondents' statements play a great role in identifying those ASPs that truly contributed to the betterment of the school's services to the members of the community and that need to improve more to further its implementation.

The following are the ASPs that could be benchmarked by other schools:

A. Send Off Program for Players

The Send-off Program for Provincial Players started on 2018 upon the pursuance of the former principal, who happened to be always ushering the delegation of Marinduque to the MIMAROPARAA.

In this annual program, the players will be trained and oriented before leaving for the provincial competition. A day before their departure, each player and coaches of all the events in the entire cluster will be attending the send-off program in BNHS. They are

given goody bags with basic supplies they may need during the competition. Delegates of Buenavista Cluster to the regional competitions are also given pocket money. The supplies intended to lessen the expenses of the players and coaches and to inspire them.

With regards to the stages of its implementation, there were assigned teachers for the program. A synchronize acceptance of donations was through the guidance offices of the school. Donations were in two forms: in-kind and cash. For in-kind donations, every item being forwarded to the office is being recorded for the monitoring of the items' sufficiency. On the other hand, cash donations were recorded together with the screenshots of the donations through electronic cash forwarder of the designated person for the acceptance. For cash donations handed over to the school, these are being kept for a while waiting for the inventory of the items before the actual packing of the goods. Cash were used in purchasing the items that will complete the needed supplies of the players.

During the distribution phase of the goods, there were attendance sheets of the recipients on the day of the distribution per event. The coaches were there facilitating their players for the various parts of the send-off program. After some talks like orientations and the like topics needed by the player were discussed by the speakers, students will fall in line by event for the distribution.

After the implementation of the project is the accomplishment of the financial report to be confirmed by various committees ensuring transparency in the implementation of the entire program. These documents that compromised the financial report will be posted for the information and recognition of the donors.

With Send-off Program for Players, the spirit of encouragement and inspiration of the players are being ignited. They tend to play hard thinking that they are playing by representing the entire district and that there are people relying on them to be the best player they can be.

B. Healing and Firming for a More Holistic Education (HAFFMHE)

As a support to Forum on Teenage Pregnancy and Early Marriage, the school launched another short-term ASP in October 2021, the HAFFMHE. This supports orphaned, with solo parent, and with separated parents' students. The school believes that the student and parent beneficiaries somehow must be given importance and encouragement to continue supporting the education of their children.

This ASP was intended be conducted during Christmas break for the families to feel that BNHS was their extended family and was with them in celebrating the holidays.

In the implementation of the program, parents attended a short parenting seminar through the efforts of the invited speakers such as a resource person from DSWD, Sangguniang Bayan Member in-charge of the education sector and the School Guidance Designates. This aimed to remind the parents that regardless of the situation they are in as a parent, the welfare and education of the children is the main priority and that the school is with them in carrying their responsibilities.

Right after the program was the distribution of pack of goods with basic needs and something they could supposedly cook for the previous celebrations. Among these goods were: spaghetti pack, kilos of rice, sugar, milk, sardines, biscuits, shampoos and bath soaps.

This BE strengthens the link of the school to the community specifically with the learners and the parents. The school is taking its extra effort of extending its services to the community by becoming part of each household that needs patronage. Lastly, for the children and parent to realize and appreciate the presence of each other, that they need to stick together and work for the betterment of their future.

C. TEENAGE PREGNACY and EARLY MARRIAGE FORUM

This ASP of BNHS was initiated due to alarming number of cases of teenage pregnancy that involve the BNHS students, the best counteraction of the school is to create a program that will broaden the knowledge of the learners about reproductive health directly from a designated LGU health physician. This program is with the coordination to the Rural Health Unit (RHU) of Buenavista through the leadership of Dra. Eleanor Grate. Its implementation varies progressively each year.

During the first years of its implementation, students were lectured inside the classroom per section. The municipal physician wanted to maximize participation of the participants during the lecture and in the often forum. First, figures of cases in the entire province down to the local vicinity will be viewed and discuss. Next, the present situation of the family and the consequences the subjects are facing due to the situation they are engaged in. Students were also lectured on the disadvantages on health of teenage pregnancy and early marriage as well as the financial crisis they are suffering from. Pictures and Videos with statements of the subjects were presented to the attendees for greater realization of the possible situation they may be facing if ever engage in that situation. These aims to sway the minds of the students to go away from activities that are leading to early teenage pregnancy and early marriage.

At present, the RHU is in connection with the Population Commission in the implementation of the said project. This is an advantage for BNHS because the local government is one of the beneficiaries of the agency and is supporting projects in relation to population education that involve teenagers.

There was a decline in the number of cases specially in the senior high school students when the ASP started its annual implementation. This may be because students in the senior high school have better understanding with regards to sex education and are somehow informed and aware of the consequences they might be facing if ever engaged in such situations because of the forum. Further, cases in grade 8 consistently reappearing maybe because they were not included in those who attended the forum with the senior high school students.

Conclusions

Based on the results of the study, the following conclusions were drawn:

1. Buenavista National High School's implementation of its ASPs greatly applies the School-Based Management, involving its stakeholders as its strong allies being strengthened by its recognition with consistent adherence to R.A. 8525 in accomplishing documents with an exemption in securing a MOA.

2. BNHS strictly initiated and formulated ASPs that cover only by R.A. 8525 provisions.

3. ASPs of BNHS have great effects to its beneficiaries that they felt moved for the efforts of the school and wish to pay back someday and even commending the ASPs to other schools for emulation.

4. There were significant changes in the data of the School Report Card in the previous school years that could be attributed as results of the ASPs parallel to the progressive changes of responses in supporting the ASPs.

5. ASPs of BNHS is always a success due to the cultured link of the school to the community members resulted from being liable of the different components of the school especially proponents of ASPs in every innovation launched.

6. The ASPs of the BNHs could be benchmarked by other schools to further improve the implementations and likewise be adapted and modified by other schools depending on the needs of the learners and the school.

Recommendations

Considering the presented research results and findings, the researcher wishes to recommend the following:

1. BNHS must keep and develop a record, or a database of the ASPs implemented by the school for future utilization, reference and MOA implementation. Likewise, the school may assign an office for Alumni and stakeholders inside the school campus and continue doing the Gabi ng Parangal for stakeholders with assigned presentations for them.

2. The school must maintain adherence to R.A. 8525 in relation to provisions of assistance to learners.

3. The school must find ways on how to continue short term ASPs with long term effects to continue the cultured link with the community.
4. Areas of improvement in the SRC where ASPs are useful could be identified and further given priorities for better and consistent results.

5. Efforts of the proponent or organizer in materializing the ASPs must be recognized, given credit to advance their career, and incentives to further encourage and inspire others in accomplishing extra efforts for the welfare of the learners.

6. Encourage other schools, after benchmarking the ASPs of BNHS, to develop their own ASPs that could bridge the needs and further improve the performance of the learners and the entire school.

Ethical Consideration

This study has set several considerations to ensure the privacy and confidentiality of the respondents and participants. Among the significant issues that were taken into consideration are informed consent, confidentiality, the anonymity of the respondents, and data protection.

During the face-to-face interview, the interviewees were informed about the purpose of conducting the interview and their part as respondents. Further, they were informed that an audio recording will be needed so as not to miss their statements, and notetaking will be necessary for the observation and additional details during the interview. A waiver was given to the respondents regarding the confidentiality of the information they did not want to disclose and their identity. An assurance that the information gathered will be used solely for its intended purposes and will be treated with confidentiality was sought, along with their cooperation. The cooperation of the respondents was valued and praised with the hope that this study will further promote the connections between the concerned individuals.

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IMPLEMENTATION OF SCHOOL-BASED MANAGEMENT AMONG THE CENTRAL SCHOOLS IN MARINDUQUE: BASIS FOR SBM STRATEGIC PLAN

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ABSTRACT

This study examined the implementation of School-Based Management (SBM) among central schools and aimed to develop a strategic plan model based on the findings. The primary objective was to assess the SBM implementation in terms of the four core areas such as leadership & governance, curriculum and learning, accountability and continuous improvement, and management of resources through stakeholders' assessment, SWOT Analysis, and feedback, and propose a strategic plan to enhance SBM effectiveness. A mixed-method research approach was utilized, combining quantitative surveys and qualitative feedback from key stakeholders, including nine (9) school heads, 140 teachers, nine (9) SPTA Presidents, and nine (9) LGU Representatives. The data were analyzed using mean rating, thematic analysis, and a non-parametric test to evaluate the hypothesis. The Mann-Whitney U Test revealed a considerable disparity between internal and external stakeholders. Results revealed that all indicators are assessed as "implemented" by stakeholders. Internal stakeholders assessed all indicators as "highly implemented" while external stakeholders saw it as "less implemented" in leadership and governance and "implemented" in other core areas. These results highlight the significance of alignment of perception among stakeholders. Feedback revealed strengths and areas for growth in leadership, curriculum, accountability, and resource management. Recommendations include encouraging teamwork, resolving disputes, increasing stakeholder engagement, and adopting continuous monitoring and evaluation to improve SBM processes.

Keywords: *Feedback*, *Marinduque State College- Graduate School, School-based Management, School-Parent Teacher Association, Stakeholders' Assessment, SWOT*

INTRODUCTION

School-based management (SBM) is a cornerstone in enhancing educational quality and cultivating a conducive learning environment. Its significance cannot be overstated, as it provides schools and learning communities with a sense of direction and guidance tailored explicitly to their unique needs. According to Fitzgerald (2016), school-based management is like the localized version of the education sector's holistic and comprehensive management system.

School-based management is a theoretical and practical solution designed to cater to schools and learning communities' distinct educational and social requirements. As Arar (2018) emphasizes, the school-based management system tailors explicitly to meet the diverse demands of schools, encompassing academic, instructional, professional, social, and holistic aspects of school development. Through SBM, schools equip all stakeholders, including school leaders, managers, teachers, staff, and partners, with specific guidelines, policies, and standards to which they must adhere. This practical approach empowers educators and administrators to manage their schools and foster an effective and conducive learning environment.

Wivono (2017) discussed that the relevance and contributions of school-based management towards school development and improvement lie in the level and quality of implementation of the programs and policies along its four core areas. Specifically, the four core components of SBM that define its functionality to school development are leadership and governance, curriculum and instruction, accountability and continuous improvement, and management of resources. According to Bhuiel (2021), the core component of leadership and governance supports the administrative functions and system of schools. Meanwhile, the curriculum and instruction reinforce the learning community's academic and educational functions. The core area of accountability and continuous improvement seeks to address the need to promote collaborative relations with the stakeholders or school partners. On the other hand, the SBM component of the management of resources highlights the opportunities and services to promote the proper, purposeful, transparent, and efficient distribution and utilization of school resources. It underscores the importance of each stakeholder's role in successfully implementing school-based management, making them feel valued and integral to the process.

Green (2017) emphasized the collaborative nature of school-based management, underscoring the vital and crucial roles that stakeholders play in its comprehensive implementation. This collaborative approach recognizes not only the services of school heads, leaders, teachers, and professionals but also the quality and functionality of social support services extended by multisectoral partners, making each stakeholder feel valued and integral to the process.

As Mitrofanova (2004) asserts, stakeholders are not just participants, but crucial contributors to the comprehensive and socially focused approach to school development programs. The implementing units and sectors of school programs place significant emphasis, recognition, and gratitude on the support services provided by the internal and external stakeholders in school improvement. Stakeholders play a pivotal role in providing the necessary support that is essential, valuable, and advantageous in maintaining and enhancing holistic programs and learning community advocacies.

The indispensable support systems of stakeholders can also be highlighted and recognized along the integral components of school development programs. In governance, parents and other community-based partners also assume noble leadership roles and functions in school-based systems. Meanwhile, regarding curriculum management, stakeholders can ensure the preservation of resources in the community that can support the localization of instruction. Regarding promoting accountability, stakeholders nurture the sense of volunteerism integrated into the conduct of noble school programs and advocacies.

As a result, the Philippine educational system is constantly evolving, embracing new academic policies and practices to ensure that the system's output can adjust and react to the evolving requirements of the times. It improves good leadership and school governance while improving the educational system's progress.

Despite SBM's theoretical soundness and practical applicability, a critical gap exists in effectively gathering stakeholders' feedback and assessment to inform and improve SBM practices. This is not just a gap, it's a chasm that urgently needs to be addressed. This gap impedes realizing SBM's full potential by hindering the alignment of school management with community needs and priorities. The Division of Marinduque exemplifies this challenge, as the mechanisms for stakeholder involvement and feedback in SBM initiatives are inadequate.

An analysis of the pre-problem situation in Marinduque reveals common issues linked with stakeholders' feedback systems. While programs and activities promoting stakeholder involvement may exist, they often fail to integrate feedback mechanisms that capture diverse perspectives on SBM implementation. For instance, stakeholders engaged in initiatives like Clean and Green or *Brigada Eskwela* may not feel adequately empowered to provide feedback on curriculum and learning systems, leading to a disconnect between community initiatives and educational priorities.

This gap in stakeholder feedback is particularly concerning given SBM's comprehensive framework, which encompasses leadership and governance, curriculum and instruction, accountability and continuous improvement, and management of resources. Without robust feedback mechanisms across these core components, schools risk overlooking valuable insights into areas for improvement and potential solutions to address challenges.

Recognizing the importance of stakeholder engagement in SBM, the present study is not just another research project but a crucial step toward a better future. It aims to

determine and assess various SBM practices in selected schools in Marinduque. Unlike previous studies, this research delves further into stakeholders' support for SBM through a feedback system, aiming for a more distinctive, thorough, and comprehensive understanding of SBM implementation.

Through this study, the researcher seeks to illuminate the limitations of existing feedback mechanisms and propose solutions to enhance stakeholder engagement in SBM. This research contributes to the ongoing efforts to improve educational quality and foster a supportive learning environment in Marinduque and beyond by bridging the gap between school management and community needs.

The study also analyzed the extent of stakeholders' feedback towards SBM activities conducted and implemented along the four core components of school-based management. These salient core areas and components are leadership and governance, curriculum and instruction, accountability and continuous improvement, and management of resources that can integrate and embrace the social support of stakeholders, particularly in terms of feedbacking or communicating and translating responses and reactions toward the SBM tasks and programs. The researcher deems examining the stakeholders' assessment and feedback toward SBM implementation is necessary and beneficial. This feedback system would reflect how these school partners are genuinely engaged, involved, concerned, and committed to supporting school-based management and development. In addition to addressing the gap in stakeholder feedback, conducting a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is imperative to assess the current state of SBM implementation in Marinduque comprehensively. This analysis will provide a holistic understanding of the internal and external factors influencing SBM practices and inform strategic decision-making to enhance educational quality and stakeholder engagement. Moreover, the data from this study will be used to enhance SBM implementation and stakeholders' feedback and support towards SBM through a proposed strategic plan model.

Research Questions

This statement of the problem aims to address critical questions regarding SBM implementation and stakeholder engagement in the Division of Marinduque.

Specifically, it aimed to address the following inquiries:

1. What is the assessment of SBM implementation through;
    1.1 stakeholders’ assessment in terms of:
        1.1.1 leadership and governance
        1.1.2 curriculum and learning
        1.1.3 accountability and continuous improvement
        1.1.4 management of resources
    1.2 SWOT analysis?
2. What are the stakeholders' feedback on the SBM implementation in the four core areas?
3. What SBM Strategic Plan Model could be proposed for central schools?

METHODOLOGY

Research Locale

The research locale for this study is central schools within the Division of Marinduque. namely Don Luis Hidalgo Memorial School (Boac North District), Boac South Central School, Mogpog Central School, Sta. Cruz-North Elementary School, Sta. Cruz South Central School, Sta. Cruz East Central School, Torrijos Central School, Buenavista Central School, and Gasan Central School.

Research Population & Sample

This study divided its primary informants or respondents into four groups. The first group was composed of school heads of central schools in the Division of Marinduque. Meanwhile, the second group comprised selected teachers from the central schools in the division. The third group includes a parent and the president of the School Parent-Teacher Association (SPTA). The fourth group is from the Local Government Unit (LGU), a barangay Kagawad assigned to the Committee of Education. Total population of school heads, SPTA President and LGU representatives from the nine (9) schools were respondents of this study. The researcher used Slovin's Formula to determine the sample size for teacher-respondents. The number of teacher-respondents for each school was determined using percentages. Teacher-respondents were selected using a random sampling method, ensuring that every member of the population had a fair opportunity to be chosen.

Respondents of the Study

The researcher classified these respondents into two major categories of stakeholders: internal and external. 158 Internal stakeholders include the nine (9) school heads, 140 teachers, and the nine (9) SPTA President, while external stakeholders include the nine (9) barangay Kagawad from the Local Government Unit.

Data Gathering Procedure

After addressing the ethical considerations and issues of the study, the researcher proceeded to the comprehensive implementation of data collection methods and procedures. These data collection methods aligned with the primary research objectives. The researcher administered survey questionnaires to four groups of respondents and informants, how stakeholders assess the implementation of School-based management practices in the four (4) core areas in terms of leadership and governance, curriculum and learning, accountability and continuous improvement, and management of resources—feedback gathered from the respondents regarding their responses to the questionnaire.

Specifically, the adapted survey questionnaires were distributed and administered to the respondents in August 2023 and collected after three weeks of administration. The researcher conducted all data collection procedures following ethical guidelines and provided informed consent to the respondents to protect their confidentiality and privacy.

The data management procedures encompass various tasks, such as tallying quantitative data in Excel, utilizing SPSS for statistical analysis, and coding quantitative data to generate themes. These procedures are meticulously designed to ensure the systematic collection of comprehensive and reliable data, effectively addressing the research questions.

Research Instrument

Accurate and valuable data to support the study's objectives were collected using adapted survey questionnaires. The researchers adapted the survey form from the standard SBM assessment tool 2023 and administered questionnaires to school heads, teachers, parents, and the Local Government Unit (LGU).

The first part is about the demographic profile of respondents. The researcher utilized the gathered data to describe the respondents. The second part of the study involved the adapted survey tool, which focused on various school-based management practices in four core areas: leadership and governance, curriculum and learning, accountability and improvement, and management of resources. The nine (9) central schools in the Division of Marinduque implemented these practices. It was based and adapted these SBM activities from the core components of SBM cited and specified in the SBM Assessment Tool.

The questionnaire utilized a numerical rating scale (Likert scale) to obtain responses to several items (characteristics) assigned numerical values. This research considered a four-point scale extending from a minimum of one (1) to a maximum of four (4).

Responses were assigned with a numerical value ranging from one (1) to four (4) with corresponding interpretation as follows:

Likert-Scale Ratings of Stakeholders' Assessment on the Implementation of School-based Management

Rating	Scale	Interpretation	Description
4	3.25-4.00	Highly Implemented	Practiced the activity more than 4 times in a school year.
3	2.50-3.24	Implemented	Practiced the activity 3 times or thrice in a school year.
2	1.75-2.49	Implemented	Practiced the activity 2 times or twice in a school year.
1	1.00-1.74	Least Implemented	Practiced the activity once in a school year.

In this study, the researcher carefully considered and assessed the validity of the research instruments to ensure they accurately measured the variables of interest. It involved conducting pilot tests, reviewing the instruments with experts in the field, and

using established measures to assess criterion validity. By establishing the validity of the instruments, the study aimed to ensure that the data collected was reliable and could be used to draw meaningful conclusions. Content validators comprised supervisors, teachers with master's degrees, and language experts. Content validators indicated the validity of each criterion by checking the scale with a rating that extends from a minimum of one (1) to a maximum of five (5).

Likert Scale Ratings for Instrument Validity Assessment

Rating	Scale	Interpretation	Description
5	4.20 – 5.00	Very much valid	This indicates that the validator strongly agrees with the statement.
4	3.20 – 4.19	Valid	This indicates that the validator agrees with the statement.
3	2.60 – 3.19	Moderately valid	This indicates that the validator neither agree or disagrees with its validity.
2	1.80 – 2.59	Slightly valid	This indicates that the validator leans towards agreement to its validity but there are some doubts regarding its accuracy and appropriateness
1	1.00 -1.79	Not valid	This indicates that the validator strongly disagrees with its validity indicating lack of confidence to its accuracy and appropriateness to measure the intended outcome.

Result of Content Validation from Experts

Criteria	Mean	Interpretation
1. The purpose in the questionnaire/survey/inventory is stated clearly.	5	Very much valid
2. The questionnaire/survey/inventory have all essential questions which properly addressed the specific statement of the problems of this research.	4.86	Very much valid
3. The questionnaire/survey/inventory have items which properly addressed the objectives of this research.	5	Very much valid
4. The questionnaire/survey/inventory have a well distribution of items which properly addressed the variables of this research.	4.71	Very much valid
5. Every respondent would be able to choose from the scales and the ratings found in the questionnaire/survey/inventory.	5	Very much valid
6. The questionnaire/survey/inventory have items which are suitable to the comprehension of the respondents.	4.14	Valid

7. The questionnaire/survey/inventory have items which are suited to the vocabulary of the respondents.	4.29	Very much valid
8. The questionnaire/survey/inventory have items which cater all types of respondents.	4.29	Very much valid
9. All words in the questionnaire/survey/inventory are spelled correctly. Grammar, punctuation, spacing and word usage is appropriate.	4.71	Very much valid
10. The questionnaire/survey/inventory are easy to use and pleasant to look at.	4.57	Very much valid
11. The items in the questionnaire/survey/inventory are clear and a respondent would not have to ask for clarification.	4	Valid
12. The table presentation, line styles and arrangement of items enhance the layout and meaning of the questionnaire/survey/inventory.	4.43	Very much valid
TOTAL	4.58	Very much valid

Legend: (5) – Very much valid, (4)- valid, (3) – moderately valid, (2) – Slightly valid, (1)- not valid

The table shows that ten out of 12 criteria were rated very valid, with five (5) as the highest weighted mean. It suggests a strong consensus among validators and indicates that most positively perceive the instruments' accuracy and appropriateness in measuring the intended construct or outcome.

It underwent pre-testing from the school head, teachers, parents, and other stakeholders. The researchers excluded the participants of the pre-testing from the actual study. The researchers subjected the results of the pre-test to reliability testing. Reliability pertains to a measure's consistency or stability across time or different conditions. Cronbach's alpha is a statistic commonly used to evaluate the internal consistency reliability of a scale or questionnaire. It measures the degree of association among a set of items as a collective unit, indicating the degree to which items within a scale assess the same underlying construct.

Assessment of Instrument Reliability Using Cronbach's Alpha

Core Areas	N of Items	Cronbach's Alpha
Leadership and governance	7	.936
Curriculum and planning	7	.939
Accountability and Improvement	7	.904
Management of resources	5	.854

Legend: (α ≥ 0.9) = Excellent, (0.9>α ≥ 0.8) = Good, (0.8 >α ≥ 0.7) = Acceptable, (0.7>α ≥ 0.6) = Questionable, (0.6>α ≥ 0.5) =Poor, (0.5>α) = Unacceptable

The table displays coefficients of 0.94 for leadership and governance, 0.94 for curriculum and learning, 0.90 for accountability and improvement, and 0.85 for

management of resources, obtained using Cronbach's Alpha. These values signify that the instrument is reliable. The alpha coefficient ranges from zero (0) to one (1). A zero value indicates that there is no correlation between the items. They are entirely independent of each other.

Statistical Treatment of Data

Researcher organized, tallied, and tabulated the data collected from the completed questionnaire for enhanced interpretation and analysis. Descriptive statistics were used and integrated in this study to treat, interpret, and analyze data.

The researcher treated the data using mean rating to assess how stakeholders evaluate the implementation of school-based management in the four core areas: leadership and governance, curriculum and learning, accountability and improvement, and resource management. Moreover, SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis was also applied after the assessment of SBM Implementation by the stakeholders to evaluate the situation further.

The study utilized a 4-point Likert scale, which typically involved ordinal data, where respondents selected a response option that best represents their opinion or level of agreement on a given statement. These responses were categorical and do not adhered to a continuous normal distribution. The Mann-Whitney U test employed in this study is a non-parametric statistical test utilized to compare two sample groups, which are internal and external stakeholders. The researcher calculated the p-value for samples. A p-value, or probability value, describes the likelihood of the data occurring by random chance. Statistical significance is expressed commonly as a p-value ranging from 0 to 1. A smaller p-value indicates more substantial evidence to reject the null hypothesis. A p-value less than 0.05 (typically ≤ 0.05) is statistically significant. It means that there is strong evidence against the null hypothesis.

The researcher applied thematic analysis to stakeholders' feedback on implementing school-based management in the core areas. Creswell (2014) described it as a systematic process for coding data in which specific statements are analyzed and categorized into themes representing the phenomenon of interest. Responses were listed and read multiple times to understand the content comprehensively. Systematically code the feedback, identifying recurring patterns, topics, or themes within the data. This can involve assigning labels or codes to text segments that capture each theme's essence. Codes are grouped based on similarity or relevance to form broader themes. The researcher refined or revised themes through iterative analysis, ensuring that it accurately captured the content of the feedback.

Scope and Delimitation of the study

The scope of this research study encompasses the stakeholders' assessment and feedback on implementing school-based management in its four core areas: leadership and governance, curriculum and learning, accountability and improvement, and resource management. It also analyzed the significant differences in the assessment and feedback

between the internal and external stakeholders. Internal stakeholders include the school head, teachers, and parents, while external stakeholders include the Local Government Unit (LGU) related to education. Data collected in this study will enhance the implementation of school-based management and stakeholders' feedback, support services, and involvement in school-based activities.

The major limitation of this study is that it focused on the stakeholders' assessment and feedback on implementing School-based Management in the four (4) core areas. The respondents of the survey were also limited to school heads, teachers, parents, and external stakeholders from the Local Government Unit (LGU) of the nine (9) central schools in the Division of Marinduque such as Don Luis Hidalgo Memorial School (Boac North), Boac South Central School, Mogpog Central School, Sta. Cruz-North Central School, Sta. Cruz-South Central School, Sta. Cruz-East Central School, Torrijos Central School, Buenavista Central School and Gasan Central School. The assessment did not initially include an in-depth analysis of the financial aspects of SBM implementation, such as budget allocation and economic management unless the stakeholders mention these aspects as critical areas for improvement.

RESULTS

Table 1.1.1

Assessment of Internal (N= 158) and External (N= 9) Stakeholders on the Implementation of SBM in terms of Leadership and Governance

Leadership and Governance	Internal Stakeholders		External Stakeholders		Stakeholders	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
1. The school developed an approved school development plan together with stakeholders and community	3.64	**Highly Implemented**	2.78	**Implemented**	3.21	**Implemented**
2. The school leads the regular review and	3.66	**Highly Implemented**	2.56	**Implemented**	3.11	**Implemented**

improvement of the developed plan that is responsive to emerging needs, challenges and opportunities with community stakeholders.							
3. The school encourages stakeholders through dialogue, consensus building, in formulating relevant policies and guidelines in conducting a regular review and updating of community initiatives.	3.68	**Highly Implemented**	2.33	**Less Implemented**	3.05	**Implemented**
4. The school organizes a clear structure and work arrangements that promote shared leadership and governance.	3.68	**Highly Implemented**	2.44	**Less Implemented**	3.06	**Implemented**
5. The school defines the role and responsibilities of stakeholders.	3.66	**Highly Implemented**	2.33	**Less Implemented**	3.00	**Implemented**

6. The school regularly facilitates information and feedback sharing on the progress of the education program.	3.68	**Highly Implemented**	2.56	**Implemented**	3.12	**Implemented**
7. The school conducts long-term programs that address the training and development needs of the school and community leaders.	3.59	**Highly Implemented**	2.44	**Less Implemented**	3.02	**Implemented**
Overall	3.66	**Highly Implemented**	2.49	**Less Implemented**	3.08	**Implemented**

Legend: 3.25-4.00 – Highly Implemented, 2.50-3.24- Implemented, 1.75-2.49- Less Implemented, 1.00-1.74 Least Implemented

Table 1.1.2

Assessment of Internal (N=158) and External (N=9) Stakeholders on the Implementation of SBM in terms of Curriculum and Learning

Curriculum and Learning	Internal Stakeholders		External Stakeholders		Stakeholders	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
1. The curriculum provides for the development needs of all types of learners in the	3.70	**Highly Implemented**	3.00	**Highly Implemented**	3.35	**Highly Implemented**

school community.							
2. The implemented curriculum is adapted to the life in the community.	3.63	**Highly Implemented**	2.56	**Implemented**	3.10	**Implemented**
3. The school ensures that there is a representative group of school and community stakeholders that develop methods and materials that encourage creative thinking and problem-solving among learners.	3.63	**Highly Implemented**	2.67	**Implemented**	3.15	**Implemented**
4. The community monitors regularly and collaboratively the learning systems in school using appropriate tools to ensure the holistic growth and development of the learners and community.	3.56	**Highly Implemented**	2.33	**Implemented**	2.95	**Implemented**

5. The school invites the community to actively participate in developing and mentoring the learners' awareness and practice of good citizenship and share the attainment of individual and collective competencies.	3.67	**Highly Implemented**	2.33	**Less Implemented**	3.00	**Implemented**
6. The school community continuously reviews and improves appropriate assessment tools for teaching and learning.	3.70	**Highly Implemented**		-	3.70	**Highly Implemented**
7. Assessment results are contextualized to the learner, local situation and attainment of relevant life skills.	3.69	**Highly Implemented**		-	3.69	**Highly Implemented**
Overall	3.65	**Highly Implemented**	2.58	**Implemented**	3.28	**Highly Implemented**

Legend: 3.25-4.00 – Highly Practiced, 2.50-3.24- Practiced, 1.75-2.49- Less Practiced, 1.00-1.74 Least Practiced

Table 1.1.3

Assessment of Internal (N= 158) and External (N=9) Stakeholders on the Implementation of SBM in terms of Accountability and Improvement

Accountability and Continuous Improvement	Internal Stakeholders		External Stakeholders		Stakeholders	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
1. The school ensures that the roles and responsibilities of accountable persons and collective bodies are clearly defined and agreed upon by community stakeholders.	3.70	**Highly Implemented**	2.56	**Implemented**	3.13	**Implemented**
2. The school's achievement of goal is recognized based on collaboratively developed performance accountability system; gaps are addressed through appropriate actions.	3.73	**Highly Implemented**	2.56	**Implemented**	3.15	**Implemented**
3. The school practices the accountability system owned by the community which is continuously	3.59	**Highly Implemented**	2.67	**Implemented**	3.13	**Implemented**

enhanced to ensure that the management structures and mechanisms are responsive to the emerging learning needs and demands of the community.							
4. The school's accountability assessment criteria, tools, feedback mechanisms, information collections, validation techniques and processes are inclusive and collaboratively developed and agreed upon.	3.86	**Highly Implemented**	2.78	**Implemented**	3.32	**Highly Implemented**
5. The school makes sure that the participatory assessment of performance is done regularly with the community. Assessment results and lessons learned serve as basis for feedback, technical	3.62	**Highly Implemented**	2.89	**Implemented**	3.26	**Highly Implemented**

assistance, recognition and plan adjustment.						
Overall	3.70	**Highly Implemented**	2.69	**Implemented**	3.20	**Implemented**

Legend: 3.25-4.00 – Highly Practiced, 2.50-3.24- Practiced, 1.75-2.49- Less Practiced, 1.00-1.74 Least Practiced

Table 1.1.4

Assessment of Internal (N=158) and External (N=9) Stakeholders on the Implementation of SBM in terms of Management of Resources

Management of Resources	Internal Stakeholders		External Stakeholders		Stakeholders	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
1. The school conducts a regular resource inventory with community stakeholders as basis for resource allocation and mobilization.	3.63	**Highly Implemented**	2.44	**Less Implemented**	3.04	**Implemented**
2. The school conducts a regular dialogue for planning and resource programming accessible and inclusive to continuously	3.61	**Highly Implemented**	2.67	**Implemented**	3.14	**Implemented**

engage stakeholders and support the implementation of community education plans.							
3. The school has a community-developed resource management system that drives appropriate behaviors of the stakeholders towards effective use of resources.	3.61	**Highly Implemented**	2.44	**Less Implemented**	3.03	**Implemented**
4. The school conducts regular monitoring, evaluation and reporting processes of resource management with community stakeholders.	3.65	**Highly Implemented**	2.89	**Implemented**	3.27	**Highly Implemented**
5. The school manages a system of network and linkages which strengthen and sustain partnerships	3.68	**Highly Implemented**	2.67	**Implemented**	3.18	**Implemented**

with stakeholders for improving resource management.						
Overall	3.63	**Highly Implemented**	2.62	**Implemented**	3.13	**Implemented**

Legend: 3.25-4.00 – Highly Practiced, 2.50-3.24- Practiced, 1.75-2.49- Less Practiced, 1.00-1.74 Least Practiced

Table 1.1.5

Significant Difference in the Assessment of SBM Implementation Using Mann- Whitney U Test

	Mann-Whitney U	**P - Value**	**Decision**	**Interpretation**
Leadership and Governance	169.5	0.0001	**Reject Null Hypothesis**	**Significant**
Curriculum and learning	85	0.0001	**Reject Null Hypothesis**	**Significant**
Accountability and Improvement	287	0.001	**Reject Null Hypothesis**	**Significant**
Management of Resources	290	0.001	**Reject Null Hypothesis**	**Significant**

Table 1.2 *SWOT Analysis* of SBM Implementation

	Strengths	**Weaknesses**
	1. **Established Communication Campaigns:** 100% of plan has already launched communication campaigns, demonstrating proactive efforts to communicate information and engage	1. Limited engagement of local government (LGU) representatives in resource inventory processes may impede comprehensive resource management.

	stakeholders successfully. 2. **Regular Stakeholder Workshops:** 100% Holding regular workshops displays a commitment to promoting debate and collaboration among stakeholders, which fosters a sense of inclusivity and participation. 3. **Implementation of Professional Development Programs:** 30% involvement of the implementation of professional development programs, suggesting a focus on improving stakeholders' skills and capacities, which can lead to better performance and outcomes. 4. **Clear Communication of Benefits**: 50% giving of emphasis on the positive impact of SBM practices and clearly communicating the benefits of proposed reforms can help garner support and foster a positive	2. Inadequate understanding of the discussion process among stakeholders may inhibit successful communication and collaboration. 3. Inadequate resource allocation for necessary revisions may hinder the plan's ability to respond to changing circumstances. 4. Potential resistance to change owing to insufficient information about the benefits of proposed reforms could stymie progress. 5. Lack of inclusion in decision-making processes can lead to stakeholder disengagement and jeopardize the plan's success.

	perception among stakeholders. 5. **Emphasis on Positive Impact**: 100% highlighting the positive impact of SBM practices, indicating an awareness of the importance of showcasing successes and impact to maintain momentum and motivate stakeholders.	
Opportunities 1. Increased collaboration with representatives from local government units (LGUs) could improve resource management and support for educational projects. 2. Using technology to improve communication platforms and discussion processes may result in increased stakeholder involvement and participation. 3. Exploring alternative funding sources or reallocating resources may	**Combination 1:** S-O Strengths-Opportunities How can the strengths be employed to take advantage of the opportunities? Using IS to take advantage of EO By combining internal strengths **such as strong communication campaigns, stakeholder workshops, and professional development programs with chances for enhanced collaboration and technological integration, the school may better engage external stakeholders.** Using **established communication channels improves collaboration with local government entities,**	**Combination 3:** W-O Weakness-Opportunities How can the weakness be overcome to take advantage of the opportunities? -improving IW by taking advantage of EO To maximize the success of the SBM Management Strategic Plan, **issues such as limited engagement of LGU representatives and insufficient resource allocation must be addressed. Overcoming these deficiencies necessitates proactive outreach, focused training, and a complete resource review.** By embracing opportunities such as **improved communication**

alleviate gaps in resource allocation for necessary changes. 4. Improving communication about the benefits of proposed reforms may reduce opposition to change and build a more supportive atmosphere. 5. Developing more inclusive decision-making processes that actively incorporate stakeholders may increase buy-in and commitment to the strategic plan's objectives.	**whereas workshops promote discussion and support for suggested improvements. Integrating technology into professional development increases engagement and stressing the beneficial impact of strategic initiatives generates stakeholder buy-in,** resulting in the successful implementation of the SBM Management Strategic Plan.	**platforms and participatory decision-making, the strategy can improve collaboration, seek alternative finance, and encourage stakeholder support, maximizing its chances of success.**
Threats 1. Resistance to Change: Stakeholders' unfamiliarity with new processes or fear of disruption may delay the implementation of the SBM Management Strategic Plan. 2. Budget Constraints: Financial constraints or budget cuts may impede the	**Combination 2**:S-T Strengths-Threats How can the strengths be used to counteract the threats that hinder the attainment of successful school-based management? Using IS to deal with ET The SBM uses its strengths, such as **communication campaigns and stakeholder workshops,** to combat challenges	**Combination 4:** W-T Weakness-Threats How can the weaknesses be overcome to counteract the threats that hinder the attainment of the success of school-based management? - defensive strategies directed at reducing IW and avoiding ET. To combat the threats to school-based

allocation of resources required to carry out the plan successfully, limiting its ability to fulfill goals. 3. Political instability: Changes in government leadership or policies may cause uncertainty and disruptions, compromising the strategic plan's continuity and support. 4. Technological Challenges: Technical challenges or limits in applying technological solutions for communication or resource management may impede the plan's goals. 5. Stakeholder Disengagement: A lack of buy-in or active involvement from stakeholders, including teachers, parents, and community members, could undermine the plan's success by limiting collaboration and support.	such as **opposition to change, funding restrictions, and stakeholder disengagement.** The plan seeks to alleviate problems and assure successful school-based administration by stressing positive outcomes and using technology-focused development activities. **Clear communication channels and stakeholder engagement** help the plan overcome political turbulence and ensure continuity amidst leadership changes, hence increasing its efficacy in attaining its goals.	management's success posed by resistance to change, budget constraints, political instability, technological challenges, and stakeholder disengagement, defensive strategies must be implemented to address the weaknesses identified in the SBM Management Strategic Plan. **Proactive measures such as increasing local government representatives' engagement in resource inventory processes, improving stakeholders' understanding of discussion processes, allocating adequate resources for revisions, providing comprehensive information about proposed reforms to reduce resistance to change, and encouraging inclusion in decision-making processes** can all help to mitigate the impact of these threats. By employing defensive methods targeted at minimizing internal weaknesses and avoiding external threats, the SBM Management Strategic Plan can strengthen its

		resilience and raise its chances of success in attaining its goals of successful school-based management.

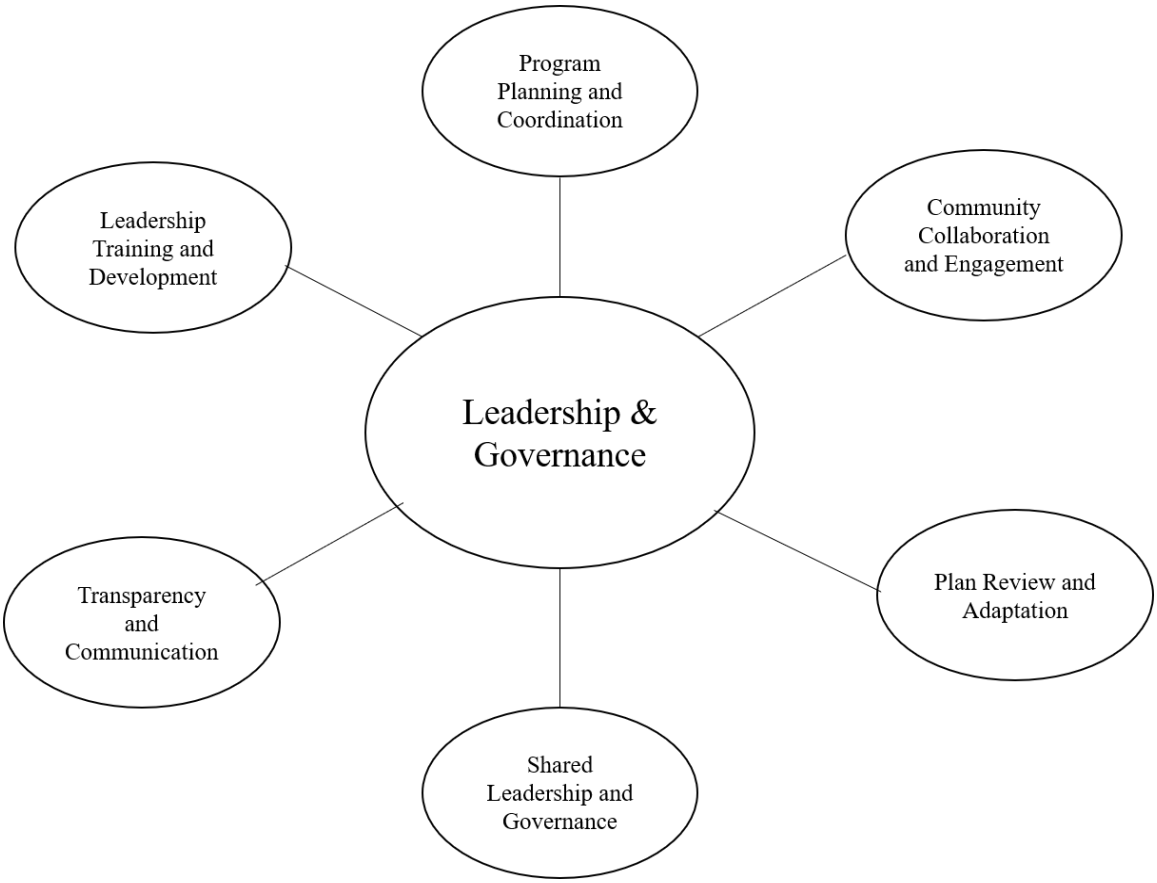


Figure 4 *Themes Derived from Feedback on School Leadership and Governance*

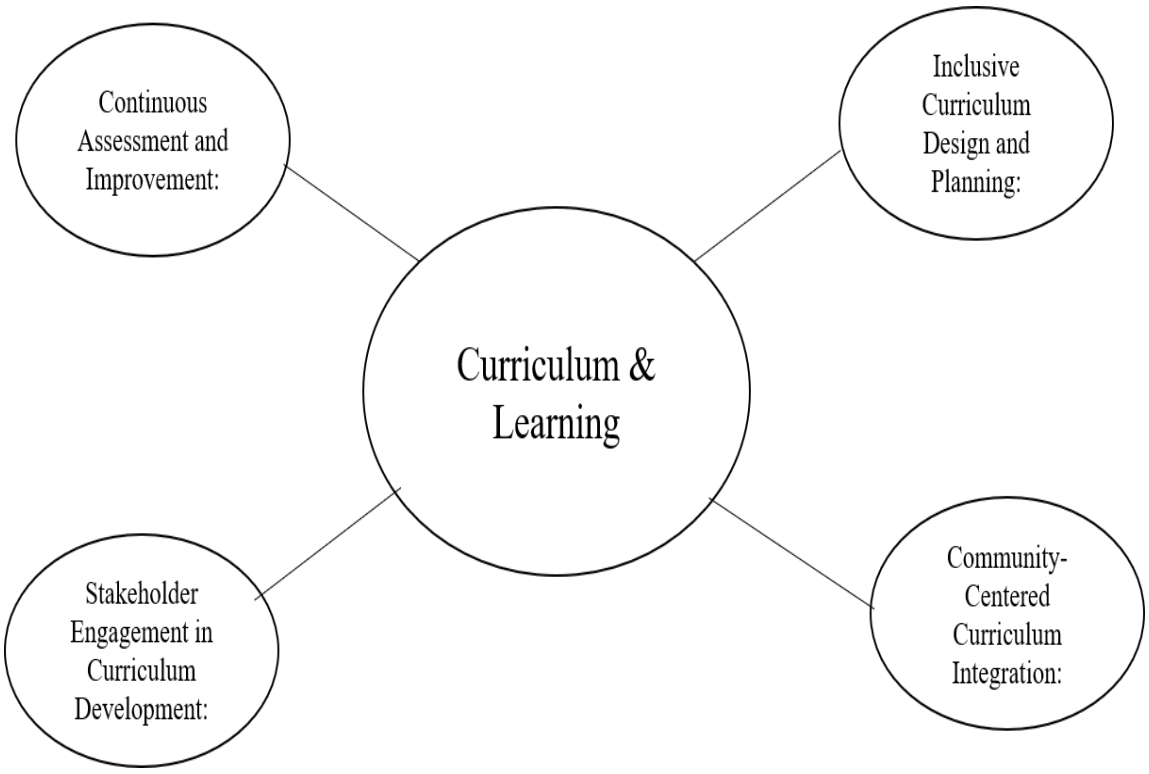


Figure 5 Themes Derived from Feedback on School Curriculum and Learning

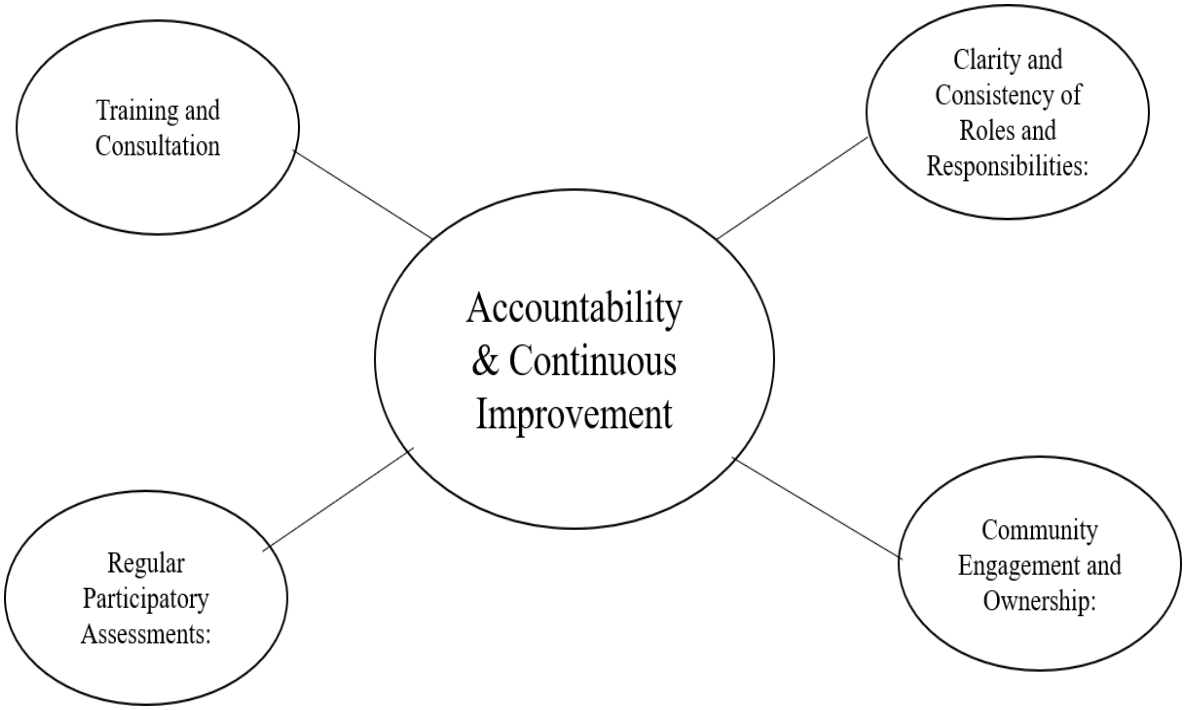


Figure 6 Themes Derived from Feedback on School Accountability & Continuous Improvement

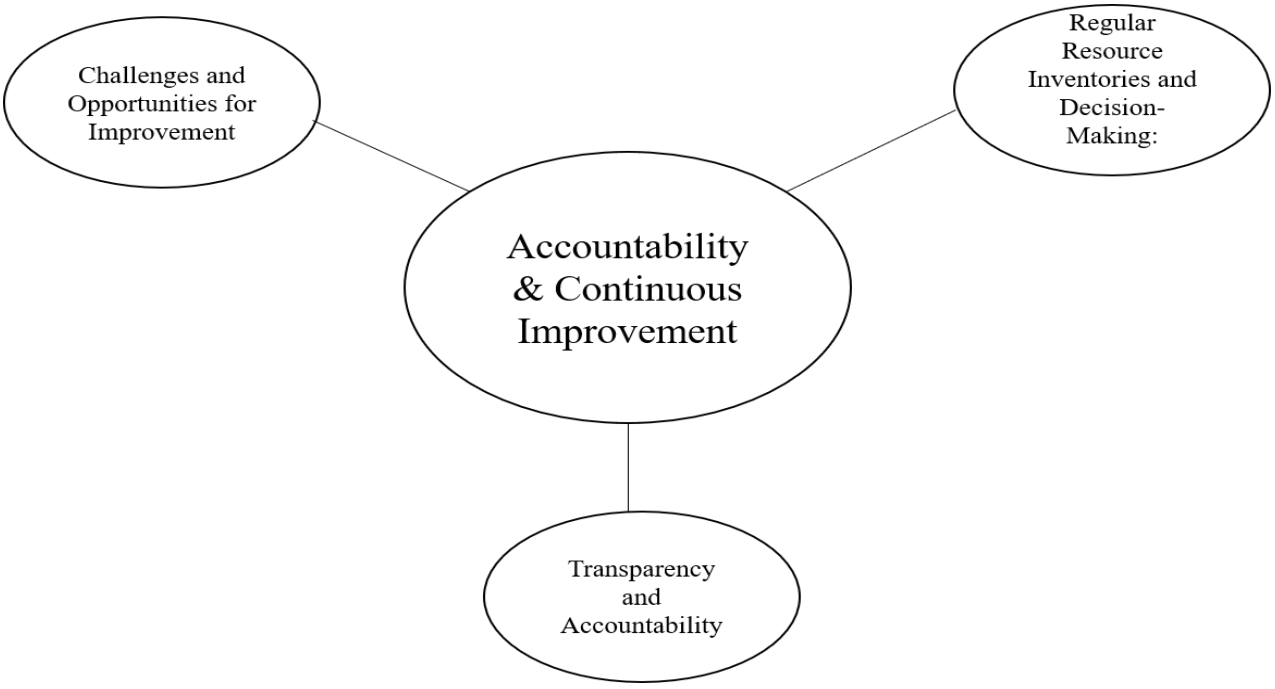


Figure 7 Themes Derived from Feedback on School Management of Resources

Table 3 *Six-year Strategic Plan Model for Enhanced School-based Management Implementation* for Central Schools in the Division of Marinduque (2024)

Leadership and Governance					
Goals/ Milestones	**Strategic Priorities**	**Objectives**	**Activities**	**Resources**	**Duration**
Year 1: Establishing Foundations	Lay the foundation for effective shared governance and information sharing with the School Governing Council.	• Assess current leadership and governance structures within the education system. • Develop a governance framework outlining roles, responsibilities, and decision-making processes	• Conduct a comprehensive assessment of existing leadership and governance practices. • Stakeholder mapping to identify potential external partners.	• Funding for assessment tools and stakeholder workshops. Staff time for conducting assessments and organizing workshops. • Expertise from educational consultants for	12 months

		involving the SGC. • Establish communication channels and protocols for information sharing with the SGC. • Lay groundwork for partnerships and communication channels.	• Host workshops to introduce SBM principles and gain stakeholder buy-in. • Develop initial communication platforms (e.g., website, newsletter).	stakeholder mapping. • Technology for establishing communication platforms.	
Year 2: Strengthening Leadership Development	Build a pipeline of future leaders within the School Governing Council (SGC) and ensure continuity in leadership.	• Develop a leadership development program with clear goals and milestones involving the SGC. • Establish regular leadership forums or meetings to foster collaboration among SGC members and school leaders.	• Identify high-potential leaders within the SGC and provide them with training and development opportunities. • Conduct regular leadership meetings involving SGC members to discuss organizational goals and strategies	• Budget for leadership development programs and training involving the SGC. • Staff time for organizing leadership forums and meetings.	12 months
Year 3: Improving Community	Engage the community as partners in governanc	• Develop a community engagement strategy involving the SGC to	• Conduct community surveys	Budget for community engagement activities and	12 months

Participation	e and decision-making through the SGC.	increase participation. • Establish feedback mechanisms involving the SGC to gather community input on decisions	or focus groups involving the SGC to gather input on key issues. • Implement community projects or initiatives based on community feedback received through the SGC.	projects involving the SGC. Staff time for organizing community events and communication via the SGC.	
Year 4: Monitoring and Evaluation Framework	Strengthen partnerships and enhance transparency in governance. Ensure accountability and transparency in governance and leadership practices involving the SGC.	• Strengthen partnerships with parents, community leaders, and businesses. • Enhance transparency and accountability mechanisms. • Develop key performance indicators (KPIs) for governance effectiveness and leadership development involving the SGC. • Implement a monitoring and evaluation system involving the SGC to track progress and effectiveness.	• Conduct outreach to deepen partnerships with stakeholders. • Implement transparency measures such as regular reporting and feedback mechanisms. • Foster collaboration with businesses for support and resources. • Develop KPIs for governan	• Funding for partnership-building activities and transparency measures. • Staff time for outreach and collaboration efforts. • Expertise from community engagement specialists.	12 months

			ce effectiveness and leadership development involving the SGC. • Implement a monitoring system involving the SGC to track progress against KPIs.		
Year 5: Sustainability and Continual Improvement	Deepen engagement and ensure sustainability of initiatives.	• Deepen relationships with stakeholders and integrate them into decision-making. • Ensure sustainability of engagement efforts beyond the project period. • Implement continuous improvement initiatives involving the SGC based on monitoring and evaluation findings	• Implement targeted outreach to engage underrepresented communities. • Develop sustainability plans for ongoing engagement efforts. • Evaluate long-term impact and adjust strategies as needed. • Develop a sustainability plan involving the SGC outlining strategies for maintaini	• Funding for targeted outreach and sustainability planning. • Staff time for evaluation and adjustment of strategies. • Support from stakeholders for sustainability planning.	12 months

			ng and improving governance and leadership practices. • Implement improvements involving the SGC based on feedback from stakeholders and monitoring results.		
Year 6: Continuous Improvement and Celebration	Focus on continual improvement and celebrate achievements.	Foster a culture of continuous improvement in engagement practices. Celebrate achievements and recognize contributions of stakeholders.	Establish feedback mechanisms for ongoing improvement. Organize events to celebrate achievements and share best practices. Develop a roadmap for future engagement efforts.	Funding for improvement initiatives and celebratory events. Staff time for feedback collection and event organization. Collaboration with stakeholders for future planning.	12 months
CURRICULUM AND LEARNING					
Year 1: Establishing Foundations	Lay the groundwork for community involvement in curriculum planning and establish communication channels for engageme	• Identify key stakeholders within the community and education system. • Conduct initial community needs assessment and gather input on curriculum priorities. • Develop communicatio	• Host community forums to introduce curriculum planning efforts and gather input. • Establish advisory	• Funding for community forums, outreach materials, and technology platforms. • Staff time for organizing events, conducting assessments, and	12 months

	nt and feedback.	n channels and platforms for ongoing engagement and feedback.	committees comprising community members, educators, and administrators. • Create online platforms, such as forums or surveys, for community members to provide feedback. • Develop communication materials to inform the community about the curriculum planning process and how they can contribute.	managing communication channels. • Collaboration with community organizations, educational institutions, and local government for support and outreach.	
Year 2: Community-Driven Curriculum Development	Collaborate with the community to develop a curriculum that reflects local needs and values.	• Engage community members in the co-creation of curriculum content and resources. • Incorporate diverse perspectives and cultural relevance into curriculum development. • Ensure stakeholder	• Facilitate workshops and focus groups to brainstorm curriculum ideas and priorities. • Form working groups of educators, community	• Funding for curriculum development workshops, materials, and expert consultation. • Staff time for facilitating collaboration and managing stakeholder input.	12 months

		representation in decision-making processes.	members, and experts to develop curriculum content. • Review existing curriculum materials and identify opportunities for integration with local context and values. • Establish mechanisms for ongoing community input and feedback throughout the curriculum development process.	• Collaboration with cultural experts, community leaders, and curriculum specialists.	
Year 3 Stakeholder-Driven Problem-Solving	Empower stakeholders to participate in problem-solving and decision-making related to curriculum implementation.	• Foster a culture of collaboration and shared ownership in addressing curriculum challenges. • Provide training and support for stakeholders to contribute to problem-solving processes. • Establish mechanisms for stakeholders to raise concerns and propose solutions.	• Host problem-solving workshops or forums where stakeholders can identify and prioritize curriculum challenges. • Facilitate collaborative brainstorming sessions to generate	• Funding for problem-solving workshops, facilitation, and support materials. • Staff time for organizing events, facilitating discussions, and managing feedback mechanisms. • Collaboration with conflict resolution specialists, facilitators, and	12 months

			solutions to identified problems. • Develop protocols for stakeholders to submit proposals and feedback on curriculum issues. • Implement a feedback loop to ensure that stakeholders are informed of decisions and outcomes resulting from their input.	community organizers.	
Year 4: Strengthening Community Engagement	Deepen community engagement in curriculum implementation and assessment processes.	• Expand opportunities for community members to participate in curriculum-related activities. • Develop communication strategies to keep stakeholders informed and engaged. • Strengthen partnerships with community organizations and leaders.	• Organize community events, such as curriculum fairs or open houses, to showcase student work and projects. • Establish regular communication channels, such as newslette	Funding for community events, communication materials, and outreach efforts. Staff time for managing communication channels and coordinating community engagement activities. Collaboration with marketing professionals, event planners, and community leaders.	12 months

			rs or social media updates, to share curriculum news and updates. • Collaborate with community organizations to integrate curriculum activities into local events and initiatives.		
Year 5: Contextualizing Assessment Results	Involve stakeholders in interpreting and contextualizing assessment results to inform curriculum improvements.	• Provide training for stakeholders on interpreting assessment data and understanding its implications. • Facilitate discussions to analyze assessment results and identify areas for curriculum enhancement. • Develop strategies for communicating assessment findings to the community in a meaningful way.	• Conduct workshops or training sessions to build stakeholders' capacity in data interpretation and analysis. • Organize focus groups or forums to discuss assessment results and their implications for curriculum planning. • Develop communication	• Funding for training sessions, facilitation, and communication materials. • Staff time for organizing workshops, facilitating discussions, and developing communication materials. • Collaboration with data analysts, educational researchers, and communication specialists.	12 months

			materials, such as infographics or presentations, to present assessment findings to the community in an accessible format.		
Year 6: Sustainability and Celebration	Ensure the sustainability of community involvement efforts and celebrate achievements.	• Develop a sustainability plan to institutionalize community engagement practices in curriculum planning and implementation. • Organize events to celebrate achievements and recognize the contributions of stakeholders. • Establish mechanisms for ongoing community feedback and involvement.	• Develop a sustainability plan outlining strategies for maintaining community involvement in curriculum planning and implementation. • Organize a culminating event to celebrate achievements and showcase student accomplishments. • Establish feedback mechanisms, such as advisory committees or online	• Funding for sustainability planning, celebratory events, and feedback mechanisms. • Staff time for developing the sustainability plan and organizing celebratory events. • Collaboration with community leaders, educators, and stakeholders for input and support.	12 months

			forums, for ongoing community input and involvement.		
ACCOUNTABILITY AND IMPROVEMENT					
Year 1: Stakeholder Engagement Plan Development	Develop a comprehensive stakeholder engagement plan to outline strategies for engaging and collaborating with external stakeholders, including LGU. Develop a structured approach to engage and collaborate with external stakeholders to enhance school-based management.	• Develop a stakeholder engagement plan outlining roles, responsibilities, and communication strategies for engaging with external stakeholders. • Establish communication channels and feedback mechanisms to facilitate ongoing engagement with external stakeholders.	• Strengthen a stakeholder engagement committee which is the School Governing council with representation from school staff, parents, and community members. • Develop a stakeholder engagement plan outlining strategies for engaging with external stakeholders, including LGU.	Staff time for organizing stakeholder forums, developing communication channels, and initiating partnerships. Collaboration with the LGU, community organizations, advocacy groups, and government agencies for support and engagement Staff time for committee formation and plan development. Budget for stakeholder engagement activities.	12 months
Year 2: Implementation of Stakehold	Actively engage external stakeholders in	• Increase LGU participation in school planning and decision-	• Develop education	• Funding for educational	12 months

er Engagement Plan	school decision-making processes and activities to improve school-based management.	making by 25%. • Collaborate with LGU to identify and address school improvement priorities	al materials and workshops involving LGU representatives to inform them about assessment criteria and methodologies. • Facilitate focus groups or surveys with LGU representatives to gather feedback on assessment criteria and their relevance. • Establish mechanisms for LGU representatives to participate in assessment planning and design. • Hold regular meetings with LGU representatives to discuss school needs and priorities.	materials, workshops, and feedback mechanisms involving LGU representatives. • Staff time for developing educational materials, facilitating workshops, and analyzing feedback. • Collaboration with assessment experts, educators, and community leaders for input and support.

			• Invite LGU representatives to participate in school planning and review meetings.		
Year 3: Capacity Building and Project Collaboration	Empower external stakeholders to contribute effectively to school-based management initiatives.	• Provide training and capacity-building opportunities for LGU representatives on school-based management principles and practices. • Collaborate with LGU on at least two school improvement projects. • Conduct a comprehensive review of existing participatory assessment systems, involving LGU representatives, and identify implementation challenges. • Develop strategies to address identified implementation gaps, including the involvement of LGU representatives, to improve the effectiveness	• Develop training programs for LGU representatives on school-based management and project management. • Identify and implement school improvement projects in collaboration with LGU. • Analyze existing participatory assessment systems, involving LGU representatives, to identify strengths, weaknesses, and implementation	• Funding for assessment reviews, stakeholder engagement activities involving LGU representatives, and implementation support. • Staff time for conducting reviews, facilitating engagement, and monitoring implementation involving LGU representatives. • Collaboration with evaluation experts, implementation specialists, and community organizers for support and expertise.	12 months

		of participatory assessment processes. • Engage LGU representatives in co-designing and implementing solutions to address identified challenges.	challenges. • Conduct focus groups or interviews with LGU representatives to gather insights and perspectives on implementation gaps. • Collaborate with LGU representatives to co-design and implement solutions to address identified challenges. • Monitor and evaluate the effectiveness of implemented solutions, involving LGU representatives, and adjust as needed.		
Year 4: Monitoring and Evaluation	Ensure that stakeholder engagement efforts are	• Implement a monitoring and evaluation framework for stakeholder engagement	• Collect feedback from LGU representatives on	• Funding for communication tools, meeting spaces, and	12 months

yielding positive results and adjust strategies as needed to improve LGU and other external stakeholders' involvement.	activities, with a specific focus on LGU engagement. • Use evaluation findings to refine stakeholder engagement strategies and improve LGU involvement. • Strengthen communication and collaboration channels with external stakeholders, including the LGU. • Develop joint initiatives and projects involving the LGU to address accountability and improvement priorities. • Cultivate a culture of shared ownership and responsibility among external stakeholders, including the LGU.	their engagement experience and use it to inform future engagement activities. • Conduct regular reviews of stakeholder engagement efforts and adjust strategies based on feedback. • Organize regular meetings and forums involving LGU representatives to maintain communication and collaboration. • Identify joint initiatives and projects involving the LGU that align with shared accountability and improvement goals. • Establish working groups or task	collaborative projects involving the LGU. • Staff time for organizing meetings, facilitating collaboration, and coordinating projects involving LGU representatives. • Collaboration with the LGU, community organizations, advocacy groups, and government agencies for joint initiatives and support.	

			forces involving LGU representatives to drive collaborative projects forward.		
Year 5: Sustainability and Continual Improvement	Empower external stakeholders, including the LGU, to take active roles in driving accountability and improvement initiatives forward. Embed stakeholder engagement in the school's culture and practices, and continually enhance LGU involvement.	• Develop a sustainability plan for stakeholder engagement, outlining long-term goals and strategies for maintaining LGU involvement. • Implement at least one new strategy to enhance LGU engagement based on lessons learned.	• Conduct a review of stakeholder engagement efforts to identify strengths and areas for improvement. • Develop a sustainability plan for stakeholder engagement, outlining strategies for maintaining and enhancing LGU involvement.	• Budget for training programs and capacity-building activities. • Human resources for organizing events and providing support to external stakeholders.	12 months
Year 6: Recognition and Celebration	Acknowledge the importance of external stakeholder involvement and strengthen relationships through	• Organize a recognition event to acknowledge the contributions of LGU representatives and other external stakeholders.	• Plan and organize a recognition event to celebrate the contributions of LGU	• Budget for organizing the recognition event. • Staff time for event planning and coordination.	12 months

	recognition and celebration.	• Use the event to reinforce the importance of external stakeholder engagement and strengthen relationships with LGU.	representatives and other external stakeholders. • Use the event as an opportunity to showcase successful collaborations and highlight the benefits of external stakeholder engagement.		
Management of Resources					
Year 1: Stakeholder Engagement Plan Development	Develop a structured approach to engage and collaborate with key stakeholders to enhance resource management and stakeholder involvement in planning, monitoring, and evaluation.	• Develop a stakeholder engagement plan outlining roles, responsibilities, and communication strategies for engaging with key stakeholders. • Establish communication channels and feedback mechanisms to facilitate ongoing engagement with key stakeholders.	• Conduct a stakeholder meeting with School Governing council with representation from school staff, parents, and community members. • Develop a stakeholder engagement plan outlining strategies	• Staff time for committee formation and plan development. • Budget for stakeholder engagement activities.	12 months

			for engaging with key stakeholders, including the LGU.		
Year 2: Implementation of Stakeholder Engagement Plan	Actively engage key stakeholders in resource management, planning, monitoring, and evaluation to improve school-based management.	• Increase LGU participation in school resource planning and decision-making by 25%. • Collaborate with the LGU to identify and address resource management priorities.	• Hold regular meetings with LGU representatives and other stakeholders to discuss school resource needs and priorities. • Invite LGU representatives to participate in school planning and review meetings.	• Staff time for meeting coordination and communication with LGU. • Budget for meeting expenses and stakeholder engagement materials.	12 months
Year 3: Capacity Building and Project Collaboration	Empower key stakeholders to contribute effectively to resource management and school improvement initiatives.	• Provide training and capacity-building opportunities for LGU representatives on resource management and school improvement principles and practices. • Collaborate with the LGU on at least two school	• Develop training programs for LGU representatives on resource management, planning, and monitoring.	• Training resources for LGU capacity building. • Budget for project implementation and collaboration with the LGU.	12 months

		improvement projects.	• Identify and implement school improvement projects in collaboration with the LGU.		
Year 4: Monitoring and Evaluation Framework	Ensure accountability and transparency in resource management and stakeholder engagement.	• Develop key performance indicators (KPIs) for resource management and stakeholder engagement. • Implement a monitoring and evaluation system to track progress and effectiveness.	• Develop KPIs for resource management, stakeholder engagement, and school improvement. • Implement a monitoring system to track progress against KPIs.	• Staff time for developing KPIs and monitoring systems. • Budget for system implementation and training.	12 months
Year 5: Sustainability and Continual Improvement	Embed stakeholder engagement in the school's culture and practices, and continually enhance LGU involvement.	• Develop a sustainability plan for stakeholder engagement, outlining long-term goals and strategies for maintaining LGU involvement. • Implement at least one new strategy to enhance LGU engagement	• Conduct a review of stakeholder engagement efforts to identify strengths and areas for improvement. • Develop a sustainability plan	• Staff time for sustainability planning and strategy development. • Budget for implementing new strategies for LGU engagement	12 months

		based on lessons learned.	for stakeholder engagement, outlining strategies for maintaining and enhancing LGU involvement.		
Year 6: Recognition and Celebration	Acknowledge the importance of key stakeholder involvement and strengthen relationships through recognition and celebration.	• Organize a recognition event to acknowledge the contributions of LGU representatives and other key stakeholders. • Use the event to reinforce the importance of key stakeholder engagement and strengthen relationships with the LGU.	• Plan and organize a recognition event to celebrate the contributions of LGU representatives and other key stakeholders. • Use the event as an opportunity to showcase successful collaborations and highlight the benefits of key stakeholder engagement.	• Budget for organizing the recognition event. • Staff time for event planning and coordination.	12 months

DISCUSSION

Table 1.1.1 shows Internal stakeholders assessed leadership and governance from 3.59 to 3.68, which is indicated as highly implemented. Indicator I3, "Inclusiveness and Diversity," had the highest mean score of 3.68. It highlights internal stakeholders' favorable opinions of the organization's commitment to inclusiveness and diversity. Indicator I7, "Recognition of Contributions," has the lowest mean score among internal stakeholders, at 3.59, but is still classified as "Highly Implemented." It indicates a slightly lower perception of the organization's effectiveness in recognizing contributions, though sentiment remains generally positive. Suggesting that it requires further investigation to determine why it obtained a somewhat lower rating despite an overall favorable assessment. The overall mean score of 3.66, which falls within the "Highly implemented" range, demonstrates the positive evaluation of SBM implementation regarding leadership and governance. To further enhance this implementation, we should build on the strengths highlighted in items I3 and I6, address the shortcomings identified in item I7, and regularly evaluate leadership and governance procedures. Maintaining stakeholder involvement and providing professional development opportunities for leadership roles in SBM is also critical. By following these suggestions, SBM implementation can move forward positively, ensuring that it corresponds with the objectives and effectively serves the school community.

Whang's (2021) findings emphasized the importance of strong collaboration among internal stakeholders, including teachers, parents, and school staff. The principal's role as a leader in SBM involves reinforcing collaboration and integrating opportunities to support the network of school partners and contributors. Furthermore, Acibar (2019) found that school heads attained very satisfactory ratings in school leadership, indicating that internal stakeholders may perceive leadership in SBM positively. It suggests alignment with Whang's emphasis on collaboration and leadership.

On the other hand, external stakeholders' assessments ranged from 2.33 to 2.78, which gave Indicator I3, "Inclusivity and Diversity," the lowest mean score of 2.33, classifying it as "Less Implemented." It suggests a perceived deficiency in stressing inclusivity and diversity compared to internal stakeholders' perspectives. Indicator I1, "Participation in Decision-Making," had the highest mean score of 2.78 among external stakeholders, indicating it is "Implemented." It shows a modest impression of the organization's efficacy in incorporating external stakeholders in decision-making. From seven (7) indicators, four (4), or 57.14%, were assessed as less implemented, and three (3), or 42.86%, were implemented. Several suggestions to address these perceived shortcomings include increased training and support for school leaders, establishing regular feedback mechanisms, clear communication channels, investment in capacity-building initiatives, and promoting a culture of continuous improvement. By implementing these suggestions, educational institutions can improve the perceived effectiveness of leadership and governance within the SBM framework, thereby enhancing overall stakeholder satisfaction and the quality of education delivery.

Internal stakeholders had a high mean score of 3.66 when considering total ratings, indicating a widespread opinion of "Highly Implemented" leadership and governance methods. External stakeholders had a lower overall mean score of 2.49, with most indicators falling into the "Less Implemented" group. Internal stakeholders perceived a high degree of leadership and governance practices, but external stakeholders believed these practices were less evident, particularly in areas such as inclusion and diversity. Although in total, stakeholders assessed leadership and governance 3.08, which means “Implemented”, addressing the identified areas may improve governance effectiveness and align business practices with external expectations.

School-based management emphasizes shared decision-making and collaboration among stakeholders, including external ones like community leaders and NGOs. These stakeholders are crucial in shaping schools' leadership and governance practices. In support of the findings, Meador (2019) highlighted the importance of solid leadership in SBM and how it depends on the commitment and effort of principals. Similarly, Whang (2021) emphasized the need for stakeholder collaboration to reinforce SBM. Further, Gonzales (2018) discussed best practices in fostering school-community relations, indicating that involving external stakeholders, such as through general assemblies, enhances leadership and governance in SBM. In addition, Mitrofanova (2004) emphasized the importance of societal support for schools to achieve their educational goals, underscoring the role of external stakeholders in shaping leadership and governance practices.

Green (2017) outlines the pertinent strategies to foster a positive school-community dynamic in line with the results and findings. These methods consist of critical theory, interpretivism, and positivism. School administrators use these methods to connect the school and the community. Leaders should provide services that benefit the community partners and the academic institution fairly.

Another study conducted by Vallejo et al. (2018) assessed public high schools' capacity to form community partnerships. Respondents were schools from Northern Aurora School. According to the study's findings, the principal has the most influence over teachers' motivation to form engaged partnerships with stakeholders. Furthermore, researchers discovered that school administrators' help and networks of support for educators are crucial in assisting faculty members in overcoming obstacles at work.

As such, understanding how effectively governance and leadership structures contribute to the school's success depends on the opinions of internal and external stakeholders regarding implementing school-based management (SBM) in terms of leadership and governance.

Therefore, to effectively implement SBM in leadership and governance, it is imperative to solicit feedback from various stakeholders, utilize multiple data sources, and facilitate collaborative discussions among stakeholders to identify areas of strength, challenges, and opportunities for Improvement. Schools can create more successful leadership practices and governance structures that promote the general success and

well-being of the school community by embracing the opinions of both internal and external stakeholders.

Table 1.1.2 shows that internal stakeholders rated Indicator I1, "Curriculum Design and Development," with a mean score of 3.70, suggesting it is "Highly Implemented." It highlights their assessment of the organization's comprehensive and practical curriculum design strategy. Although Indicator I4, "Alignment with Educational Standards," had the lowest mean score among internal stakeholders (3.56), it remains in the "Highly Implemented" category, indicating a slightly lower perception of alignment with educational standards.

External stakeholders assessed Indicator I1, "Curriculum Design and Development," the highest, with a mean score of 3.00, classifying it as "Highly Implemented." It is consistent with internal stakeholders' opinions, stressing the organization's expertise in curriculum design. However, Indicator I4, "Alignment with Educational Standards," had the lowest mean score among external stakeholders at 2.33, qualifying it as "Less Implemented." It indicates a perceived lack of alignment with educational standards, highlighting an area that requires addressing. The overall mean score, calculated at 2.58, falls within the "Implemented" category, indicating that, on average, stakeholders perceived the implementation of SBM in terms of curriculum and learning as adequately practiced. To address areas needing Improvement, targeted support for less practiced areas, such as items I4 and I5, could be provided, including professional development opportunities for teachers and curriculum enhancements. Implement continuous monitoring and evaluation systems to ensure ongoing alignment with stakeholder expectations, foster collaborative decision-making processes, and promote best practices in curriculum development. Additionally, investing in professional development opportunities for educators can enhance their ability to effectively implement SBM principles in the classroom. By implementing these suggestions, educational institutions can further improve the implementation of SBM in terms of curriculum and learning, leading to improved academic outcomes and stakeholder satisfaction.

Internal stakeholders have a high mean score of 3.65, firmly believing in the "Highly Implemented" curriculum and learning activities. In contrast, external stakeholders have a lower overall mean score of 2.58, indicating a less favorable opinion. The bulk of metrics for external stakeholders fall into the "Implemented" and "Less Implemented" categories, suggesting room for Improvement to meet external expectations.

Two (2) indicators, such as those in I6 and I7, related to reviewing assessment tools and contextualizing assessment, were not included on the SPTAs' questionnaires since they were unrelated to their tasks as parents. School heads and teachers assessed it as "highly Implemented," with a mean score of 3.70 (I6) and 3.69(I7).

Dare (2022) discussed the principal's role in planning the curriculum system and monitoring curriculum growth and status. Conversely, Principals under SBM are accountable for motivating the school community toward educational goals. In connection with the findings from Moradi (2016), they compared the implementation of SBM in developed countries. As a result, schools that have submitted authority to local councils

and parent-teacher organizations likely impact curriculum decisions. It suggests that internal stakeholders, including teachers, might perceive the impact of SBM on curriculum differently based on their involvement in decision-making.

The involvement of external stakeholders, including community leaders, can significantly influence the development and Improvement of the curriculum within schools. To support the findings, Merlo (2021) mentioned the role of principals in managing curriculum under SBM, highlighting the need for strong leadership. Additionally, Arar (2018) and Wivono (2017) discussed the positive impact of SBM on education quality and outcomes. Also, Gaspar (2022) found a significant relationship between SBM practices and transformational management styles, indicating how leadership influences curriculum and learning outcomes. In addition, Vallejo et al. (2018) evaluated the competence of public high schools in establishing partnerships with the community, suggesting that external stakeholders contribute to curriculum development through active partnerships with schools.

In conclusion, internal stakeholders regard curriculum and learning approaches as quite effective, particularly in curriculum design and development. External stakeholders share a positive outlook but underline the need for progress, particularly aligning with educational requirements. Addressing these issues may improve overall effectiveness and alignment with external expectations in curriculum and learning processes.

Islam (2019) studied several facets of a program-offering entity's (POE) curriculum in Bangladesh using stakeholder feedback. Data analysis reveals that perspectives from different stakeholder groups are consistent regarding assessment domains, including curricular mapping, assessment, and feedback methods. On issues like "program load," the views of students—present and former—differ from those of the academic community.

PSGR Krishnammal College for Women (2020), an independent arts and science college in India, asked its stakeholders for curriculum development and design input. In this regard, PSGRKCW makes the required accommodations for student, teacher, and stakeholder input replies on institutional processes connected to the curriculum. The primary objective of stakeholder feedback is to gather meaningful data to enhance teaching, learning, assessment, and capacity. One of the most critical components of the teaching and learning process is the curriculum, which requires ongoing and regular evaluation. The curriculum review committee of the institute, which is duly established and meets at the end of each semester, evaluates the compilation of comments received from all stakeholders. Modifications are proposed in the Board of Studies meeting following a thorough input examination. The changes required are implemented based on the BOS members' recommendations. Meanwhile, this study demonstrates how school administrators actively participate in implementing school-based management, valuing stakeholder feedback, and cultivating a feeling of ownership.

Table 1.1.3 shows that internal stakeholders highly rate Indicator I4 “Continuous Improvement Processes" with the highest mean score of 3.86, classifying it as "Highly Implemented." It indicates a strong commitment to continuous improvement processes within the organization, emphasizing an ongoing enhancement culture. Indicator I3,

"Accountability Measures," had the lowest mean score among internal stakeholders, at 3.59, although it is still classified as "Highly Implemented." It indicates a slightly weaker perception of accountability measures; however, the overall attitude remains positive.

On the other hand, external stakeholders evaluate Indicator I4, "Continuous Improvement Processes," as the highest-rated, with a mean score of 2.78, classifying it as "Implemented." While this suggests a reasonable opinion, there is a considerable difference compared to internal stakeholders. Indicator I3, "Accountability Measures," had the lowest mean score among external stakeholders, 2.67, and is classified as "Implemented," indicating a perceived need for Improvement in accountability measures.

Internal stakeholders have a high mean score of 3.70, indicating widespread acceptance of "Highly Implemented" accountability and improvement procedures. It is encouraged to build on identified strengths, address areas of concern, and promote transparency and continual evaluation to improve implementation. Furthermore, offering adequate resources and support for accountability and improvement projects might help them become more effective and sustainable. Prioritizing these proposals maximizes SBM's impact on accountability and Improvement, resulting in improved educational outcomes and stakeholder satisfaction. In contrast, external stakeholders had a lower overall mean score of 2.69, reflecting a less positive attitude. All indicators for external stakeholders are in the "Implemented" category, indicating areas that may need improvement to meet external expectations. To build on this positive perception, consider implementing continuous evaluation mechanisms, improving communication channels to ensure transparency, encouraging data-driven decision-making, investing in capacity-building initiatives, and establishing feedback mechanisms to foster continuous Improvement. These guidelines can help educational institutions strengthen their SBM implementation, resulting in better outcomes and stakeholder satisfaction.

Internal stakeholders believe accountability and improvement techniques, particularly continuous improvement processes, are highly effective. External stakeholders exhibit a positive attitude but emphasize improvement areas, particularly accountability measures and constant development, to align with internal perceptions and expectations. In general, stakeholders assessed accountability and continuous improvement as 3.20 or Implemented, yet addressing the identified issues may increase overall effectiveness and alignment with external expectations in accountability and improvement initiatives.

Maca's (2019) study underscored the significance of transparency in the conduct of school heads during SBM, which fostered increased levels of collaborative practices, supporting the findings. It indicates that internal stakeholders positively perceive accountability when transparency is maintained. Alvarado (2019) found out that school principals faced constraints in SBM compliance due to limited managerial competencies and insufficient training. It may affect internal stakeholders' perceptions of accountability if they perceive gaps in the school head's ability to implement SBM effectively.

External stakeholders, such as community leaders, play a vital role in holding schools accountable and driving continuous improvement under SBM.

Tacay (2022) highlighted the goal of SBM to foster Improvement in teaching-learning outcomes, indicating the importance of accountability and Improvement. Additionally, Bhuiel (2021) examined the impacts of SBM on school development and Improvement, emphasizing the role of principals in motivating teachers and fostering collaboration with external stakeholders. Green (2017) highlights the significance of fostering positive school-community relations by emphasizing equitable services for both entities. This approach ensures mutual accountability and Improvement, effectively meeting the needs of both the school and the community. By prioritizing equity in providing services, schools can strengthen their ties with the community and enhance collaboration, ultimately leading to better outcomes for all involved parties.

According to Driscoll (2022), principals who are passionate and committed to improving the educational system must deliver high-quality school-based management services to see real progress in their institutions. To succeed in school-based management and academic leadership, principals must exhibit various values and qualities that characterize excellent leadership. These qualities include being trustworthy and powerful, connecting, communicating, working together, and being upbeat.

In De la Fuente's (2022) study, he provided evidence that schools can effectively address the needs and demands of their student body and their learning communities by implementing the SBM. The school head addresses the need for improved learning outcomes before implementing the School-Based Management System. School heads operating under the SBM system possess extensive training and skills in educational leadership, stakeholder engagement, school planning and intervention, resource management, and project supervision. Republic Act 9155, sometimes called the Governance of Basic Education Act, also serves as one of the legal pillars supporting the school-Based Management System. According to Macadatar (2020), this act stipulates that a school head must oversee the institution and have authority, accountability, and responsibility for achieving better learning outcomes and accomplishments. The school head's duties under the SBM system include managing the school and providing instructional leadership, assessing the instructors' work, and encouraging effective student learning outcomes, among other things.

To fulfill these SBM roles and responsibilities correctly and effectively, the head of the school must have six essential leadership traits. These include having a clear vision and being knowledgeable, approachable, and open. Additionally, competent school administrators ensure that staff members and professionals have technical support and are eager to promote the empowerment of individuals, the student body, and other stakeholders.

In table 1.1.4 Internal stakeholders consistently viewed the procedures as “Highly Implemented”, with average scores ranging from 3.61 to 3.68. This uniformity shows a strong internal consensus on the effective implementation of SBM in the context of management and resource allocation, demonstrating that the approach has been well-

welcomed by internal stakeholders. The highest mean score of 3.68 interpreted as “Highly Implemented”, assigned to I5, indicates a very strong endorsement from one subset of internal stakeholders.

External stakeholders, on the other hand, vary in their assessments of the activities, describing them as "Implemented" with mean ratings ranging from 2.44 to 2.89. The lowest mean score of 2.44 interpreted as “Less Implemented”, assigned to I1 and I3, shows a less cheerful outlook than the highest mean score of 2.89 as “Implemented”, supplied by I4. This suggests that specific areas or features of SBM linked to management and resources may need to be improved or aligned with the expectations of certain external stakeholders.

The overall mean score of 2.62 for external stakeholders shows credence to the notion that practices are classified as "Implemented." Overall, internal stakeholders have a strong and consistent positive perception. In contrast, external stakeholders have a generally positive outlook with some variations in specific aspects of management and resources that require targeted improvement.

The results are supported by the fact that school-based administration is a difficult, demanding, and complex profession. Latorilla (2018) aimed to provide significant ideas and expertise in the pursuit of supporting the strengthening of the school-based management system. The concurrent mixed technique of research was used in this study. The thirty pre-selected school heads, ten from central schools, and twenty from non-central schools within a division were the respondents. The findings demonstrated that most of the study's school heads firmly agreed on the value, usability, and comprehensiveness of the school-based management system. However, the respondents also mentioned that one of the main obstacles to SBM's adoption is the time-consuming processes that are involved in its many different sectors. The respondents also mentioned a lack of funding support for SBM programs and limited expertise in recording proof of SBM accomplishments.

The results support the research of Alvarado (2019), who investigated the barriers to public school administrators' compliance with school-based management. The study examined how RA 9155-mandated school principals manage the difficulties and limitations associated with implementing SBM. A descriptive-normative research design was used in the study. The fifty randomly chosen principals from the public schools in Southern Leyte served as the study's informants. The Performance Appraisal System for School Administrators, modified, was used to collect the data. The results demonstrated that the respondents' administrative competencies in SBM were found to be inadequate, in addition to their implementation of a range of educational programs. This resulted from inadequate training in SBM domains and initiatives.

In assessing the implementation of School-Based Management (SBM) regarding the management of resources, both internal and external stakeholders play crucial roles, each offering unique perspectives and insights.

Overall, both internal and external stakeholders' assessments of resource management in SBM implementation are essential for ensuring that resources are effectively utilized to support the educational needs of students and promote school improvement. By engaging in dialogue, collaboration, and ongoing evaluation, schools can address stakeholders' concerns and optimize resource management practices to enhance teaching and learning outcomes.

Based on these assessments, recommendations for improvement may include refining communication and collaboration between internal and external stakeholders, addressing perception gaps through dialogue and feedback mechanisms, and continuing to invest in capacity-building and resource management initiatives to strengthen SBM implementation across all components. Overall, the tables showed a good impression of SBM implementation, with opportunities for targeted development to guarantee continuing effectiveness and alignment with stakeholder expectations.

Contrary to the positive findings highlighted in the overview of SBM implementation, the study conducted by Ubongen (2022) raises concerns about the managerial competencies of school principals in Southern Leyte. The findings revealed limitations in managerial competencies, particularly in implementing various school programs under SBM. This suggests that despite the emphasis on empowering school leaders through SBM, challenges related to skills development and resource management may hinder effective implementation.

Similarly, Alvarado (2019) explored constraints on SBM compliance among public school principals, revealing limitations in managerial competencies and insufficient training on SBM areas and projects. This underscores the importance of addressing capacity-building initiatives to enhance the effectiveness of SBM implementation, particularly in empowering school leaders with the necessary skills and competencies to navigate complex educational landscapes. Furthermore, De Luna (2021) identified challenges and complexities in SBM implementation, particularly regarding the equal participation of all school professionals and community members. This suggests that while SBM aims to decentralize decision-making and empower stakeholders, challenges related to inclusivity and participation may hinder its effectiveness, highlighting the need for fostering collaborative practices and addressing barriers to engagement.

Overall, while SBM holds promise for improving school systems and fostering stakeholder engagement, addressing challenges related to managerial competencies, inclusivity, and capacity building is crucial for ensuring its successful implementation and sustainability

Assessing the implementation of School-Based Management (SBM) requires considering the perspectives of both internal and external stakeholders, each bringing unique insights and expectations to the evaluation process. Internal stakeholders, such as teachers, administrators, students, and parents, offer firsthand experience and a deep understanding of the day-to-day operations and challenges within the school. Their assessments often focus on the practical aspects of SBM, such as its impact on teaching practices, student outcomes, and school culture. In contrast, external

stakeholders, including government officials, community members, and educational experts, provide a broader perspective, often emphasizing the alignment of SBM with academic policies and goals at the regional or national level. Their assessments may also consider the broader societal impact of SBM, such as its role in promoting equity and inclusivity in education. Understanding and reconciling the differences in evaluation between these two groups is crucial for understanding the effectiveness of SBM and informing future policy and practice.

Table 1.1.5 The Mann-Whitney U Test results in Table 1.15 show a substantial variation in how internal and external stakeholders evaluate School-Based Management (SBM) implementation across several domains. Leadership and Governance, Curriculum and Learning, Accountability and Improvement, and Resource Management all had p-values lower than the standard significance level of 0.05. As a result, the null hypothesis, which states no significant difference between internal and external stakeholders' assessments, is rejected for all these aspects in the Tests of Normality. It implies a statistically significant difference in perceptions of SBM implementation between the two stakeholder groups.

The Mann-Whitney U Test interpretation emphasizes identifying and correcting these inconsistencies to improve alignment and satisfaction among internal and external stakeholders throughout SBM implementation. Leadership and governance, curriculum and learning, accountability and Improvement, and resource management are all critically important aspects of school-based management (SBM) methods. Studies continually highlight the critical significance of these components in successfully implementing SBM efforts. Leadership and governance lay the groundwork for effective school decision-making and strategic planning. SBM revolves around curriculum and learning, driving educational outcomes and student accomplishment gains. Accountability and continuous improvement systems promote openness, evaluation, and Improvement of school performance. Meanwhile, sound resource management is critical for allocating resources to support teaching and learning activities. These components collectively create the environment of SBM implementation, underlining the vital need for careful consideration and integration within education.

As a result, differences between internal stakeholders (teachers, staff, and administrators) and external stakeholders (government agencies, parents, and community members) regularly emerge when assessing the use of school-based management (SBM). Various factors, such as varied expectations, degrees of involvement, and priorities, contribute to these disparities.

To address these disparities, internal and external stakeholders must communicate effectively, collaborate, and understand one another. When implementing SBM, educational institutions must participate in meaningful conversations with all stakeholders, incorporate them into decision-making processes, and stress accountability and transparency. Recognizing and embracing a variety of opinions can help schools improve their ability to satisfy the needs and expectations of all stakeholders, resulting in better educational outcomes.

To support the findings, Villar (2021) analyzed the significant relationship between the styles employed in support of school-based management and the level of school climate in the public elementary schools in the Division of Quezon City. The study made use of the descriptive-correlational method of research. The respondents, comprised of this division's school heads and teachers, were randomly selected. Moreover, the researcher used the ordinary least squares statistical test for data treatment and analysis. The study results showed that most respondents highly agreed and perceived that social support was the most vital element to define the success of school-based management for school heads. However, physical resources were the principal respondents' most insufficient and problematic area of SBM.

Furthermore, Gaspar (2022) determined the significant relationship between school leaders' transformational management philosophies and SBM practices. The study included the descriptive-correlational research methodology. The respondents were Congressional District I-B public school heads. The findings demonstrated a positive association between the school heads' attendance at training and their school-based management strategies. Additionally, a strong correlation appeared between the respondents' transformational management abilities—such as romantic influence and intellectual stimulation—and the SBM performance of school leaders.

Conversely, another study by Ubongen (2022) examined the impact of school heads' SBM practices on teachers' instructional ability. The survey included the descriptive-correlational method. The data came from the chosen school heads of the public schools in the Province of Sarangani's Kiamba District. The findings demonstrated how closely the respondents observed the five SBM components. Along with the school leaders, stakeholders' involvement, school improvement process, school-based resources, and performance accountability, the principals showed high SBM abilities upon evaluation.

1.2 Assessment of SBM Implementation through SWOT Analysis

In the dynamic landscape of educational governance, understanding the intricacies of School-Based Management (SBM) implementation is paramount for fostering effective learning environments. As stakeholders engage in the assessment of SBM initiatives, it becomes evident that their perspectives, experiences, and insights serve as invaluable assets in shaping educational policies and practices. However, to truly harness the potential of stakeholder feedback and propel educational institutions toward success, it is essential to complement these assessments with a structured analysis. One such indispensable tool in strategic planning is the SWOT Analysis, which systematically evaluates the Strengths, Weaknesses, Opportunities, and Threats inherent in SBM implementation. By conducting a SWOT Analysis following stakeholder assessments, educational leaders can gain deeper insights into the internal dynamics and external factors influencing SBM, thereby empowering them to make informed decisions, capitalize on strengths, address weaknesses, seize opportunities, and mitigate threats to enhance the overall effectiveness and sustainability of SBM initiatives.

Table 1.2 shows the SWOT analysis, which evaluates the internal strengths and weaknesses and the external opportunities and threats of the proposed strategic management plan for school-based management (SBM). This analysis focuses on four distinct combinations:

The S-O (Strengths-Opportunities) scenario envisions leveraging internal strengths such as successful communication campaigns and stakeholder workshops to capitalize on possibilities such as improved collaboration with local government and technical improvements. In contrast, the S-T (Strengths-Threats) combination focuses on leveraging internal strengths to fight external threats, such as opposition to change and budget limits, by stressing positive outcomes and incorporating technology-driven solutions. Meanwhile, the W-O (Weaknesses-Opportunities) perspective emphasizes Addressing internal weaknesses, such as low involvement and inadequate resource allocation, to capture increased collaboration and communication opportunities effectively. Finally, in the W-T (Weaknesses-Threats) scenario, the strategy entails overcoming internal weaknesses to minimize external threats, such as opposition to change and financial constraints, by implementing defensive measures such as increased involvement and strategic resource allocation. Over the following six years, the SBM plan aspires to maximize its efficacy by strategically utilizing strengths, fixing weaknesses, and deploying proactive and defensive actions.

The literature and studies about the SWOT analysis of the proposed strategic management plan for School-Based Management (SBM) provide valuable insights into its implementation, challenges, and outcomes. One key aspect highlighted is the pivotal role of school principals in driving SBM success through effective leadership and management practices, as supported by Meador's (2019) and Merlo's (2021) studies. These studies emphasized the importance of principals in leadership, curriculum management, and teacher evaluation, aligning with the SWOT analysis's emphasis on effective school leadership.

Additionally, the SWOT analysis underscores the significance of visionary leadership and stakeholder collaboration for successful SBM implementation. Dowdy (2018) and Whang (2021) offer empirical support, emphasizing the need for visionary leaders with practical communication skills and strong collaboration among stakeholders to foster a positive SBM environment.

Moreover, the analysis suggests that the effectiveness of SBM can significantly impact student outcomes, with school leaders playing a central role. Lyons (2018) provides empirical evidence supporting this assertion, highlighting the influence of school-based management competence on teachers' working conditions and students' academic achievement.

Furthermore, the SWOT analysis references Republic Act 9155 as a legal foundation for SBM, highlighting the policy framework supporting decentralization and school autonomy. Macadatar (2020) elaborates on this legal framework, reinforcing the SWOT analysis's reference to RA 9155 and its implications for school leadership and management.

Lastly, the analysis acknowledges challenges and constraints in SBM implementation, such as limited managerial competencies and financial support. Alvarado (2019) supports this identification of challenges, providing empirical evidence for school leaders' constraints in effectively implementing SBM initiatives. These connections underscore the importance of effective leadership, collaboration, and policy frameworks in successful SBM implementation while acknowledging the challenges that address it.

2. Feedback of Stakeholders in the Four Core Areas of SBM Implementation

2.1 Leadership & Governance

In figure 4 , "Leadership and Governance" takes center stage, highlighting its pivotal role in school management. This theme encompasses various leadership aspects, decision-making processes, and organizational structures. Surrounding this central theme is "Community Collaboration and Engagement," emphasizing the importance of stakeholder involvement. Linked closely are "Transparency and Communication," critical for effective engagement. Adjacent to leadership is "Leadership Training and Development," stressing ongoing learning for school leaders. "Shared Leadership and Governance" underscores collaborative decision-making, while "Plan Review and Adaptation" and "Program Planning and Coordination" emphasize iterative processes and structured implementation, respectively.

2.1.1 Community Collaboration and Engagement

Community collaboration and engagement in the context of education involves actively involving stakeholders such as parents, students, teachers, administrators, and community members in decision-making processes, planning, and implementation of school initiatives. It encompasses participatory decision-making, consultation, partnerships, resource sharing, involvement in school activities, and transparent communication. By fostering a sense of ownership, shared responsibility, and mutual respect within the school community, community collaboration and engagement contribute to improved student outcomes, enhanced accountability, and the overall success of schools. Feedback from stakeholders highlights the importance of collaborative efforts in crafting inclusive plans that address the needs and aspirations of all parties involved.

As one of the respondents said, *"The school collaborated closely with stakeholders and the community to craft a comprehensive school development plan that addresses the needs and priorities of all involved parties."*

Similarly, other respondents said, *“Aktibo kaming nakilahok sa paaralan sa pagbuo ng plano para sa pag-unlad, tiyak na kinikilala nito ang tunay na pangangailangan ng aming pamayanan."* ("We actively participate in school in formulating plans for development, which definitely recognizes the genuine needs of our community.")

SBM emphasizes the involvement of stakeholders, including parents, teachers, students, and community members, in decision-making processes regarding school governance and development plans. This collaborative approach ensures that the needs and aspirations of all parties are considered. According to a study by UNESCO, "Involving communities in school management is a key strategy for school improvement. When parents, teachers, students, and community members work together, schools are more likely to be responsive to local needs and to succeed in their mission to educate children" (UNESCO, 2005).

Fullan (2003) discussed the importance of engaging stakeholders in school leadership and decision-making processes. He emphasizes that successful school improvement efforts require the active involvement of the entire school community, including teachers, parents, students, and community members.

Meanwhile, respondents said, *“Stakeholders were consulted but not all concerns were addressed."*

Likewise, another respondent, said *"Nakikita namin ang pagpapabuti ng plano ng paaralan ngunit maaaring kailanganin pa itong palawakin upang masaklaw ang iba pang mga opinyon at ideya ng mga stakeholders." ("*We see the improvement of the school's plan, but it may need to be expanded to encompass the opinions and ideas of other stakeholders.")

Involving stakeholders in decision-making ensures that diverse perspectives are considered, leading to more comprehensive and inclusive plans. However, it's important to address all concerns raised during the collaboration process to foster a sense of ownership and commitment among stakeholders.

While there are strengths such as collaborative plan development and clear role delineation, areas needing Improvement include responsiveness to emerging needs, stakeholder engagement in policy formulation, and consistency in information sharing. Addressing these areas could foster greater transparency, inclusivity, and collaboration within the school community.

Empowering stakeholder engagement and decision-making is essential for cultivating a positive school environment, as highlighted by Whang (2021). Dare (2022) and Lyons (2018) stress the influence of school leaders' behavior and values on SBM success and overall school performance. By fostering stakeholder collaboration, SBM promotes inclusivity and transparency, aligning with the imperative for stakeholder engagement in policy formulation.

Furthermore, SBM enhances responsiveness and transparency in addressing emerging needs, as Driscoll (2022) and De la Fuente (2022) noted. This approach allows schools to respond to learning needs and addresses areas requiring Improvement accurately. Moreover, when effectively executed by school leaders, SBM promotes educational quality and autonomy, as evidenced by Nollora (2021) and Papa (2022). The alignment of SBM with legal frameworks, such as Republic Act 9155, underscores the

importance of decentralized decision-making in achieving higher learning outcomes and ensuring leadership accountability, as articulated by Macadatar (2020) and De Jesus (2022).

2.1.2 Plan Review and Adaptation

SBM encourages regular review and adaptation of school plans based on feedback and changing circumstances. This iterative process allows schools to remain responsive to emerging needs, challenges, and opportunities.

According to a respondent, *"Regular reviews of the developed plan are conducted, with adjustments made promptly to address emerging needs, challenges, and opportunities, reflecting the school's commitment to continuous improvement."*

Similarly, another respondent said, *“Feedback-driven refinements enhance plan effectiveness”*

Meanwhile, a respondent from the external stakeholders said

"May ilang mga hakbang ang paaralan sa pag-evaluate ng plano, ngunit kailangan pa ng mas malawak na pakikisangkot ng mga stakeholder upang mapanatili itong epektibo."

("The school takes several steps in evaluating the plan, but broader involvement of stakeholders is needed to maintain its effectiveness.")

A report by the World Bank states, "Regular monitoring and evaluation of the school improvement plan are essential for its success. Schools should conduct periodic reviews to assess progress, identify challenges, and make necessary adjustments" (World Bank, 2018). Moreover, Sergiovanni (2005) emphasizes the importance of continuous improvement in school leadership and governance. He argues that effective leaders are responsive to feedback and willing to adapt their plans and strategies to meet the evolving needs of their school communities.

The success of School-Based Management (SBM) hinges on collaborative practices among various stakeholders within the educational community. As Meador (2019) and Merlo (2021) noted, principals play a pivotal role in orchestrating SBM efforts encompassing educational leadership, teacher evaluation, and disciplinary management. Dowdy (2018) emphasized the necessity for visionary leadership and practical communication skills among school leaders, underscoring their immersion in day-to-day SBM tasks.

2.1.3 Shared Leadership and Governance

Shared leadership and governance refer to a collaborative approach to decision-making and management within an organization or community. It involves distributing authority, responsibilities, and decision-making power among multiple individuals or groups, rather than concentrating it solely in the hands of a few leaders. This approach

fosters inclusivity, transparency, and collective ownership of goals and outcomes, ultimately leading to more effective and sustainable solutions.

According to a respondent. *"The school effectively establishes a clear organizational structure that fosters shared leadership and governance, ensuring that decision-making processes are inclusive and participatory."*

Additionally, a respondent stated, *"Collaborative governance structures in place fostering shared leadership."*

Meanwhile, according to an external stakeholder,

"May mga simula ng mga hakbang mula sa paaralan tungo sa pagsasamang pamumuno, ngunit may mga pagkukulang pa sa implementasyon at pagpapatupad."

("There are initial steps taken by the school towards shared leadership, but there are still deficiencies in implementation and execution.")

SBM promotes shared leadership and governance structures where decision-making responsibilities are distributed among various stakeholders. This fosters a sense of ownership and accountability within the school community. In their research, Mulford and Silins (2003) emphasize the importance of shared leadership in SBM, stating that "Effective school leadership is not the province of one person but is distributed among teachers, administrators, parents, and students." Furthermore, Harris (2008) explores various perspectives on distributed leadership in education, highlighting its benefits for school improvement. He discusses how shared leadership can empower teachers, parents, and students to take on leadership roles and contribute to decision-making processes.

The findings from the provided studies shed light on the crucial role of stakeholders, particularly local government units (LGUs), in the context of school-based management (SBM) and its implications for leadership and governance. Vallejo et al. (2018) underscored the pivotal role of principals in fostering collaboration between schools and external stakeholders, highlighting their importance in motivating teachers to develop active partnerships with stakeholders, including LGUs. It emphasizes the significance of effective leadership in establishing and maintaining strong connections with the broader community to support school initiatives.

Additionally, Bakwai's (2013) assessment of school-community relations skills among public high school principals revealed a proactive approach among many principals in enhancing connections with the community. Strategies such as community visits and recognition of active stakeholders indicate an acknowledgment among school leaders of the importance of fostering strong ties with the community, including local government entities, to bolster school initiatives and programs.

2.1.4 Transparency and Communication

Transparent communication channels between the school and its stakeholders are crucial for accountability and trust-building. Regular sharing of progress updates and feedback sessions fosters transparency and inclusivity.

According to a respondent,

"Regular dialogues with stakeholders empower them to contribute meaningfully to policy formulation, ensuring that community initiatives remain relevant and responsive to evolving needs."

Additionally,

"Engaging stakeholders in dialogue fosters a culture of transparency and accountability, enhancing trust and collaboration within the school community."

However, external stakeholders stated

"Feedback sessions should be conducted more consistently to ensure inclusivity."

Also, another stakeholder said,

"Hindi gaanong aktibo ang pagbabahagi ng impormasyon sa progreso ng edukasyon sa paaralan, kung kaya't marami sa komunidad ang hindi lubos na nakakaalam sa mga pangyayari."

("The sharing of information on educational progress within the school is not very active, which is why many in the community are not fully aware of the events.")

SBM emphasizes transparent communication channels between the school and its stakeholders to ensure accountability and foster trust. Regular sharing of progress updates and feedback sessions promotes transparency and inclusivity. There must be a continuous communication for strengthening collaboration and partnerships. Feedback from the stakeholder shows that there are challenges in ensuring consistent and inclusive communication practices. According to a study by Datnow and Hubbard (2002), "Transparency and open communication are essential components of successful school-based management. Schools that engage in regular dialogue with stakeholders are more likely to build trust and collaboration within the community.". Moreover, Bryk and Schneider (2003) discuss the importance of trust in fostering effective communication and collaboration within schools. They argue that transparent communication builds trust among stakeholders and creates a positive school culture conducive to improvement.

Furthermore, Okog & Abraham (2019) delve into the competence of schools in managing school-community relations, emphasizing the management skills of principals in dealing with school staff and engaging in school-community relations programs. Their analysis suggests that effective leadership in SBM extends beyond internal management to active engagement with external stakeholders such as LGUs, indicating the need for school leaders to cultivate relationships beyond the school gates for holistic school development.

Furthermore, Hassan et al.'s (2013) analysis highlights the reciprocal relationship between community involvement and school-community relations, emphasizing the importance of collaboration between schools and their communities, including LGUs, in fostering positive interactions and support systems. These studies collectively underscore the critical role of effective leadership and collaboration with external stakeholders in SBM. School leaders can enhance governance practices by fostering strong partnerships and engagement with the community, including LGUs, ultimately contributing to improved school outcomes and student achievements

2.1.5 Leadership Training and Development

Leadership and training are intertwined aspects of personal and organizational development, essential for cultivating effective leaders and fostering continuous improvement. Leadership entails guiding, inspiring, and empowering individuals or teams to achieve common goals, while training involves imparting knowledge, skills, and competencies necessary for fulfilling leadership roles effectively. Through structured training programs, individuals can enhance their leadership abilities, including communication, decision-making, and problem-solving skills. Effective leadership, in turn, enables organizations to navigate challenges, inspire innovation, and drive success. Therefore, the symbiotic relationship between leadership and training is pivotal in cultivating capable leaders and ensuring organizational growth and resilience.

SBM advocates for long-term programs aimed at training and developing school and community leaders. Investing in leadership capacity building ensures that stakeholders have the necessary skills to contribute effectively to school governance and improvement efforts.

According to the respondent,

"The school consistently implements long-term programs aimed at addressing the training and development needs of both school and community leaders, fostering continuous growth and improvement."

Additionally, *"The school organizes diverse, impactful programs for continuous development.*

Meanwhile, according to another stakeholder, *"The school occasionally addresses leadership training needs."* Furthermore, according to a respondent, *“Limited leadership programs hinder community progress."*

This shows that there is an implementation of long-term programs addressing the training and development needs of school and community leaders but needs strengthening and improvement. Stakeholders must be informed and well-trained and equipped with skills needed in the implementation of the program to ensure the success of its implementation. There should be consistent programs for continuous growth and community engagement. Challenges with limited investment in leadership capacity building and coordination can also be conveyed from the stakeholder’s feedback.

In a report by the OECD (2016), it is recommended that "Schools should provide ongoing professional development opportunities for teachers, administrators, and community members involved in school governance. Leadership training programs can enhance the effectiveness of school-based management initiatives." Additionally, Leithwood and Sun's (2012) meta-analysis examines the effects of transformational leadership on various outcomes, including teacher learning and student achievement. They emphasize the importance of investing in leadership development to enhance school effectiveness and student success.

2.1.6 Program Planning and Coordination

Program planning and coordination involve systematically designing, organizing, and implementing initiatives to achieve specific goals. It includes identifying needs, setting objectives, allocating resources, and bringing together stakeholders to collaborate efficiently. Effective planning and coordination ensure seamless execution and maximize impact.

According to one of the school heads,

"The school consistently organizes meetings and forums to share updates and gather feedback on the progress of the education program, fostering transparency and collaboration."

Similarly, another stakeholder, stated that *"Regular sharing of progress updates enhances transparency and engagement."*

However, a respondent said,

"The school occasionally conducts sessions to share updates on the education program's progress and gather feedback from stakeholders, promoting transparency and continuous improvement."

Another stakeholder stated that

"Napansin namin na ang SPTA ay hindi gaanong aktibo o hindi kasangkot sa proseso ng pagbuo ng plano ng paaralan."

(We noticed that the SPTA (School Parent-Teacher Association) is not very active or involved in the school development planning process.)

Moreover, an external stakeholder emphasized that

"May mga hakbang ang paaralan upang magkaroon ng mga programa para sa pagsasanay ng mga lider, ngunit kailangan pa itong palawakin at palakasin upang masaklaw ang lahat ng sektor ng komunidad."

("The school takes steps to have programs for the training of leaders, but it needs to be expanded and strengthened to encompass all sectors of the community.")

This clearly shows that efforts to establish diverse and impactful programs for continuous development. There is also need for better planning and coordination to strengthen leadership programs and create opportunities for expanding and enhancing programs to encompass all sectors of the community. SBM necessitates effective planning and coordination of programs to address the diverse needs of the school community. Establishing clear goals and coordinating efforts ensures that leadership programs are impactful and inclusive. According to a study by Leithwood and Mascall (2008), "Effective program planning and coordination are essential for the success of school-based management initiatives. Schools should develop comprehensive plans that align with their vision and goals, and coordinate efforts across all stakeholders to ensure implementation success." Likewise, Spillane et al (2001) discuss the distributed nature of school leadership and the importance of collaboration and coordination among leaders. They argue that effective program planning requires shared responsibility and a collective focus on achieving common goals.

Additionally, Bakwai's (2013) assessment of school-community relations skills among public high school principals revealed a proactive approach among many principals in enhancing connections with the community. Strategies such as community visits and recognition of active stakeholders indicate an acknowledgment among school leaders of the importance of fostering strong ties with the community, including local government entities, to bolster school initiatives and programs.

Furthermore, Hassan et al.'s (2013) analysis highlights the reciprocal relationship between community involvement and school-community relations, emphasizing the importance of collaboration between schools and their communities, including LGUs, in fostering positive interactions and support systems. These studies collectively underscore the critical role of effective leadership and collaboration with external stakeholders in SBM. School leaders can enhance governance practices by fostering strong partnerships and engagement with the community, including LGUs, ultimately contributing to improved school outcomes and student achievements.

2.2 Curriculum and Learning

Figure 5 provides a visual representation of the interconnectedness of these themes, with "Curriculum and Learning" serving as the focal point. Each theme contributes to the overall goal of enhancing educational outcomes and student learning experiences within the SBM framework.

2.2.1 Inclusive Curriculum Design and Planning:

It emphasizes the importance of designing a curriculum that caters to the diverse needs of students, ensuring inclusivity and equity in education. Stakeholders recognize the meticulous planning and refinement processes involved in curriculum development, which involve regular consultations with educators, parents, and community members.

According to one of the school heads,

"The curriculum is meticulously designed and refined to address the diverse development needs of every learner within our school community, ensuring inclusivity and equity in education."

Additionally, another respondent stated that

“May mga hakbang na isinagawa ang paaralan upang mas mapalapit ang edukasyon sa pang-araw-araw na buhay ng mga mag-aaral”

("The school has taken steps to make education more relevant to the daily lives of students.")

This aligns with the principle of SBM as state in DepEd order No. 83, series of 2012 which states that the community and learners' context and aspirations anchor the curriculum and learning systems, which are collaboratively developed and continuously improved. According to Marzano and Waters (2009), effective curriculum design acknowledges the diversity of learners and provides opportunities for differentiated instruction. This inclusive approach fosters student engagement and academic success.

The comprehensive analysis of the findings revealed significant insights into the multifaceted dynamics of school-based management (SBM), particularly concerning curriculum and learning aspects. A prominent finding across the studies is the indispensable role of school leaders, notably principals, in driving the successful execution of SBM initiatives. Meador (2019) and Merlo (2021) both emphasized the pivotal importance of educational leadership, encompassing tasks such as teacher evaluation and curriculum management, in realizing the objectives of SBM. These findings highlight the centrality of effective leadership in steering SBM toward its intended goals.

Moreover, the success of SBM initiatives in curriculum development depends on the commitment and engagement of school leaders in day-to-day tasks, as emphasized by Dowdy (2018). Principals set strategic directions, assess teaching methods, monitor learning achievements, and encourage parental involvement. Whang (2021) stresses the importance of fostering stakeholder collaboration to create a positive school environment conducive to effective curriculum development and implementation. The integration of opportunities to support the network of school partners, as Whang advocates, reinforces the inclusive and transparent nature of SBM, aligning with the varied perspectives provided by school heads, teachers, and SPTAs.

2.2.2 Community-Centered Curriculum Integration

Community-driven curriculum integration involves a collaborative approach to education that incorporates local knowledge, values, and needs into the curriculum design process. By engaging community members as active participants in shaping educational content and experiences, this approach aims to create a more relevant, culturally responsive, and inclusive learning environment. It recognizes the importance of

honoring diverse perspectives, fostering community ownership, and empowering learners to connect their studies to real-life contexts and challenges.

According to one of the stakeholders,

"The curriculum is designed to incorporate local context and community experiences, ensuring relevance and application to real-life situations through partnership with local organizations."

Likewise, another respondent said that

"Collaborative efforts between school and community stakeholders result in the creation of engaging learning materials and activities that promote creative thinking and problem-solving skills."

However, a stakeholder stated that

"School strives to align curriculum with community life, but there's room for improvement in actively involving community members in curriculum design and evaluation."

Additionally,

"May mga hakbang na isinagawa ang paaralan upang tiyakin na may kinatawan ang komunidad sa pagbuo ng mga paraan at materyales sa pagtuturo, ngunit kailangan pang mas palakasin at paigtingin ang ugnayan at kooperasyon."

("The school has taken steps to ensure community representation in the development of teaching methods and materials, but there is a need to strengthen and enhance cooperation and collaboration.")

"There's room for improvement in community engagement efforts to maximize the impact on learners' awareness and practice of good citizenship."

Feedback on curriculum and learning sheds light on curriculum development and implementation, revealing varying levels of agreement or concern. There are initiatives in integrating real-life situations but needs to broaden community representatives in curriculum design and evaluation. It also indicates room for improvement in community engagement to maximize its impact in curriculum.

Integrating community values and experiences into the curriculum enhances its relevance and applicability to students' lives. By incorporating local context and perspectives, schools can create more meaningful learning experiences that resonate with students. A study by Brouwer et al. (2016) emphasizes the importance of community involvement in curriculum development. Engaging community members ensures that the curriculum reflects the cultural, social, and economic realities of the local context, promoting authentic learning experiences.

According to Cuttilon (2021), primary education in the Philippines aims to help students reach their full potential by instilling a love for their country, correct values, and developing skills and academic competency, all essential aspects of nation-building.

2.2.3 Stakeholder Engagement in Curriculum Development

Stakeholder engagement in curriculum development is crucial for ensuring that the curriculum meets the diverse needs of students and promotes meaningful learning experiences. While there are collaborative efforts between school and community stakeholders, there's a need for broader representation and active involvement to enhance the effectiveness of educational initiatives.

According to one of the respondents,

"Collaborative efforts between school and community stakeholders result in the creation of engaging learning materials and activities that promote creative thinking and problem-solving skills."

Similarly, *"Technology experts collaborate with educators to integrate digital tools into the learning process."*

Meanwhile, other stakeholders stated that

"Mayroong limitadong koordinasyon at pakikipagtulungan ng mga guro at mga kinatawan ng paaralan sa pagpili at pagpaplano ng mga araling naaayon sa mga pangangailangan ng mag-aaral."

("There is limited coordination and collaboration between teachers and school representatives in selecting and planning lessons tailored to students' needs.")

Additionally, *"Mayroong limitadong koordinasyon at komunikasyon sa pagitan ng paaralan at komunidad sa pagtukoy at pagpaplano ng mga aspeto ng kurikulum naaayon sa lokal na karanasan ng mga mag-aaral."* ("There is limited coordination and communication between the school and the community in identifying and planning aspects of the curriculum that align with students' local experiences.")

While there are collaborative efforts between school and community stakeholders, there's a need for broader representation and active involvement to enhance the effectiveness of educational initiatives. Involving stakeholders such as educators, parents, and community members in curriculum development ensures that the curriculum meets the needs and expectations of all stakeholders. This collaborative approach fosters ownership and commitment to the curriculum, leading to its effective implementation.

According to Harris (2008), stakeholder engagement is essential for successful curriculum development. Collaborating with various stakeholders ensures that diverse perspectives are considered, leading to a more comprehensive and relevant curriculum that reflects the values and priorities of the school community. Jaboya (2018) emphasized

the importance participation of internal and external stakeholders in curriculum enhancement, community development, and student activities.

PSGR Krishnammal College for Women, an autonomous Arts and Science College in India emphasized the importance of gathering feedbacks from its stakeholders on Curriculum Design and Development. Valuable insights are taken from stakeholders such as teachers, parents, students and other stakeholders. It shows how school leaders value feedback from the stakeholders and foster a sense of ownership as they are active parts of school-based management implementation.

In support of the findings, this aspect of School-Based Management (SBM) underscores the collaborative nature of decision-making within educational institutions. Meador (2019) and Merlo (2021) highlight the critical role of school principals in overseeing SBM practices, including curriculum management, among other responsibilities. Their leadership is essential in ensuring the effective implementation of SBM initiatives, aligning curriculum development with the school's objectives and the learning community's needs.

Furthermore, the interconnectedness between school leaders and external stakeholders, including local government bodies, emerges as a crucial factor influencing the effectiveness of SBM. Whang (2021) stressed the significance of fostering strong collaboration between school communities and external stakeholders, while Dare (2022) highlighted how the behavior and values of school leaders play a pivotal role in promoting successful SBM practices. These findings accentuate the symbiotic relationship between school leaders and various stakeholders in driving positive outcomes through SBM, underscoring the importance of collaborative partnerships in educational governance.

2.2.4 Continuous Assessment and Improvement

Continuous assessment and improvement are essential components of SBM, contributing significantly to the quality of teaching and learning experiences. Stakeholders recognize the need for ongoing review and enhancement of assessment tools to meet evolving student needs and educational standards.

As one of the school head said, "*The continuous review and enhancement of assessment tools contribute significantly to the quality of teaching and learning experiences".* This aligns with SBM principles, which emphasize the importance of data-driven decision-making and continuous improvement.

Additionally, *"Regular review ensures alignment with evolving educational standards and best practices."*

Meanwhile, an external stakeholder highlighted,

"Mayroong mga pagsisikap ngunit medyo limitado pa ang koordinasyon at pagsasagawa ng pagsusuri ng mga sistema ng pag-aaral, kung saan ang ilang bahagi ng komunidad ay aktibo ngunit hindi pa ganap na kasangkot." ("There are efforts, but

coordination and implementation of assessment systems are still somewhat limited, with some parts of the community being active but not fully engaged.")

Continuous assessment and improvement are integral components of SBM, allowing schools to monitor student progress, evaluate the effectiveness of teaching practices, and make data-informed decisions to enhance learning outcomes. Regular assessment ensures that the curriculum remains responsive to students' evolving needs and educational standards. Meanwhile, based on feedbacks of external stakeholder indicates to broaden coordination and engagement of other stakeholders. Leithwood and Sun (2012) highlight the importance of continuous improvement in school leadership practices, including curriculum assessment and development. Schools that prioritize ongoing assessment and improvement demonstrate a commitment to excellence and student success. A study by Amon and Anggal (2021) highlighted the importance of schools' vision and mission, education process changes, and curriculum program adjustments to continuously improve the quality of learnings.

2.3 Accountability and Continuous Improvement

In School-Based Management (SBM), accountability and continuous improvement are essential. Accountability ensures that all stakeholders, including educators, administrators, and the community, are responsible for their roles and decisions, promoting transparency and trust. Continuous improvement focuses on regularly enhancing educational processes and outcomes through consistent feedback, evaluation, and adaptation. Together, they foster a dynamic and responsive educational environment where practices are continually refined to meet the evolving needs of students and the community.

2.3 Accountability and Continuous Improvement

Figure 6 illustrates the interconnected themes derived from stakeholders' feedback on School-Based Management (SBM) implementation. At the center is "Accountability and Continuous Improvement," representing the primary goal of SBM. Surrounding this central concept are arrows pointing towards it, each labeled with a theme: "Clarity and Consistency of Roles and Responsibilities," "Community Engagement and Ownership," "Regular Participatory Assessments," "Collaborative Development and Communication," and "Training and Consultation." These themes highlight the essential aspects contributing to achieving accountability and continuous improvement within the SBM framework.

2.3.1 Clarity and consistency of Roles and Responsibilities

The importance of clearly defining the roles and responsibilities of various stakeholders within the SBM framework is highlighted in this theme. When roles are well-defined, stakeholders understand what is expected of them, leading to accountability and effective decision-making. Consistency in communicating these roles ensures that everyone in the community is aware of their responsibilities, fostering alignment and coherence in the implementation of SBM initiatives.

As one of the respondents said, *“Roles defined well, with consensus from stakeholders, ensuring accountability”* Similarly, *“Defined roles ensure efficient functioning and smoother decision-making processes”*

However, external stakeholders stated that, *“Roles and responsibilities are generally understood but may lack clarity in some areas.”*

It indicates that there is consensus building on roles and responsibilities but there is a need for clarifications among external stakeholders. Clear delineation of roles and responsibilities is fundamental for effective governance and accountability within SBM. When roles are well-defined and consistently communicated, stakeholders understand their obligations, leading to more efficient decision-making and implementation processes.

2.3.2 Community Engagement and Ownership

Community engagement refers to the active involvement of various stakeholders, including parents, teachers, students, and local community members, in the decision-making processes related to education. When communities are engaged, they feel a sense of ownership over the educational outcomes and are more likely to support and participate in SBM initiatives. Community ownership fosters transparency, trust, and collaboration between schools and their surrounding communities.

According to one of the respondents,

“Community ownership of the accountability system fosters transparency and trust."

Similarly, *“Feedback mechanisms ensure stakeholders' voices are heard and considered."*

However, a stakeholder stated that, *“The school involves the community in shaping its accountability system, albeit with some room for improvement to ensure broader participation and ownership."*

Additionally, *“Nakikita namin ang mga pagpupulong at konsultasyon ng paaralan kasama ang mga kinatawan ng komunidad upang pag-usapan ang mga tungkulin at pananagutan, subalit may mga aspeto pang kailangan pang ayusin." ("We see school meetings and consultations with community representatives to discuss roles and responsibilities, but there are still aspects that need to be improved.")*

Moreover, another stakeholder stated that, *“May mga patuloy na hadlang tulad ng kawalan ng oras, resurso, at koordinasyon na nagpapahirap sa pagbuo at implementasyon ng sistema ng pananagutan.” ("There are ongoing obstacles such as lack of time, resources, and coordination that make it difficult to develop and implement an accountability system.”)*

These responses collectively suggest that while the school has made significant strides in involving the community and establishing feedback mechanisms, there is a recognized need for ongoing improvements to ensure broader participation and more effective community ownership of the accountability system. Caldwell (2005) provides a comprehensive examination of the principles, practices, and outcomes of SBM across different educational contexts. The study is structured to address the core components of SBM, including the delegation of decision-making authority to individual schools, the involvement of various stakeholders such as teachers, parents, and community members, and the mechanisms for ensuring accountability and transparency.

2.3.3 Regular Participatory Assessment

Regular participatory assessments involve gathering feedback and input from stakeholders to evaluate the effectiveness of SBM initiatives. These assessments provide valuable insights into what is working well and what needs improvement within the education system. By involving stakeholders in the assessment process, schools can ensure that decisions are informed by community needs and priorities, leading to more responsive and effective educational practices.

According to one of the stakeholders, *"Regular participatory assessments have become a cornerstone of the school's culture, enabling it to gather invaluable feedback from the community to inform our improvement plans."*. Likewise, *“The collaborative development of our performance accountability system has enabled us to effectively track progress, address challenges, and celebrate successes, fostering a culture of accountability and excellence.”*

However, an external stakeholder stated that, *“Nakakatuwa na may mga programa ang paaralan na nakatuon sa pakikilahok ng komunidad sa pagsusuri ng kanilang performance, bagaman maaaring hindi ito ganap na nangyayari sa bawat pagkakataon.”. (" It is delightful that the school has programs focused on community participation in evaluating their performance, although this may not be fully happening in every instance.")*

Similarly, another stakeholder said that, *“Nakikita namin ang mga hakbang ng paaralan sa pagsasagawa ng regular na participatory assessment, bagaman may ilang aspeto pa silang maaaring mapabuti para sa mas malawakang partisipasyon ng komunidad.”. ("We see the school's efforts in conducting regular participatory assessments, although there are still some aspects they can improve to achieve broader community participation.”)*

While the school has made strides in integrating participatory assessments and collaborative development into its culture, there are challenges related to consistent implementation and broader community involvement that need to be addressed for more effective and inclusive practices. The external stakeholder acknowledges the existence of programs focused on community participation in evaluating performance but suggests that these programs may not be consistently implemented.

Regular assessments involving various stakeholders provide valuable insights into the effectiveness of SBM initiatives and areas needing improvement. By engaging stakeholders in the assessment process, schools can gather diverse perspectives and ensure that decision-making is informed by community feedback. Bruns et. al (2011) report underscores the importance of accountability in education systems and provides valuable insights into the design and implementation of accountability reforms. It highlights the complex nature of accountability mechanisms and the need for careful planning and monitoring to ensure their effectiveness.

Furthermore, the connection between school leaders and external stakeholders, including parents, local government entities, and community members, emerged as a crucial factor in SBM's success, as discussed by Whang (2021) and Dare (2022). These studies underscored the importance of reinforcing SBM with robust collaboration among all stakeholders, highlighting the pivotal role of school leaders in fostering positive relationships and partnerships within the school community. In summary, these findings highlighted the complex interplay between school leadership, stakeholder engagement, and SBM practices, providing valuable insights for enhancing educational outcomes through decentralized decision-making and collaborative governance frameworks within SBM.

2.3.4 Training and Consultation

This refer to providing opportunities for stakeholders to build their capacity, share knowledge, and receive support related to SBM implementation. Training sessions help stakeholders understand their roles and responsibilities within the SBM framework, while consultations provide forums for discussing challenges, sharing best practices, and seeking input from stakeholders. By investing in training and consultation processes, schools can empower stakeholders to contribute meaningfully to the improvement of education outcomes.

According to one of the school heads, *“Training sessions help stakeholders understand their roles and responsibilities within the SBM framework.”*

Additionally, *“Training and consultation provide opportunities for stakeholders to build capacity, share knowledge, and align practices with SBM principles.”.*

Meanwhile, an external stakeholder stated that, *“May mga limitadong hakbang lamang na ginagawa ang paaralan upang masiguro na ang mga kinatawan ng komunidad ay aktibong nakikilahok sa pagbuo at pagpapabuti ng mga proseso sa pananagutan. Mas mainam na magkaroon ng pageensayo o seminar ang lahat ng stakeholders upang mabigyang linaw ito.”*

("The school is taking limited steps to ensure that community representatives are actively involved in the development and improvement of accountability processes. It would be better to have training or seminars for all stakeholders to clarify this.")

While the school has implemented training sessions and consultations to facilitate understanding and alignment with SBM principles, there are opportunities for improvement in ensuring broader and more active involvement of community representatives in accountability processes. Addressing these challenges through more inclusive initiatives, such as training or seminars, could enhance stakeholder engagement and contribute to more effective implementation of SBM principles. The suggestion for training or seminars for all stakeholders to clarify their roles and responsibilities indicates a desire for more comprehensive and inclusive initiatives to enhance understanding and participation among community representatives.

It is highlighted by Capili (2017) that implementing SBM integrates programs and activities for teachers' empowerment, such as conferences, seminars, workshops, mentoring services, and training programs. The sustainability of teachers' access to these traditional professional empowerment services highly depends on the efforts and endeavors of school leaders to serve the needs of the teachers. Similarly, Gaspar (2022) Trainings and seminars attended by the School Heads in regional, division and district level have a significant relationship to their SBM implementation.

According the World bank (2007) a sound training program for parents, teachers, and school personnel is critical to ensure the successful implementation of school-based management because many of them are likely to lack the skills necessary to carry out their new responsibilities. These skills include organizational skills such as planning and management, combined with process skills such as team building, interpersonal relations, and conflict resolution. Training must be provided not only to school staff but also to parents and community members to give them the skills to enable them to carry out their new roles effectively.

2.4 Management of Resources

In the implementation of School-Based Management (SBM), effective management of resources plays a pivotal role in ensuring the success and sustainability of educational initiatives. SBM empowers schools to make decisions regarding resource allocation, encompassing financial, human, and material resources, to best meet the needs of students and the school community. This entails not only the judicious distribution of funds but also the strategic deployment of personnel, facilities, and instructional materials. By decentralizing decision-making processes, SBM aims to enhance resource utilization efficiency, promote innovation, and tailor educational programs to local contexts. Furthermore, effective resource management fosters accountability, transparency, and stakeholder engagement, as schools collaborate with various stakeholders to optimize resource allocation strategies. As such, understanding the principles and practices of resource management in SBM is essential for schools to maximize their potential in providing quality education and fostering student success.

Figure 7 illustrates the key themes identified in stakeholder feedback related to School-Based Management (SBM) implementation. Each theme represents a distinct aspect of resource management in SBM, ranging from regular resource inventories to challenges and opportunities for improvement. Visualizing these themes helps

stakeholders gain insights into the priorities, concerns, and effective practices associated with SBM implementation.

2.4.1 Regular Resource Inventories and Decision-Making

Regular Resource Inventories and Decision-Making in the context of School-based Management (SBM) refers to the ongoing process within a school where resources such as finances, facilities, human resources, and instructional materials are regularly assessed, cataloged, and managed. This practice allows schools to maintain an accurate and up-to-date inventory of their resources, which is essential for informed decision-making. By continuously evaluating their resources, schools can allocate them effectively to support teaching and learning activities, address challenges, and improve overall school performance. Regular resource inventories also help schools identify areas for improvement and ensure that resources are used efficiently to achieve educational goals.

According to one of the school heads, *"School is actively working on improving the frequency and depth of our resource inventories to better inform decision-making and enhance the impact of resource allocation on student learning outcomes.".*

Similarly, a teacher-respondent, stated that, *"We recognize the importance of regular resource inventories, and working towards refining our processes to ensure they align more closely with community needs and aspirations."*

However, one of the stakeholders emphasize that *"Limited stakeholder involvement may result in overlooking community needs and preferences."*

Additionally, another stakeholder said, *"Napansin namin ang kakulangan ng paaralan sa regular na imbentaryo ng mga resources, na maaaring magdulot ng kawalan ng kaayusan at epektibong paggamit ng mga ito." ("We observed the school's lack of regular inventory of resources, which may lead to disorganization and ineffective use of these resources.")*

The feedback emphasizes the importance of conducting regular resource inventories to inform decision-making processes. Although, feedbacks from other stakeholders indicates an inconsistent resource inventory. This aligns with the principles of SBM, which advocate for data-driven decision-making and the efficient utilization of resources to improve student outcomes. Stakeholders also recognize the best practices of schools in conducting regular inventories of school resources which builds transparency, accountability and trust among stakeholders.

2.4.2 Transparency and Accountability

Transparency and accountability are crucial aspects of effective resource management in SBM. Stakeholders need to be informed about resource allocation decisions and how they align with community needs to build trust and confidence.

According to one of the respondents, *"Transparent inventory practices build community confidence in resource management.".* Similarly, *"Regular dialogues enhance*

transparency and accountability in resource allocation. Stakeholder involvement improves alignment between resource plans and community needs, fostering ownership and commitment."

Transparency and accountability are crucial aspects of effective resource management in SBM. Stakeholders need to be informed about resource allocation decisions and how they align with community needs to build trust and confidence. A study by Hallinger and Heck (2010) investigated the role of transparency and accountability in school leadership. They found that schools with transparent and accountable leadership practices were more effective in resource management and stakeholder engagement.

2.4.3 Challenges and Opportunities for Improvement

Managing resources effectively is crucial for the successful implementation of School-Based Management (SBM). However, this task comes with various challenges, such as limited resources, inadequate infrastructure, and inefficient processes. Despite these challenges, there are significant opportunities for improvement. By enhancing capacity building, implementing better monitoring and evaluation systems, engaging stakeholders, improving planning, and integrating technology, schools can overcome these challenges and optimize their resource management under SBM, ultimately leading to better educational outcomes.

According to one of the respondents, *“Limited stakeholder involvement may result in overlooking community needs and preferences.” Similarly, “There is room for improvement in enhancing inclusivity, accessibility, and consistency in resource management practices.”.*

Additionally, *“While some initiatives are in place, there are opportunities to strengthen partnerships and deepen stakeholder engagement for more effective resource management.”*

One of the external stakeholders, also stated, *“Nakikita namin ang limitadong partisipasyon ng LGU sa pagsasagawa ng imbentaryo ng mga resources ng paaralan.” (“We observe the limited participation of the Local Government Unit (LGU) in conducting inventory of school resources.")*

The feedback acknowledges existing challenges, such as limited stakeholder involvement and inconsistencies in resource management practices. This highlights the need for continuous improvement efforts to address these challenges and capitalize on opportunities for enhancing resource management effectiveness. Addressing these areas of Improvement could lead to more efficient resource utilization and, ultimately, enhanced outcomes for the school community.

The studies conducted by Bhuiel (2021), Mohd (2020), Evertson (2020), Kalkan (2020), Moradi (2016), and Tirri (2020) provided valuable insights into various aspects of school-based management (SBM) and its impact on resource management within educational institutions. Bhuiel's (2021) emphasis on motivational support for teachers

and learners, consistent discipline, and fostering parent-teacher communication aligns with the high satisfaction expressed by School Parent-Teacher Associations (SPTAs), suggesting that effective communication and collaboration contribute to efficient resource management. Mohd highlighted the crucial roles of school heads and education officers in ensuring SBM effectiveness, emphasizing the importance of leadership in addressing areas like inventory practices and stakeholder involvement. Similarly, Evertson underscored the pivotal role of school principals in fostering collaboration among teachers, supporting the need for deeper discussions highlighted in feedback

Moradi's insights into SBM's decentralized nature in developed countries resonate with the recognition of community engagement efforts, suggesting the empowerment of local stakeholders positively impacts resource management. Additionally, Tirri's identification of principals' professional development challenges align with feedback indicating the need for deeper discussions to enhance program development, emphasizing ongoing professional development for effective resource management within SBM frameworks.

Dowdy (2018) and Dare (2022) highlighted the pivotal role of school leaders in driving SBM initiatives through visionary leadership and effective communication. Principals oversee day-to-day SBM activities, set strategic directions, and foster stakeholder collaboration to achieve school improvement goals. Moreover, principals play a crucial role in reinforcing SBM with strong cooperation between all stakeholders, as discussed by Whang (2021) and Dare (2022), fostering positive relationships and partnerships within the school community.

The findings also emphasized the multifaceted nature of SBM, where school leaders must navigate challenges and complexities to ensure its success. Factors such as leadership competence, collaboration with stakeholders, and management of resources significantly influence SBM outcomes. Additionally, the study highlighted the importance of stakeholder engagement in SBM, with internal and external stakeholders playing vital roles in decision-making processes and fostering a conducive learning environment. The findings underscored the intricate interplay between leadership, stakeholder collaboration, and resource management within the SBM framework, providing valuable insights for enhancing educational outcomes and school development

Table 3 presents the yearly breakdown of the structured approach for implementing strategic priorities in leadership and governance, curriculum and learning, accountability and Improvement, and management of resources over six years, with each year building upon the progress of the previous years and focusing on specific objectives, activities, resources, and durations to achieve long-term success in SBM implementation. The pursuit of successful School-Based Management (SBM) implementation is critical for educational growth, with an emphasis on strategic areas such as stakeholder inclusion, systematic reviews, policy consensus-building, and collaborative leadership. Prioritizing community involvement in curriculum development, varied representation, enhanced community monitoring, active participation in citizenship education, and improving learners' creative and problem-solving skills can improve curriculum and learning. Improving communication, stakeholder involvement, community-defined accountability

mechanisms, collaborative processes, participatory assessments, efficient resource management via enhanced inventory procedures, inclusive conversations, transparent monitoring, and recognizing success stories of critical stakeholders all contribute to the overall Improvement of SBM implementation.

Conclusions

Based on the findings of the study, it is as a result of this concluded that:

1. The assessment findings on school-based management (SBM) implementation reveal a nuanced picture of strengths and areas for improvement. Internal stakeholders generally perceive leadership and governance favourably, contrasting with the perspectives of external stakeholders who identify areas needing enhancement. However, internal and external stakeholders agree on the high curriculum and learning implementation levels, accountability and improvement, and resource management. Significant disparities emerge between internal and external assessments across various domains, particularly in leadership and governance, curriculum and learning, and resource management, indicating the need for closer collaboration and communication to align perceptions and enhance overall SBM effectiveness. The research findings from the SWOT analysis of school-based management (SBM) highlight the critical interplay between internal strengths and weaknesses and external opportunities and threats. By leveraging internal strengths like effective communication campaigns and stakeholder engagement, SBM initiatives can seize external opportunities such as improved collaboration with local governments and technical advancements. Moreover, proactive measures, including emphasizing positive outcomes and integrating technology-driven solutions, enable SBM to confront external threats like opposition to change and budget constraints. Addressing internal weaknesses, such as low involvement and inadequate resource allocation, is essential for capitalizing on increased collaboration and communication opportunities. Simultaneously, mitigating external threats through defensive strategies, such as enhanced involvement and strategic resource allocation, ensures the resilience and effectiveness of SBM initiatives in navigating challenges and fostering sustainable growth within educational settings.

2. Feedback from internal and stakeholders, including teachers, school heads, and School Parent-Teacher Associations (SPTAs), provided valuable insights into strengths and areas for improvement in SBM implementation. Similarly, feedback from external stakeholders, such as Local Government Units (LGUs), offered additional perspectives on leadership and governance, curriculum and learning, accountability, and resource management practices within schools.

3. A proposed strategic plan model to improve SBM implementation utilizes strengths, tackles weaknesses, seizes opportunities, and mitigates threats. This comprehensive SBM strategic plan outlines specific activities, objectives, strategies,

timelines, stakeholders, and expected outcomes, aiming to drive positive change and foster continuous improvement within the educational community over the next six years.

Recommendations

Based on the findings and conclusion of the study, the following are as a result of this recommended:

1. The Administration creates a collaborative environment within the institution by fostering continuous communication and collaboration between internal and external stakeholders and establishing regular feedback mechanisms to address evolving expectations and concerns, ensuring a dynamic and responsive approach. Moreover, implementing professional development programs for stakeholders is essential to enrich their comprehension of School-Based Management (SBM) practices and foster a shared vision for the educational institution's success.

2. Stakeholder representatives comprehensively review School-Based Management (SBM) discrepancies, including Leadership and Governance, Curriculum and Learning, Accountability and Improvement, and Resource Management. Establish open dialogues with internal and external stakeholders to address perceived differences, aggressively seeking feedback for a collaborative strategy that effectively addresses discrepancies. Moreover, prioritize developing focused programs, including tailored training and awareness campaigns to enhance understanding and alignment with SBM practices. Direct the emphasis towards specific areas contributing to the observed discrepancies. To maintain progress, stakeholders argue for a systematic process for continuous monitoring and evaluation and regular assessments of intervention impact, allowing for required modifications and supporting continual improvement.

3. School Parent-Teacher Associations (SPTAs) and Local Government Units (LGUs) foster collaboration and inclusivity among all stakeholders involved in School-Based Management (SBM) implementation to improve engagement, consistency, and depth across various domains, enhance professional development for stakeholders, optimize resource utilization, establish effective communication platforms, promote collaborative decision-making, and ensure continuous monitoring and evaluation, to collectively contributes to the overall improvement and success of the educational environment.

4. The proposed strategic plan model for SBM Implementation prioritize collaborative efforts between internal and external stakeholders to ensure alignment and shared understanding of goals and strategies. Incorporating feedback from both groups, particularly in areas of perceived disparity such as leadership and governance, curriculum and learning, and resource management, is highlighted. Furthermore, the plan focuses on targeted interventions to address identified areas for improvement, including enhancing communication channels, providing professional development opportunities, and fostering a culture of accountability and continuous improvement. Fostering collaboration, addressing disparities, and implementing targeted interventions, the

strategic plan effectively guides SBM implementation over the six years and ultimately enhancing educational outcomes and school effectiveness.

Compliance with Ethical Standards

In this study, the researcher considered several ethical considerations. The researcher first seeks to meet and address the moral concerns of the study. These ethical standards include seeking first the approval of school leaders for the research proposal. The authorities received letters of request from the Schools Division Superintendent and Public Schools District Supervisors of the nine (9) central schools and school heads. Moreover, before obtaining informed consent, the researchers gave respondents detailed information about the study's purpose, procedures, and potential risks and benefits. The consent form clearly stated that the Participation was voluntary, allowing participants the choice to withdraw from the study at any time without penalty. In addition, the researchers assured them that this research would strictly comply with the Data Privacy Act by keeping the identities of the informants private and confidential.

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IMPLEMENTATION OF THE MANDATORY HOURS OF WORK AND REST ONBOARD CONTAINER SHIPS

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ABSTRACT

The purpose of this study was to determine how the required hours of work and rest on container ships were implemented. It intends to boost productivity and enhance the working conditions and well-being of seafarers regarding rest and work hours with respect to Maritime Labour Convention (MLC) 2006. It employed quantitative and qualitative-descriptive methods, leveraging the strengths to comprehensively address the objectives. The study found that as age increases, the perceived impact of factors on mandatory hours of work and rest decreases slightly. However, factors such as position on board, license acquired, length of sea service, and length of service on container ships have a negative correlation with these challenges. The study identified operational demands, heavy workloads, multiple responsibilities, work and rest hours data recording errors, insufficient communication with ship management, inadequate staffing levels, poorly planned crew rotations, and unexpected circumstances disrupting scheduled work and rest periods. However, age was not found to be a significant influencing factor in these challenges. The findings suggest that age may not be a significant influencing factor in the perceived challenges associated with mandatory hours of work and rest. To improve implementation of mandatory hours of work and rest on container ships, the following are recommended: adding crew, implementing proper planning and management, ensuring a backup system for duty rotation, amending policies under the Maritime Labour Convention 2006, arranging hotel accommodations during port operations, and ensuring sufficient crew for maintenance during passages and port activities, possibly by arranging rider ship maintenance and repair personnel.

Key Words: *container ship, implementation of hours work and rest, Maritime Labour Convention 2006, Filipino seafarers, rights of seafarers*

INTRODUCTION

Seafaring ranks as a highly rewarding and sought-after career among Filipinos, notably those engaged in sea-based occupations. In fact, the Philippines emerges as a principal labor source for international maritime vessels, providing significant economic benefits to the families of Filipino seafarers. This important contribution is highlighted by the UNCTAD's Review of Maritime Transport (2021), which recognizes the Philippines as the global leader in supplying both officers and seafarers to the worldwide maritime industry. According to research conducted by the Institute of Developing Economies in 2018, the Philippines, the country that supplies the research greatest number of seafarers worldwide, is crucial to the supply of seafarers.

In the maritime industry, protecting the health and safety of seafarers is essential. Since the maritime work is physically demanding and requires long hours, it is vital to create guidelines to safeguard the wellness of crew members. The maritime sector has long understood how weariness impairs sailors' performance and attentiveness, endangering overall safety on board. In the past, the sector has often struggled with lengthy work hours and erratic schedules, which has resulted in accidents connected to fatigue and decreased productivity among seafarers. International marine organizations have therefore developed policies and agreements to tackle these issues, stressing the significance of enforcing required work and rest hours.

The research study on work and rest hours for crew members on container ships is crucial, given the unique pressures these vessels face in transporting perishable goods. Container ships are among the fastest cargo ships, essential to ensuring that items such as fresh produce, pharmaceuticals, and other time-sensitive goods reach their destinations in optimal condition. This urgency places immense demands on both the ship and its crew, as any delays can lead to significant financial losses and wasted resources due to spoilage. Effective management of crew work and rest hours is therefore, essential to maintaining the high operational standards required for these fast-paced journeys. Fatigue is a well-documented risk factor that dramatically increases the likelihood of human errors, which can lead to accidents, mechanical failures, and unanticipated delays. A well-rested crew, on the other hand, is more alert, capable, and better equipped to handle the demands of their roles, ensuring the ship can maintain its schedule and deliver its cargo promptly. This study was focused on analyzing the factors and challenges associated with the implementation of mandatory hours of work and rest policies onboard container ships, which are crucial for ensuring the safety, well-being and efficient functioning of seafarers and maritime operations. It is in this context that this research sought to dig into the perceptions and rightful observance in the implementation of the mandatory work and rest hours with reference to MLC 2006 and safeguard the working conditions and welfare of the seafarers for them to remain productive and efficient in their chosen field. It is therefore logical to investigate the working conditions and welfare of the seafarers on board container ships and ensure that the same serves the purpose.

Research Questions

This study was primarily focused on analyzing the factors and challenges in the implementation of mandatory hours of work and rest onboard containers ships. Specifically, this research study sought answers to the following questions:

1. What is the demographic profile of the respondents in terms of:
   a. Age
   b. Rank/Position on Board
   c. License Acquired
   d. Length of Sea Service
   e. Length of Sea service on Container ships
2. How is the mandatory hours of work and rest onboard container ships implemented?
3. What are the factors affecting the implementation of hours of work and rest in accordance to MLC 2006?
4. Is there a significant relationship in the seafarers' responses on the factors affecting the implementation of mandatory hours of work and rest when grouped according to profile?
5. What are the challenges in the implementation of the mandatory hours of work and rest of the Maritime Labour Convention 2006?
6. Is there a significant relationship in the seafarers' responses on the challenges in the implementation of the hours of work and rest of the MLC, 2006 when grouped according to management, operational and support levels?
7. Based on the result of the study, what can be recommended to improve the implementation of the mandatory hours of work and rest of the Maritime Labour Convention (MLC), 2006?

METHODOLOGY

Research Design

The study employed both quantitative and qualitative-descriptive methods, leveraging the strengths of each to comprehensively address its objectives. Data collection involved administering surveys through questionnaires and conducting semi-structured interviews. The survey questionnaire was designed to be user-friendly and concise, requiring no more than 10 minutes to complete. This research necessitated open and reflexive engagement to gather in-depth perspectives. Consequently, the researcher conducted semi-structured interviews with selected management level officers aboard container ships. The study focused on several key variables: the implementation of hours of work and rest on container ships, factors influencing this implementation, and the challenges encountered in the process.

Sampling Method Used

The primary respondents of the study were the Filipino seafarers who worked on international containers ships for at least 2 years and on vacation during the period of January to March 2024. A non-random sampling technique was used to select the respondents. The sample were classified as purposive as the researcher sough only those seafarers who were on vacation during data gathering and willing to participate in the study. A total of 165 seafarers working in container vessels participated in the survey and 25 of them participated in the semi-structured interview. The number of respondents that were included in the target demographic sample were seafarers from container ships who were available during the data gathering.

Instrumentation

The self – made survey questionnaire was the primary data-gathering tool. The instrument was consisted of four (4) parts namely. Part 1 consists of Personal Information/Demographic Profile of the Respondents in terms of: Age, Position/Designation, License, Nationality, Educational Attainment, Length of Sea Service, and Length of Sea service on Container ships; Part 2 – Implementation of the mandatory hours of work and rest onboard container ships, Part 3 – Factors Affecting the mandatory work hours and hours of work in the MLC 2006 namely: General Information, Conditions of Employment, MLC 2006 Regulation 2.3, Code Standard A2.3 and Guideline B2.3; and Part 4 – Challenges encountered in the mandatory implementation of the mandatory work hours and rest hours of the officers and crew on board container ships. Cronbach Alpha technique was used to validate the contents of the survey questionnaire. Survey questionnaire was validated with the assistance of statistician while the semi-structured interview was validated by the research adviser. The survey questionnaire designed for the seafarers has the following parts: Implementation of Mandatory Hours of Work and Rest with 16 items (α = .757), Factors Affecting Implementation of Hours of Work and Rest with 10 items (α = .716), and Challenges in the Implementation of Hours of Work and Rest with 10 items (α = .870). Table 1 describes the internal consistency for the computed Cronbach's alpha for each part.

Table 1
Cronbach's Alpha Interpretation

Cronbach's Alpha	Internal consistency
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Data Gathering Procedures

Before using the survey questionnaire, the researcher sought validation of its content with the assistance of experts through the adviser. The said instrument was pre-tested to a group of ten (10) seafarers, who are also connected in the seafaring industry with a minimum of two (2) years working on container ships but were excluded as respondents of the study. The researcher obtained the necessary permission to conduct the survey from the management of the shipping company involved in the study. This step was essential to ensure that the study complied with all regulatory and ethical standards. The shipping company operates a fleet of 38 container ships, providing a substantial base of operations for the survey. To collect data, the researcher employed purposive sampling, a method chosen for its effectiveness in targeting specific, relevant populations. A total of 200 questionnaires were distributed to crew members and management, yielding 165 responses. This achieved an impressive 82.5% retrieval rate, indicative of robust participant engagement and effort by the researcher. It was important for the integrity of the study that each of the 38 container ships was represented, ensuring comprehensive data coverage across the company's operations. To collect this data, significant efforts were made to ensure the highest possible response rate. The researcher established multiple channels of communication, followed up with potential respondents, and provided clarifying information as needed to guarantee thorough participation. In addition to the survey, semi-structured interviews were conducted to 25 selected management-level officers. Selection criteria were based on availability and willingness to engage in open, candid discussions about the implementation of hours of work and rest on their respective ships. These interviews provided invaluable qualitative data, enriching the overall findings of the study. Each interview was meticulously planned to draw out detailed and relevant information regarding implementation of work and rest schedules.

Data Analysis

The questionnaires were retrieved online, tabulated and tallied though the assistance of the statistician, which were then analyzed and interpreted. To characterize and describe the demographic profiles of the respondents in terms of age, position on board, license, length of sea service and length of sea service on container ships, the frequency count, percentage distribution and average mean were used. Weighted mean was employed in describing the perspectives of the respondents on the different factors affecting the implementation of the work and rest hours on board container ships. Finally, the obtained Weighted Means were treated using the arbitrary 4-Point Likert scale, as follows.

Rating	Scale	Verbal Interpretation
4	3.25 – 4.00	Strongly Agree
3	2.50 – 3.24	Agree
2	1.75 – 2.49	Disagree
1	1.00 – 1.74	Strongly Disagree

To analyze and examine the significant relationship about the perspectives of the informants on the implementation of the mandatory work and rest hours, when grouped according to age, position on board, license, length of sea service and length of sea service on container ships, the study made use of the Pearson Correlation coefficient, particularly in the interpretation of data, as follows:

Table 2
Guidelines for Interpreting Pearson Correlation Coefficient (r)

Guidelines for Interpreting Pearson Correlation Coefficient (r)

Strength of Relationship Between Variables	Positive	Negative
Weak	.10 to .29	-.10 to -.29
Moderate	.30 to .49	-.30 to -.49
Strong	.50 to 1.00	-.50 to -1.00

RESULTS

There were 165 respondents in this study. They are all Filipino seafarers on board container ships with a minimum of 2 years of experience. Table 3 presents the profiles of the respondents according to age. As seen from the table, 43 out of the 165 of the respondents, which is 26.06 % of the total respondents, belong to the age bracket of 26-30. On the other hand, 35 or 21.21% of the respondents belong to the age bracket of 36-40. This is followed by 34 or 20.61% belonging to the age bracket of 31-35 years old. The least number of the respondents belong to the age bracket of 56-60 which has 2 or 1.21% of the total respondents. Majority of the respondents belong to ages 26 – 30 years old. This is contrary to the study of Pauksztat, et. al. (2021) that the average age of the seafarers is 40 years old. However, the minimum age requirement of the seafarers had been complied as per MLC 2006, Regulation 1.1 which is not less than 18 years of age in this research study.

Table 3
Respondent's Age

AGE	f	%
21-25	6	3.64%
26-30	43	26.06%
31-35	34	20.61%
36-40	35	21.21%
41-45	16	9.70%
46-50	24	14.55%
51-55	5	3.03%
56-60	2	1.21%

n	165	100.00%

Table 4 presents the profile of the respondents in terms of rank or position on board container ships. As seen from the table, 26 or 15.76% of the respondents are able-bodied seamen (AB), which belong to the support level. This is followed by 3rd officers with 12 or 7.27% of the participants belong to the operational level. This is followed by Bosun with 11 or 6.67% of the respondents, which is on the support level. The least number of the respondents belong to the Steward department, which has only one (1) participant or 0.61% of the total number of respondents. This means that majority of the seafarers on board container ships are able-bodied seamen. According to the information published by Liveseas in 2024, the maritime industry is an intricate network of operations, and at the heart of these operations lie the tireless Able Seamen (AB). These individuals form the backbone of most deck crews, ensuring that our ships sail smoothly and safely across the seven seas. This comprehensive overview unravels the various facets of the Able Seaman role, shedding light on their responsibilities, challenges, and the overall career path. The role of an Able Seaman (AB) is both versatile and integral. The AB is the all-rounder of the ship's crew, adept at a range of tasks that ensure smooth operations at sea. Their responsibilities extend from the deck to the bridge, alternating every fortnight, making their role dynamic and indispensable. Hence, more ABs are needed on board ships. Moreover, the ratings or those under the support levels are the most affected group in the observance of hours of work and rest since they are the ones doing the leg works and related jobs. This was confirmed in the unstructured interview with the respondents.

Table 4
Rank/Position Onboard

RANK/ POSITION ONBOARD	f	%
Management Level		
Master	8	4.85%
Chief Officer	7	4.24%
Chief Engineer	5	3.03%
2nd Engineer	5	3.03%
Operational Level		
2nd Officer	9	5.45%
3rd Officer	12	7.27%
3rd Engineer	6	3.64%
4th Engineer	4	2.42%
Electro-Technical Officer	5	3.03%
Support Level		
Deck Ratings		
Bosun	11	6.67%

Able-Bodied Seaman	26	15.76%
Ordinary Seaman	19	11.52%
Engine Ratings		
Wiper/Motorman	9	5.45%
Oiler	20	12.12%
Fitter	2	1.21%
Ratings		
Chief Cook	10	6.06%
Messman	6	3.64%
Steward	1	0.61%
n	165	100.00%

Table 5 presents the profile of the respondents in terms of licenses acquired. They were further classified into management, operational and support levels accordingly. As seen from the table, 35 or 21.21% of the participants did not specify their licenses acquired. This is followed by those who are complied with Regulation II-5 (Deck) with 27 or 16.36% of the total respondents. This means that they had been certified to follow the minimum requirements of having been trained as deck officer prior to boarding ships or boarded ships with 500 gross tonnage and above as minimum requirements. Next to the highest number of respondents are with Officer-in-Charge (OIC)-Navigational Watch (Deck) License with 22 or 13.33% of the total number of respondents The least number of licenses from the participants are Registered Master Electrician and Electrical Engineer, which both have 1 or 0.61% of the total number of respondents. There were 35 or 21.21% of the respondents have either no license or did not specify at all. These licenses are major considerations in relations their employment conditions regarding the positions, designations and responsibilities attributed to the seafarers. This is also an important factor in the determination of their financial remunerations and related benefits to their employment contracts. Moreover, all these information could be referred to the standard terms and conditions governing the employment of Filipino seafarers on-board Ocean-going vessels. This was also confirmed in the unstructured interview with the respondents.

Table 5
Licenses Acquired

LICENSE ACQUIRED	f	%
Management Level		
Master License	10	6.06%
Chief Officer License	6	3.64%
Chief Engineer License	10	6.06%
2nd Engineer License	1	0.61%
Operational Level		

OIC-Navigational Watch	22	13.33%
OIC-Engineering Watch	13	7.88%
Registered Master Electrician	1	0.61%
Registered Electrical Engineer	1	0.61%
Support Level		
II-4 Deck AB	9	5.45%
II-5 Deck AB	27	16.36%
III-4 Engine	5	3.03%
III-5 Engine	11	6.67%
ETO License	3	1.82%
Ship Catering NC I (Messman)	3	1.82%
Ship Catering NC III (Cook)	8	4.85%
None (or did not specify)	35	21.21%
n	165	100.00%

Table 6 presents the profile of the respondents in terms of length of sea Service in years. As seen from the table, 8 or 41.21% of the respondents belong to the group of those with 6-10 years of experience on board. This is followed by those who belong to 1-5 years of experience with 48 or 28.48% of the total number of respondents. Twenty-eight (28) or 16.97% belong to those with 11-15 years of shipboard experience. Only two (2) or 1.21% of the participants have one (1) or less number of years of experience at sea. This can be aligned with the BIMCO (2021) which states that the demographic profile for STCW-certified ratings shows that while 75% of Indian seafarers are aged between 21 and 40, significant proportions of Ukrainian, Chinese, and Filipino seafarers fall within the 51-60 age bracket. Data for management level officers (master, chief officer, chief engineer, second engineer), operational level officers, and support level ratings shows ages have all increased in 2015. The International Chamber of Shipping's most recent Seafarer Workforce Report (ICS, 2021) confirmed and found the following distinctions between seafarer age profiles and nationality: Largest proportion of officers aged between 21 and 30 are Indians, Largest proportion between 31 and 40 are Chinese, Most Filipino officers are aged over 41, Almost a quarter of Russian officers are over 50 years of age.

Table 6
Length of Sea Service

NO. OF YEARS IN SEA SERVICE	f	%
< 1	2	1.21%
1-5	47	28.48%
6-10	68	41.21%

11-15	28	16.97%
16-20	10	6.06%
21-25	4	2.42%
26-30	6	3.64%
n	165	100.00%

Table 7 presents the length of sea service of the respondents on container ships. Majority of the seafarers on board container ships are within 6 -10 years on board. It could be gleaned from the table that 69 or 41.82% of the respondents belong to those with 6-10 years of experience on container ships. This is followed by those with 1-5 years of experience on board container ships with 49 or 29.7% of the total number of respondents. While 29 or 17.58% of the respondents are with 11-15 years of sea service on container ships. The least number of sea experience onboard container ships belong to those with 21-25 years sea service with only 1 or 0.61% of the total respondents.

Table 7
Length of Sea Service on Container Ships

LENGTH OF SEA SERVICE	f	%
< 1	13	7.88%
1-5	49	29.7%
6-10	69	41.82%
11-15	29	17.58%
16-20	4	2.42%
21-25	1	0.61%
n	165	100%

Interview Respondents Profile

Table 8 presents the profile of the interview respondents in terms of position, and all are management level officers. They were purposively chosen by the researcher since they are the most senior in terms of length of service and had vast experiences on ships, specifically on-board container ships. As seen from the table, eight (8) or 32.0% are masters followed by seven (7) Chief Officers or 28.0% of the total number of respondents. Both the Chief Engineer and the Second Engineers got five (5) each or 0.20% of the total respondents.

Table 8
Interview Respondents Profile

Interviewee	f	%
Management Level		
Master	8	32.0%
Chief Officer	7	28.0%
Chief Engineer	5	20.0%
2nd Engineer	5	20.0%
Total	25	100%

DISCUSSION

Table 9 presents the status of the implementation of the mandatory hours of work and rest on board container ships. As seen from the table, the respondents strongly disagree on the item on a table of shipboard working arrangements of rest hours and work hours are in the international working language in English (item no.1) which means that it is fully implemented. The rest of the items (items no. 2-12) belong to the group where the respondents agree, which means that those are being implemented and observed. To wit: the maximum hours of work or minimum hour of rest are also included in the table of shipboard working arrangement; enough time for meals is provided to the crew, e.g. 1 hour for main meals; additional measures or initiatives onboard by the Master, Chief Officer and Chief Engineer to promote the well-being and work-life balance of seafarers; the master exercise his overriding authority to suspend the work schedule in the event of emergency where the safety of the ship and crew are in danger; musters and all drills take place with minimal disturbance to periods of rest; normal working hours are based on an eight-hour day with one day rest per week; Working and rest hours are recorded on board, and each crew member receives a copy; records are being checked and observed by Chief Officer and Chief Engineer to ensure effective compliance with MLC 2006 regulations; the ship's flag registry verifies that the ship is in compliance to work hours and rest hours period of the crew under the regulations of MLC 2006 regulation A 2.3 and B 2.3.1 and the Planned Schedule at sea is being observed and followed in accordance with shipboard working arrangements under the MLC 2006 regulation. The respondents disagree on the item on the Planned Schedule at ports is being observed and followed in accordance with shipboard working arrangements under the MLC 2006 regulations. The items (number 13-15): a 30-minutes break every after two (2) hours of work onboard the ship is allowed, the ship flag registry under which the ships operate provide maximum allowable work hours and sufficient rest hours period under MLC 2006 regulations and the crew work more than 72 hours at any seven-day period are all rated by the respondents and agreed upon as being implemented and observed on board container ships. However, the respondents strongly disagree on the item on the crew works more than 14 hours in any 24-hour period was described by the respondents as not being implemented and observed. Majority of the items were agreed by the respondents as being implemented. However, this also means that there were crucial

items on the mandatory implementation of hours of work and rest in container ships noted and need some attention. This was supported by Graham and Walters (2020) who had stressed that the seafarer's bill of rights provides a firm but flexible response to poor working conditions in global shipping. Hence, the MLC 2006 and STCW required conditions are strictly adhered to and how the standards are to be met. This is to ensure that seafarers have adequate work and rest periods for them to be more productive and for them to enjoy their work on board. Similarly, the work of Bhatia (2019) claimed that there is an imbalance of the workloads and manning levels on ships. Moreover, companies send report for them to disregard any appeal from the seafarers to address a lack of manning on board. Finally, the respondents report that the maritime industry lacked commitment to deal with fatigue which is a vital consideration for the working conditions of the seafarers" productivity and well-being of the seafarers.

Table 9
Implementation of Mandatory Hours of Work and Rest Onboard Container Ships

INDICATORS	MEAN	VI
1. A table of shipboard working arrangements of rest hours and work hours are in the international working language in English.	3.68	Strongly Agree
2. Maximum hours of work or minimum hour of rest are also included in the table of shipboard working arrangement.	3.22	Agree
3. Enough time for meals is provided to the crew, e.g. 1 hour for main meals.	3.21	Agree
4. Additional measures or initiatives onboard by the Master, Chief Officer and Chief Engineer to promote the well-being and work-life balance of seafarers.	3.20	Agree
5. The master exercise his overriding authority to suspend the work schedule in the event of emergency where the safety of the ship and crew are in danger.	3.19	Agree
6. Musters and all drills take place with minimal disturbance to periods of rest.	3.04	Agree
7. Normal working hours are based on an eight-hour day with one day rest per week.	2.63	Agree
8. Working and rest hours are recorded on board, and each crew member receives a copy.	2.58	Agree
9. Records are being checked and observed (Observance and Implementation) by Chief Officer and Chief Engineer to ensure effective compliance with MLC 2006 regulations.	2.57	Agree
10. The ship's flag registry verifies that the ship is in compliance to work hours and rest hours period of the	2.55	Agree

crew under the regulations of MLC 2006 regulation A 2.3 and B 2.3.1(Monitoring)		
11. The Planned Schedule at sea is being observed and followed in accordance with shipboard working arrangements under the MLC 2006 regulations.	2.53	Agree
12. The Planned Schedule at ports is being observed and followed in accordance with shipboard working arrangements under the MLC 2006 regulations.	2.53	Agree
13. A 30-minute break every after 2 hours of work on board the ship is allowed.	2.48	Disagree
14. The crew work more than 72 hours in any seven-day period.	1.81	Disagree
15. The crew work more than 14 hours in any 24-hour period.	1.65	Strongly Disagree
OVERALL MEAN	2.68	Agree

Legend: 3.25 – 4.00 — Strongly Agree; 2.50 – 3.24 — Agree; 1.75 – 2.49 — Disagree. 1.00 – 1.74 —Strongly Disagree; VI – Verbal Interpretation

Table 10 presents the factors affecting the implementation of hours of work and rest periods according to the perspectives of the seafarer respondents. All the items (no. 1-6) were rated and described by the respondents as Strongly Agree. To wit: Adverse weather conditions, rough seas, or situations requiring extra attention and effort; Ships stay one day at port and after completion of loading and discharge of cargoes operations in port.; Unpredictable port operations, delays, and extended waiting time for berthing; Tight voyage schedules and time constraints; Business Pressures (these are commercial pressures to meet delivery deadlines, maximize efficiency, and reduce costs may prioritize work completion over crew rest requirements) and Insufficient crew members. On the other hand, Items 7 and 8 on the ship Design and Technology: Inadequate accommodation facilities, noise levels, vibration, and ergonomic factors and Poor communication between the crew and shore-based management were rated by the respondents as Agree. The items no. 9 and 10 on rest period of crew are strictly observed and the extent to which ship's flag registry effectively monitor and enforce the implementation of work and rest hours onboard the ship was rated by the respondents as Disagree. The respondents Agree on majority of the items. This means that the respondents generally agreed to the items on the factors affecting the implementation of hours of work and rest in accordance with MLC 2006. Medani (2024), stated that a seafarer also has a right to safe working and living conditions. The ILO's Convention and Protocol establish minimum labour standards for seafarers on merchant vessels. Significantly, it introduced the initiative of port state control in ensuring compliance with these standards; a concept which is duplicated in Regulation is particularly important to seafarers as it requires flag states to guarantee their vessels meet safety standards,

satisfy conditions of employment on these vessels and further that these vessels comply with ILO standards while mandating port states to verify compliance through inspection methods. The minimum requirement for seafarers to work on a ship are summarized into four parts, which are age requirements, medical prerequisites, training and recruitment/placement services. It states that seafarers must be medically fit, with a certificate issued by an approved doctor for duties that they will be assigned onboard as per STCW. As per the medical standards of MLC 2006, most of the ratified countries are providing a medical certificate with an average validity of 2 years. As all concerned are cognizant of the fact that the STCW regulations and medical standards specified within for seafarers are the same anywhere in the world, yet the medical issued by one nation is not accepted by another nation or company when a seafarer is switching companies, but still holds a valid MLC ratified country's medical certificate. For example, a medical certificate issued to an Indian seafarer in Malaysia as per STCW regulations is not accepted while joining another shipping company in the UAE, whose recruitment placement service provider in India needs an Indian directorate general of shipping approved medical certificate to be uploaded in the DGS website. When all the regulations can be traced back to IMO & ILO, and regulation applies to seafarers are same for all, irrespective of the geographic location of the seafarer, why is it that a seafarer must undergo medical, just because of proper lack of implementation and lack of countries trust on each other's administration. Many seafarers have undergone this situation, but as there is no way around it, seafarers must follow the rules. To encounter this predicament, it must consider creating an international format and recognition of doctors and clinics internationally to carry out medical examination for seafarers, which would be valid and acceptable worldwide within the prescribed validity period. This will at the least tackle one of the predicaments confronted by the seafaring community. This is also a logical consideration on the conduct of the study about the implementation of the mandatory hours of work and rest on board container ships.

Table 10
Factors Affecting the Implementation of Hours of Work and Rest

FACTORS	MEAN	VI
1. Adverse weather conditions, rough seas, or situations requiring extra attention and effort	3.57	Strongly Agree
2. Ships stay one day at port and after completion of loading and discharge of cargoes operations in port.	3.55	Strongly Agree
3. Unpredictable port operations, delays, and extended waiting time for berthing	3.48	Strongly Agree
4. Tight voyage schedules and time constraints	3.45	Strongly Agree
5. Business Pressures (these are commercial pressures to meet delivery deadlines, maximize efficiency, and reduce costs may	3.35	Strongly Agree

prioritize work completion over crew rest requirements)		
6. Insufficient crew members	3.28	Strongly Agree
7. Ship Design and Technology: Inadequate accommodation facilities, noise levels, vibration, and ergonomic factors	3.05	Agree
8. Poor communication between the crew and shore-based management	2.93	Agree
9. Rest periods of crew are strictly observed and implemented as per schedule.	2.47	Disagree
10. The extent to which ship's flag registry effectively monitor and enforce the implementation of work and rest hours onboard the ship.	2.45	Disagree
OVERALL MEAN	3.16	Agree

Legend:
3.25 – 4.00 — Strongly Agree; 2.50 – 3.24 — Agree; 1.75 – 2.49 — Disagree; 1.00 – 1.74 —Strongly Disagree; VI – Verbal Interpretation

The results presented in Table 11 reveal some correlation between the factors affecting the implementation of mandatory hours of work and rest, particularly when grouped by respondents' profile characteristics. When examining the respondents' age, a statistically significant weak, negative correlation emerged ($r = -.175$, $p = .025$). This suggests that as age increases, there is a tendency for a slight decrease in the perceived impact of these factors on the implementation of mandatory hours of work and rest. Secondly, when considering the respondents' position onboard, a similar weak, negative correlation was observed ($r = -.228$, $p = .003$). This implies that individuals in different positions onboard exhibit varying perspectives of the influence of these factors, with a slight decrease in correlation as the position onboard changes. Furthermore, the length of sea service also demonstrated a statistically significant weak, negative correlation ($r = -.241$, $p = .002$). This implies that individuals with different lengths of sea service hold distinct perspectives on the factors affecting the implementation of mandatory hours of work and rest, with a minor decline in correlation as the length of sea service increases. In contrast, no statistically significant relationship was found between these factors and the respondents' length of sea service onboard container ships ($r = -.133$, $p = .089$), suggesting that this specific variable may not strongly influence perspectives regarding mandatory hours of work and rest in the context of container ships.

Table 11
Correlation Analysis of Profile with the Factors Affecting the Implementation of Mandatory Hours of Work and Rest

PROFILE		
1. Age:	Correlation Coefficient	-.175*
	Sig. (2-tailed)	.025
	N	165
2. Position Onboard:	Correlation Coefficient	-.228**
	Sig. (2-tailed)	.003
	N	165
3. License Acquired	Correlation Coefficient	-1.60
	Sig. (2-tailed)	.075
	N	165
3. Length of Sea Service:	Correlation Coefficient	-.241**
	Sig. (2-tailed)	.002
	N	165
4. Length of Sea Service Onboard Container Ships:	Correlation Coefficient	-.133
	Sig. (2-tailed)	.089
	N	165

Note: *. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 12 presents the challenges in the implementation of the mandatory hours of work and rest onboard container ships. As seen from the table, the respondents Strongly Agree on all the items 1-7 as follows: Operational demands that require to work beyond the prescribed hours; Heavy workload at port activities and tight schedules between ports; Multiple responsibilities, which can make it challenging to track and limit the working hours effectively; Work and rest hours data recording and documentation errors; Insufficient communication or consultation with the ship's management; Inadequate staffing levels or poorly planned crew rotations and Unforeseen circumstances disrupting scheduled work and rest periods. However, the item on unbalanced distribution of workload among the crew members (No. 8), the respondents Agree. On the other hand, the items on cultural norms or social expectations that encourage longer working hours and Inadequate onboard accommodations, such as cramped or uncomfortable living quarters, that leads to lack of enough rest, where the respondents Disagree. This means that the last 2 items described have not been regarded by the respondents as a challenge in the mandatory implementation of the hours of work and rest as per regulation of MLC 2006. Majority of

the items on the Challenges in the Implementation of the Mandatory Hours of Work and Rest of the MLC 2006 had been agreed by the respondents, except on the noted items which the respondents disagree such as cultural norms or social expectations that encourage longer working hours and inadequate onboard accommodations, such as cramped or uncomfortable living quarters, that leads to lack of enough rest. As a result, the following are the identified challenges as a result of the study: 1. Operational demands that require to work beyond the prescribed hours, 2. Heavy workload at port activities and tight schedules between ports, 3. Multiple responsibilities, which can make it challenging to track and limit the working hours effectively, 4. Work and rest hours data recording and documentation error, 5. Insufficient communication or consultation with the ship's management, 6. Inadequate staffing levels or poorly planned crew rotations, and 7. Unforeseen circumstances disrupting scheduled work and rest periods. All these items were confirmed by the respondents in the semi-structured interview.

Table 12
Challenges in the Implementation of the Mandatory Hours of Work and Rest

CHALLENGES	MEAN	VI
1. Operational demands that require to work beyond the prescribed hours	3.40	Strongly Agree
2. Heavy workload at port activities and tight schedules between ports	3.38	Strongly Agree
3. Multiple responsibilities, which can make it challenging to track and limit the working hours effectively	3.36	Strongly Agree
4. Work and rest hours data recording and documentation errors	3.32	Strongly Agree
5. Insufficient communication or consultation with the ship's management	3.28	Strongly Agree
6. Inadequate staffing levels or poorly planned crew rotations	3.26	Strongly Agree
7. Unforeseen circumstances disrupting scheduled work and rest periods	3.25	Strongly Agree
8. Unbalanced distribution of workload among the crew members	3.19	Agree
9. Cultural norms or social expectations that encourage longer working hours	2.28	Disagree
10. Inadequate onboard accommodations, such as cramped or uncomfortable living quarters, that leads to lack of enough rest	2.20	Disagree
OVERALL MEAN	3.09	Agree

Legend: 3.25 – 4.00 — Strongly Agree; 2.50 – 3.24 — Agree; 1.75 – 2.49 — Disagree. 1.00 – 1.74 —Strongly Disagree; VI – Verbal Interpretation

Table 13 shows some existing correlations concerning the challenges encountered in the implementation of mandatory hours of work and rest, particularly when grouped according to the respondents' profile characteristics. As for the respondents' position onboard, a statistically significant weak, negative correlation was identified (r = -.238, p = .002). This suggests that individuals in different roles onboard exhibit varying degrees of correlation with the challenges in implementing mandatory hours of work and rest, indicating a potential impact of position-related factors on the perceived difficulties. Similarly, the License Acquired yielded significantly weak, with negative correlation (r = -.159, p = .077). This suggests that the various licenses of each of the seafarers exhibits different degrees of correlation with the challenges in implementing mandatory hours of work and rest, which may mean a negative relation on the perceived challenges in the implementation of the mandatory hours of work and rest on board container ships. Moreover, the length of sea service displayed a statistically significant weak, negative correlation (r = -.271, p < .001). This implies that respondents with diverse lengths of sea service experience distinct levels of correlation with the challenges in implementing mandatory hours of work and rest, with a more pronounced decrease in correlation as the length of sea service increases. Lastly, when focusing on the length of sea service onboard container ships, a statistically significant weak, negative correlation was observed (r = -.167, p = .032). This suggests that individuals with varying lengths of sea service on container ships may perceive different degrees of correlation with the challenges, demonstrating a potential influence of vessel type on these perspectives. However, there was no statistically significant relationship found between these challenges and the respondents' age (r = -.144, p = .066), indicating that age might not be a substantial influencing factor in the perceived challenges associated with implementing mandatory hours of work and rest.

Table 13
Correlation Analysis of Profile with the Challenges in the Implementation of the Mandatory Hours of Work and Rest

PROFILE		
1. Age:	Correlation Coefficient	-.144
	Sig. (2-tailed)	.066
	N	165
2. Position Onboard:	Correlation Coefficient	-.238**
	Sig. (2-tailed)	.002
	N	165
3. License Acquired	Correlation Coefficient	-1.59
	Sig. (2-tailed)	.077

	N	165
4. Length of Sea Service:	Correlation Coefficient	-.271**
	Sig. (2-tailed)	<.001
	N	165
5. Length of Sea Service Onboard Container Ships:	Correlation Coefficient	-.167*
	Sig. (2-tailed)	.032
	N	165

Note: *. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Result of the Interview

Table 14
Knowledge and understanding of MLC 2006

Questions:	Category/Theme
Q1: Are you provided with a detailed work schedule that clearly outlines your hours of work and rest periods as per MLC 2006 regulations regarding mandatory hours of work and rest onboard container ships? (Yes /No) Q2: Have you received on board familiarization training or information on MLC 2006 regulations, pertaining to rest hours and works hours on board (Yes/No) Q3: Do you understand the requirements of mandatory rest hours and works hours on board the vessel under MLC 2006 regulations? (Yes/No)	Schedule of work and rest Familiarization training Understanding of the requirements
Summary of Responses: The responses are unanimously affirmative for all the questions. This means that the seafarers are provided with a detailed work schedule of hours of work and rest, had done familiarization training, and had adequate understanding on the implementation of the mandatory hours of work and rest on board container ships.	

Table 15
Implementation of Mandatory Hours of Work and Rest

Questions:	Category/Theme
Q4: Are the mandatory hours of work and rest consistently followed on board container ships? (Yes/No) Q5: How often, if any, have you observed instances where the mandatory hours of work and rest were not followed? (4 - Frequently; 3 – Occasionally; 2 – Rarely; 1 – Never) Q6: Are there specific roles or tasks on board that require working beyond the prescribed hours of work and rest?	Consistently followed. Observation Specific roles beyond prescribed
Summary of Responses: *1.* The question on consistently followed was answered No. This means that there are cases that some of the schedules are not followed due to unavoidable circumstances beyond control. *2.* This also applies to the idea that as per observation there are instances that there are instances that occasionally, hours of work and rest are not followed. *3.* Lastly, it was confirmed that there are specific roles or tasks that require working beyond hours of work and rest on board container ships.	

Table 16

Factors Affecting Implementation

Question:	Category/Theme
Q3: What are the factors affecting the implementation of the mandatory work hours and rest on board container ships?	
Summary of Responses: (These factors are identified by the respondents in the interview and were ranked accordingly). 1. Insufficient communication or consultation with the ship's management	Communication gap

2. Multiple responsibilities, which can make it challenging to track and limit the working hours effectively. 3. Adverse weather conditions, rough seas or situations requiring extra attention and efforts. 4. Heavy workload at port activities and tight schedules between ports 5. Work and rest hours data recording and documentation errors. 6. Inadequate staffing levels or poorly planned crew rotations	Heavy work loads Adverse weather conditions Multi-tasking Recording errors Inadequate staff

Table 17
Challenges in the Implementation

Question:	Category/Theme
Q3: What are the challenges in the implementation of the mandatory work hours and rest on board container ships?	
Summary of Responses: (The following challenged were identified by the respondents) 1. Operational demands that require to work beyond the prescribed hours. 2. Heavy workload at port activities and tight schedules between ports 3. Multiple responsibilities, which can make it challenging to track and limit the working hours effectively. 4. Unbalanced distribution of workload among the crew members 5. Inadequate onboard accommodations, such as cramped or uncomfortable living quarters, that leads to lack of enough rest.	Operational demands Heavy work loads Multi-tasking Unbalance distribution. Inadequate accommodation

Table 18
Recommendation to improve implementation.

Question:	Category/Theme
Q4: What measures to you think can be taken to improve the implementation of the mandatory work hours and rest on board container ships?	
Summary of Responses: 1. Additional crew for container ships 2. Charterers and ship owners to arrange a day rest of all officers and crew after each cargo port operation completion and proceed to anchorage. 3. Increase ship manning requirement for each flag state on the vessels. 4. Formulation of company policies to assure proper implementation of the mandatory hours of work and rest on container ships. 5. Ensure a backup system for duty rotation to allow crew members to take rest periods, especially during busy schedules or multiple port rotations.	Additional crew A day rest after operation Safe manning requirements New Company policy Backup system

Conclusions

Findings of the study revealed that as age increases, there is a tendency for a slight decrease in the perceived impact of the factors on the implementation of mandatory hours of work and rest. However, the position on board, license acquired, length of sea service and length of service on container ship have negative correlation with the different factors. The results also showed some existing correlations concerning the challenges encountered in the implementation of mandatory hours of work and rest, particularly when grouped according to the respondents' profile characteristics. Individuals in different roles onboard exhibit varying degrees of correlation with the challenges in implementing mandatory hours of work and rest, indicating a potential impact of position-related factors on the perceived difficulties. Various licenses of each of the seafarers exhibits different degrees of correlation with the challenges in implementing mandatory hours of work and rest, which may mean a negative relation on the perceived challenges in the implementation of the mandatory hours of work and rest on board container ships.

Moreover, the length of sea service displayed a statistically significant weak, negative correlation and the diverse lengths of sea service experience distinct levels of correlation with the challenges in implementing mandatory hours of work and rest, with a more pronounced decrease in correlation as the length of sea service increases. The length of sea service onboard container ships was found to be statistically significantly weak,

negative correlation was observed that individuals with varying lengths of sea service on container ships may perceive different degrees of correlation with the challenges, demonstrating a potential influence of vessel type on these perspectives.

However, there was no statistically significant relationship found between these challenges and the respondents' age which means that age might not be a substantial influencing factor in the perceived challenges associated with implementing mandatory hours of work and rest. The following were identified challenges as a result of the study: operational demands that require to work beyond the prescribed hours, heavy workload at port activities and tight schedules between ports, multiple responsibilities, which can make it challenging to track and limit the working hours effectively, work and rest hours data recording and documentation error, insufficient communication or consultation with the ship's management, Inadequate staffing levels or poorly planned crew rotations, and unforeseen circumstances disrupting scheduled work and rest periods.

Recommendations

The following are the recommended measures to improve the implementation of mandatory hours of work and rest on board containers ships: consider additional crew onboard to prevent working overload and fatigue, especially after cargo operations, with suggestion for at least one day of rest at anchorage, implement careful planning and management by officers, including proper to anticipate workloads and rest requirements, including proper record-keeping of work and rest hours, ensure a backup system for duty rotation to allow crew members to take rest periods, especially during busy schedules or multiple port rotations, review, amend and adopt policies related to crew working hours and rest periods under the Maritime Labour Convention 2006 to address specific challenges faced by the container ships, arrange hotel accommodations for crew during port operations, allowing at least 24 hours of rest ashore and provide additional compensation for overtime work and ensure sufficient crew on board older ships for adequate maintenance during passages and port activities, possibly by arranging rider ship maintenance and repair personnel.

Compliance with Ethical Standards

Given the nature of this study, there are certain ethical declarations that were considered. All respondents were treated with respect and courtesy. The research was conducted using an informed consent, in which all participants were advised about the study's purpose and procedures and consent to record the interview was obtained. The responses of the respondents were treated with confidentiality. When the results are published, no information will be linked to any individual, vessel, or shipping company to assure anonymity of the respondents. Privacy were protected as only those people linked to this research project have access to the collected data. Related literatures and studies were properly cited and reference list to prevent plagiarism.

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IMPLEMENTATION OF TVET PROGRAM: INPUT TO ACTION PLAN TOWARDS ENHANCED PROGRAM IMPLEMENTATION

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ABSTRACT

This study assesses the implementation of Technical and Vocational Education and Training (TVET) programs from the viewpoints of trainers and trainees. Data was collected from 50 trainers and 367 trainees across 13 TESDA institutions using a 65-item questionnaire. The mean and thematic analysis were used to answer research questions, and an independent t-test with a 0.05 significance level was employed to evaluate the null hypothesis. The study found overall positive feedback on the implementation of Curriculum Design, Training Delivery, Training Facilities, and Trainers' Qualifications. However, perceptions varied on the degree of implementation of Tools, Equipment, and Materials, with trainers seeing it as "implemented" and trainees as "fully implemented." Challenges included limited industry engagement, insufficient resources, late material delivery, space constraints, and cost issues. Solutions proposed include industry collaboration, sharing of modules, establishing partnership with industry, utilizing multi-purpose spaces, and availing free online training.

Keywords: *Assessment of TVET programs, Curriculum Design, Training Delivery, Tools, Equipment, and Materials, Training Facilities, Trainers' Qualifications, Coping strategies and challenges*

INTRODUCTION

There is an increasing need for a competent workforce to adapt to new technology, foster innovation, and support economic development in today's fast-changing global

marketplace. Technical Vocational Education and Training or TVET programs are essential in preparing people with the knowledge and skills to satisfy these demands. These courses offer hands-on training applicable to the workplace, preparing students for various careers and improving their employment prospects.

The foundation of any country's economic and social progress is its knowledge and skills (Goel, 2010), and the development of the talented and creative workforce required for the rapidly evolving technology workforce depends heavily on Technical Vocational Education and Training (Afeti, 2010). TVET programs are essential for equipping Filipinos with the knowledge and abilities required to work in various industries. Students can improve their technical skills, trade competencies, and entrepreneurial aptitude through formal and informal education and training provided by the TVET system.

According to Morales (2019), the rising demand of the competitive labor market and the persistent problem of unemployment and underemployment have raised several TVET issues and concerns. Are graduates provided with quality education and training in preparation for their employment? Do the graduates possess the competencies that employers seek? Are program interventions and other support activities capable of increasing graduates' employability?

Nations such as South Korea, Taiwan, and Japan make significant investments in vocational education systems to tackle the issues caused by a lack of skilled labor (Tilak, 2003). Some nations have implemented strict quotas and admission exams to control university enrollment rates and promote TVET system enrollment. They have had faster industrial and economic growth due to a talented and dynamic middle-class workforce.

Through an empirical survey, Liu et al. (2015) found that China's vocational education policies must be implemented better. Vocational colleges and enterprises and other industry stakeholders should deeply participate in making vocational education policy, creating a social atmosphere to pay attention to vocational education, and strengthening propaganda of the implementation of occupation education policy.

As Philippine society values degrees and diplomas of higher education more than TVET, the latter is generally regarded as inferior education, and the community needs to fully realize the importance of TVET to the labor market. Besides, structural unemployment caused by mismatched supply and demand is found in the Philippine labor market. The qualification rate of TVET graduates reaches 88.0%, but their employment rate is still at a low rate of 60.9% (NTESDP, 2018). Graduates of TVET face a limited employment market, primarily caused by the poor quality of TVET and the irrelevance of school learning with enterprise work practices. One of the main issues is the low employability of Philippine TVET graduates, which is only 65% (NTESDP, 2018). TVET providers are frequently accused of offering and generating low-quality skills and technical education. This reality is reflected in the labor market, which is defined by a 70:30 ratio of low-value work to mid- to high-value work (NTESDP, 2018).

The implementation of TVET programs can be assessed by looking at the learning outcomes, getting input from participants and stakeholders, and conducting assessments to establish the program's overall success and pinpoint areas that need improvement. To ensure the success and relevance of the TVET program, it emphasizes the necessity for ongoing monitoring, review, and modification. It entails making the necessary alterations and enhancements to the program's structure, delivery strategy, and evaluation methodology using the feedback and information acquired during the evaluation phase (Odiorne, 1968).

The importance of evaluations from both trainers and trainees lies in their mutual accountability and the opportunity for continuous improvement. Both stakeholders have unique perspectives and insights to offer, contributing to a more holistic understanding of the training program's effectiveness. By actively involving both trainers and trainees in evaluations, the overall quality of the training experience can be enhanced, fostering a collaborative learning environment.

In an evaluation of the Strengthened Technical and Vocational Education Program-Competency Based Curriculum (STVEP-CBC) implementation in Region X, Northern Mindanao, Alfred et al. (2012) recommended that more frequent monitoring be done to ensure that the program is carried out effectively and efficiently. However, there are limited Philippine TVET program evaluations that can be found in the literature. In fact evaluation in TESDA Marinduque is very rare and no up to date evaluation of TVET program implementation is available. Hence, this study was conducted to provide input to an action plan towards enhanced program implementation in TESDA Marinduque.

Research Questions

The study aimed to determine the implementation of the TVET program as input to an action plan for enhanced program implementation.

Specifically, it looked for responses to the following queries:

1. What is the level of implementation of TVET Programs as assessed by the trainers and trainees in terms of?
    1.1 Curriculum Design;
    1.2 Training Delivery;
    1.3 Tools, Equipment, and Materials;
    1.4 Training Facilities; and
    1.5 Trainers' Qualifications
2. Is there any significant difference in the trainers' and trainees' assessments of the implementation of TVET programs?
3. What problems do the trainers and trainees encounter in the implementation of TVET programs?
4. What coping strategies do trainers use to address the challenges faced by themselves and their trainees during the implementation of TVET programs?

5. What strategies could be proposed to enhance program implementation as part of the action plan?

METHODOLOGY

Research Locale

The study was conducted in the province of Marinduque, specifically in the five municipalities (Boac, Mogpog, Sta. Cruz, Torrijos, and Gasan) where the TVET Institutions are located. It involved three TESDA Technology Institutions (TTIs) and 10 TESDA-Accredited Schools.

Research Population and Sample

The facts and data needed for the study were gathered from the trainers and trainees covered from January 2022 - June 2023 training period of three TESDA Technology Institutions (TTIs), namely the Buyabod School of Arts and Trade (BSAT), Torrijos Poblacion School of Arts and Trades (TPSAT) and Provincial Training Center (PTC) and 10 TESDA Accredited schools, such as the Marinduque Manpower and Trade Skills Institute, Inc. (MMTSI), Santa Cruz Institute (Marinduque), Inc. (SCI), Marinduque Technical Vocational Institute Inc. (MTVI), Marinduque Technical Training Center Inc. (MTTCI), AGREA Agricultural Communities International Foundation, Inc., DMDC Farm, Mogpog International Culinary School (MICS), and Regalia's Learning and Training Center, Inc. (RLTC), Agsikapin Technological Training Institute, Inc., and KALUPPA Foundation, Inc., in Marinduque were used as the respondents of the study.

Stratified Random Sampling is a method used in statistical research to ensure that the sample accurately represents the population by dividing the population into district subgroups or strata. Each stratum is then sampled independently using a random sampling technique. In the context of selecting trainees in TVET institutions, the proportionate and disproportionate stratification formulas {sample size/population size} (stratum size) were used to determine the number of trainees from each institution.

Respondents of the Study

The respondents of this study are trainers and trainees of the three TESDA Technology Institutions (TTIs) and 10 TESDA Accredited schools in the province of Marinduque.

Data Gathering Procedure

Before conducting the survey, the researcher sought permission from the schools involved. Before being distributed, the instrument is validated by various individuals knowledgeable about the execution of TVET programs in Marinduque. Data collection has been made possible through the assistance and participation of trainers from each

institution. At the start of the data-gathering process, the researcher outlined the study's purpose, objectives, and expected outcomes. Following this, respondents received a consent form detailing confidentiality measures and their rights. The data collection methods, including surveys and interviews, were explained, with a focus on confidentiality and privacy. Respondents were assured that data would be stored securely and used solely for research. Maintaining clear communication fosters trust and encourages participants to ask questions. Then, they were given questionnaires to complete at their convenience. After a week, the researcher collected the questionnaires from each institution, concluding this phase of the study.

The primary research tool used in the study is the personal self-made questionnaire which the researcher administered to the 13 TVET Institutions in Marinduque.

Research Instrument

The study used a series of questionnaires to collect pertinent data that would answer the study's challenge. A self-made questionnaire was utilized to collect the data required for the study's completion. The researcher sought approval from four specialists to validate the research instrument: Jezreel R. Ferrer-Assistant Professor II (BSAT), Norinel R. Pielago-Senior TESD Specialist (PTC-Marinduque), Olimpio Pacheco Jr. - Senior TESD Specialist (PTC-Marinduque), and Teresita A. Ferrer-Associate Professor IV (TPSAT) who are experts in the implementation of TVET programs.

First, the study determined the level of TVET program implementation regarding curriculum design, training delivery, tools, equipment, materials, training facilities, and trainer qualifications. The following Likert scale was used to assess the program implementation.

Table 1.

SCALE	RANGE	INTERPRETATION	DESCRIPTIVE RATING
4	3.51-4.00	Fully Implemented	100% implementation
3	2.51-3.50	Implemented	More than 50% implementation but not 100%
2	1.51-2.50	Moderately Implemented	Less that 50% implementation
1	1.00-1.50	Not Implemented	0% implementation

Second, the researcher identified the challenges faced by trainers and trainees in implementing TVET programs, along with the coping strategies employed by the trainers. The final draft incorporates the ideas and recommendations provided by the validators.

Statistical Treatment and Data Analysis

The following statistical procedures were used for data analysis: mean score, thematic analysis, and t-tests. The t-test compares trainers' and trainees' assessment in terms of TVET program implementation.

As a result, the data for SOP 1 on the level of implementation of TVET programs as assessed by trainers and trainees was measured using Mean. Meanwhile, for SOP 2 on the significant difference in trainers' and trainees' assessments of TVET program implementation, the t-test was used for the comparison.

Moreover, SOP 3 focused on the challenges experienced by trainers and trainees, while SOP 4 examined into the coping strategies employed by trainers to address the issues faced by both themselves and their trainees during the implementation of TVET Programs, utilizing thematic analysis.

Scope and Delimitation of the Study

This study evaluated the implementation of TVET Programs of three TTIs and 10 TESDA-Accredited schools in the province of Marinduque. The study focuses on the level of implementation of TVET programs in terms of curriculum design, training delivery, tools, materials, equipment, training facilities, and trainer qualifications.

Moreover, the problems that trainers and trainees encountered in implementing TVET programs and the coping strategies to address the issues are also discussed. The population involved herein are 50 trainers and 367 trainees during the training period of January 2022 to June 2023.

RESULTS

Table 2.

Level of TVET Programs' Implementation as Assessed by the Trainers and Trainees

No.	Indicators	Trainee			Trainer			Total		
		Mean	**SD**	**Description**	**Mean**	**SD**	**Description**	**Mean**	**SD**	**Description**
1	Curriculum Design	3.78	0.228	Fully Implemented	3.72	0.140	Fully Implemented	3.77	0.220	Fully Implemented
2	Training Delivery	3.65	0.322	Fully Implemented	3.57	0.268	Fully Implemented	3.64	0.317	Fully Implemented
3	Tools, Equipment and Materials	3.66	0.295	Fully Implemented	3.47	0.284	Implemented	3.63	0.300	Fully Implemented

4	Training Facilities	3.59	0.312	Fully Implemented	3.58	0.256	Fully Implemented	3.59	0.305	Fully Implemented
5	Trainer's Qualification	3.68	0.241	Fully Implemented	3.70	0.126	Fully Implemented	3.68	0.230	Fully Implemented
	Grand Mean	3.67	0.203	Fully Implemented	3.62	0.139	Fully Implemented	3.67	0.197	Fully Implemented

Legend: 1:00-1.50=Not Implemented (0% implementation); 1.51-2.50=moderately Implemented (Less than 50% implementation); 2.51-3.50=Implemented (More than 50% implementation but not 100%); 3.51-4.00=fully Implemented (100% implementation)

Table 3.
Significant Differences between the Implementation of TVET Programs as Assessed by the Trainers and Trainee Respondents

Curriculum Design	3.192	.075	Accept Ho	Not Significant
Training Delivery	2.606	.107	Accept Ho	Not Significant
Tools, Equipment, and Materials	17.731	.000	Reject Ho	Significant
Training Facilities	.043	.835	Accept Ho	Not Significant
Trainers' Qualification	.465	.496	Accept Ho	Not Significant
Implementation of TVET Programs	2.864	.091	Accept Ho	Not Significant

Table 4.
Problems Faced by Trainers and Trainees in TVET Program Implementation

Areas of Concern	Problems Encountered
1. Curriculum Design	• Lack of local industry and ineffective job placement support for the graduates
2. Training Delivery	• Limited selection of books and journals • Late delivery of training materials and supplies
3. Tools, Equipment, and Materials	• Availability and completeness of training tools, equipment, and materials.
4. Training Facilities	• Space limitations
5. Trainers' Qualification	• Low number of higher qualification holders • Cost/financial constraints

Table 5.
Coping Strategies used by trainers and trainees when faced with problems during TVET program implementation

Areas of Concern	Problems Encountered	COPING STRATEGIES
1. Curriculum Design	• Lack of local industry and ineffective job placement support for the graduates	• Collaborate with local industries to secure on-job-training placements for students. • Establish formal agreements or memorandums of understanding (MOUs) that outline the terms and expectations for the OJT program.
2. Training Delivery	• Limited selection of books and journals • Late delivery of training materials and supplies	• Sharing of modules • Display training materials visually using PowerPoint presentation • Conduct a thorough inventory strictly and regularly.
3. Tools, Equipment, and Materials	• Availability and completeness of training tools, equipment, and materials.	• Conduct a thorough inventory strictly and regularly.
4. Training Facilities	• Space limitations	• Utilization of Multi-Purpose Spaces • Implementation of Flexible Scheduling
5. Trainers' Qualification	• Low number of higher qualification holders • Cost/financial constraints	• Avail free online training and seminar • External Training and Certification Programs

Table 6.

Summary of the Research Problems Encountered, Coping and Proposed Strategies

Areas of Concern	Problems Encountered	COPING STRATEGIES	PROPOSED STRATEGIES
1. Curriculum Design	• Lack of local industry and ineffective job placement support for the graduates	• Collaborate with local industries to secure on-job-training placements for students. • Establish formal agreements or memorandums of understanding (MOUs) that outline the terms and expectations for the OJT program.	• Intensify the identification of local industry for the deployment of on-job-training (OJT) • Alumni Engagement
2. Training Delivery	• Limited selection of books and journals • Late delivery of training materials and supplies	• Sharing of modules • Display training materials visually using PowerPoint presentation • Conduct a thorough inventory strictly and regularly.	• Invest in digital resources and online databases • Utilization of Online Learning Management Systems (LMS) • Early submission of purchase request prior to the training schedule.
3. Tools, Equipment, and Materials	• Availability and completeness of training tools, equipment, and materials.	• Conduct a thorough inventory strictly and regularly.	• Establish partnership with industry
4. Training Facilities	• Space limitations	• Utilization of Multi-Purpose Spaces • Implementation of Flexible Scheduling	• Establish Memorandum of Agreement (MOA) for Off-Campus Physical Facilities
5. Trainers' Qualification	• Low number of higher qualification holders • Cost/financial constraints	• Avail free online training and seminar • External Training and Certification Programs	• Provide financial assistance or time off for employees to pursue these opportunities.

Table 7.

Key Steps in Implementing TVET Program's Enhancement

Areas of Concerns	Proposed Strategies	Key Steps to Implement
1. Curriculum Design	• Intensify the identification of local industry for the deployment of on-job-training (OJT) • Alumni Engagement	• Conduct an analysis to identify local industries that align with the institution's programs and courses. • Establish connections and partnerships with industry leaders through networking events, industry associations, or alumni networks. • Engage in dialogue with industry representatives to understand their needs, requirements, and potential opportunities for OJT placements. • Collaborate with industry partners to develop a framework for OJT, including the duration, learning objectives, evaluation criteria, and potential employment opportunities.
2. Training Delivery	• Invest in digital resources and online databases • Utilization of Online Learning Management Systems (LMS) • Early submission of purchase request prior to the training schedule.	• Assess the current resources available and identify gaps in digital resources and online databases. • Allocate a budget for the acquisition or subscription of digital resources and online databases relevant to the curriculum and training needs. • Research and select reputable providers or platforms that offer comprehensive and up-to-date resources. • Collaborate with the IT department or external vendors to implement the necessary infrastructure and systems for accessing and managing digital resources.
3. Tools, Equipment, and Materials	• Establish partnership in industry	• Identify relevant industries/potential partners • Establish communication channels • Define the goals and objectives of the partnership. • Develop a partnership agreement.
4. Training Facilities	• Establish Memorandum of Agreement (MOA) for Off-Campus Physical Facilities	• Identify potential off-campus physical facilities that can be used for training sessions or workshops. • Reach out to the owners or administrators of these facilities to discuss the possibility of establishing a Memorandum of Agreement (MOA). • Collaboratively draft the MOA, clearly outlining the terms, expectations, and responsibilities of both parties. • Seek legal review and approval of the MOA to ensure compliance with relevant laws and regulations. • Regularly review and update the MOA as needed to reflect any changes or improvements.
5. Trainers' Qualification	• Provide financial assistance or time off for employees to pursue these opportunities.	• Develop a policy or program that outlines the criteria and process for providing financial assistance or time off for employees to pursue external training and certification programs. • Allocate a budget specifically for supporting employee development and training opportunities. • Regularly assess the impact and effectiveness of the program and make adjustments as necessary.

Table 8.

Input in the Action Plan for TVET Programs' Enhancement

	Areas of Concern	Objectives	Tasks	Expected Output
1.	Curriculum Design	• Strengthen partnerships with industry, government, and other stakeholders to enhance the effectiveness and reach of TVET programs.	• Identify potential industry and government partners. • Arrange meetings with potential partners to discuss collaboration opportunities. • Develop joint initiatives, such as internships, guest lectures, and curriculum development.	• Established partnerships with industry and government organizations that can contribute to the effectiveness and reach of TVET programs. • Create opportunities for students to gain practical experience through internships, access industry expertise through guest lectures, and align the curriculum with industry needs.
2.	Training Delivery	• Enhance training delivery through digital resources and online platforms.	• Research and select appropriate online platforms for training delivery. • Develop or source digital resources relevant to the curriculum. • Train instructors on how to use these platforms and resources effectively.	• Identified and implemented online platforms that enhance training delivery, allowing for flexible learning options and access to digital resources. • Equipped instructors with the necessary skills to effectively utilize online platforms and digital resources in their teaching, enhancing the quality of training delivery.
3.	Tools, equipment, and materials	• Improve tools, equipment, and facilities for hands-on training.	• Evaluate the current state of tools, equipment, and facilities. • Identify and procure necessary upgrades or replacements. • Ensure all users are trained on safe and effective use of the new tools and equipment.	• Acquired updated tools, equipment, and facilities that meet the needs of the training programs, ensuring a conducive learning environment.
4.	Training Facilities	• Strengthen the overall infrastructure of TVET training institutions.	• Conduct a thorough assessment of the existing infrastructure. • Develop a plan for necessary upgrades or additions. • Implement the infrastructure improvement plan.	• Created a roadmap for infrastructure improvements, addressing identified gaps and enhancing the overall infrastructure of TVET training institutions.
5.	Trainers' Qualification	• Enhance trainers' qualifications and professional development. • Enhance the capacity of TVET instructors through regular training and professional development.	• Identify areas where trainers need further qualifications or development. • Arrange for relevant training programs, workshops, or courses. • Monitor and evaluate the effectiveness of these professional development activities.	• Identified specific areas where trainers require additional qualifications or professional development to enhance their teaching capabilities. • Provided trainers with opportunities for further qualifications and professional development, enabling them to deliver high-quality training.

DISCUSSION

Table 2 displays the findings of the assessment of trainers and trainees, which shows the same outcome for the overall implementation of TVET programs. Trainee respondents assessed a grand mean value of 3.67 with a standard deviation of 0.203, while trainer respondents evaluated a grand mean value of 3.62 with a standard deviation of 0.139. With a standard deviation of 0.197 and a combined mean rating of 3.67, the two are considered "fully implemented." The two respondents agreed that curriculum design, training delivery, tools, materials and equipment, training facilities, and trainer qualifications had been “fully implemented."

Curriculum design has a strong alignment between the designed curriculum and the perceived needs of the trainees. This alignment is essential for effective knowledge transfer and skill development during training delivery. Competency-Based Training (CBT) serves as the foundation of training facilities, encompassing various key areas such as the Practical Work Area, Distance Learning Area, Learners' Resource Area, Institutional Assessment Area, Trainer's Resource Area, Quality Control Area, Support Service Area, and Contextual Learning Area.

Creating an atmosphere that is conducive to effective learning is imperative in the realm of Technical and Vocational Education and Training (TVET). The role of TVET teachers, trainers, or instructors is dominant in the TVET industry as they are instrumental in facilitating the learning process and imparting technical skills to trainees. Therefore, it is essential to ensure that these instructors are well-equipped and adequately prepared to deliver high-quality training that meets the standards of competency-based education.

By focusing on the continuous professional development of TVET instructors, providing them with the necessary resources, and fostering a supportive environment for their growth, institutions can enhance the overall quality of training delivery and ultimately contribute to the development of a skilled workforce that meets the demands of the industry. The commitment to empowering instructors and enhancing their capabilities is a crucial aspect of ensuring the effectiveness and success of competency-based training programs in the TVET sector. Williams et al. (2021) underscore the significance of continuous professional development for TVET trainers. Institutions that offer regular training opportunities, workshops, conferences, and networking events for trainers create a culture of lifelong learning and ensure trainers stay updated with emerging trends, technologies, and teaching methodologies.

The difference in the obtained mean value from the evaluation of the two groups of respondents resulted in the specific findings observed in the tools, equipment, and materials considered. The grand mean suggests that, on average, both trainees and trainers perceive a high level of implementation in tools, equipment, and materials. However, trainers' ratings indicate potential room for improvement or further collaboration.

The grand mean across all indicators reflects high satisfaction and consensus between trainees and trainers regarding the full implementation of TVET programs. The findings suggest a generally positive perception of the implemented TVET programs, with all indicators showing high fulfilment. Consistency between the perspectives of trainees and trainers is crucial, indicating a shared understanding of the effectiveness of various program components. While the overall implementation is strong, the slightly lower trainer rating in the "Tools, Equipment, and Materials" category may warrant further investigation and potential resource provision and utilization improvements.

These findings are encouraging and suggest that the TVET programs successfully meet their objectives, as trainers and trainees perceived. Regular assessments and open communication channels can further contribute to the continuous improvement of these programs, suggesting that the programs are effectively meeting the needs and expectations of both parties.

According to the data displayed in Table 3, the p-values for the variables are greater than the significance level of 0.05, which implies that there is no significant difference in the assessment of trainers and trainees, except for the tools, equipment and materials. The lack of significance suggests no statistically significant difference in how trainers and trainees assess the implementation of curriculum design, training delivery, training facilities, and trainer qualifications. Similar perceptions between the two groups indicate a shared understanding of the effectiveness of curriculum design, training delivery, training facilities, and trainer qualifications.

However, the respondents have differing views on how tools, equipment, and materials are used in the TVET program implementation. It suggests that the null hypothesis is not supported. It also indicates that participants showed up and expressed their opinions about the study, as the results reveal notable variations. Perhaps the disparities between the two respondents' evaluations stem from their differing perspectives on how they utilized the tools, equipment, and materials—whether they were complete—if they were using.

Moreover, the results imply that rejecting the null hypothesis would enlighten the researcher to arrive at vigorous recommendations that would enhance the implementation of TVET Programs regarding tools, equipment, and materials. To provide effective teaching and learning in TVET establishments, instructional resources in many developing countries still require improvement (Wondaferew, 2012). For example, in Nigeria, the non-use of instructional materials in TVET institutions has impeded teachers' and students' ability to teach and learn (Okwudishu, 2005; Gambari & Okoli, 2007).

Table 4 shows the problems encountered by the trainers and trainees in implementing TVET programs. In the research conducted, the researcher identified problems and challenges encountered by both trainers and trainees within the training environment. Through a thorough analysis of the data collected, the researcher identified a range of issues that were commonly shared among the two groups. To streamline the findings, responses that were similar and common were consolidated.

The trainers and trainees who answered “Moderately implemented” in each indicators interviewed by the researcher about the problems faced in implementing TVET programs in terms of curriculum design, it became clear that there was a lack of local industry and ineffective job placement support for the graduates where trainees could apply their newly acquired knowledge and skills to use and practice, as well as ineffective job placement support. This suggests that the curriculum might not be aligned with the needs and demands of the local job market. Graduates may lack the skills and knowledge required by local industries, leading to difficulties in finding employment. Additionally, if there's inadequate support for job placement, graduates may struggle to secure positions even if they have the necessary skills.

In delivering training as part of implementing TVET programs the results showed that the school library had a limited selection of books and journals and the training materials and supplies were delivered late. A limited selection of learning resources can hinder the quality of training provided. Without access to a wide range of books and journals, trainees may miss out on valuable information and perspectives, limiting their understanding of the subject matter. Delays in delivering training materials and supplies can disrupt the learning process and impact the effectiveness of training programs. It may lead to missed learning opportunities and frustration among both trainees and trainers.

Furthermore, space constraints were stressed when the researcher interviewed trainers and trainees about the challenges they faced when implementing TVET programs in relation to training facilities. The implementation of training programs may be affected by inadequate space, which may limit the kinds of activities that can be carried out and the number of trainees who may take participation. The standard quality of instruction and the comfort of the trainees may be influenced by overcrowded spaces.

In terms of trainer qualifications, it revealed that there were low number of higher qualification holders and cost/financial constraints. The qualifications of trainers directly impact the quality of education provided. A shortage of trainers with higher qualifications may result in less effective teaching, as they may lack in-depth knowledge or expertise in their respective fields. Financial limitations may hinder the recruitment or retention of highly qualified trainers. Additionally, budget constraints might restrict opportunities for professional development, preventing trainers from staying updated with the latest industry trends and teaching methodologies.

The trainees can employ training tools, equipment, and materials because they disagree with the real training schedules, according to several of the trainees the researcher talked with. Simultaneously, the trainers stated that the late purchase request for training as well as the delayed delivery of supplies and materials indicate that the training tools, equipment, and materials must be finished and made available. Insufficient tools, equipment, and materials may hinder experiential training. Trainees may find it difficult to gain the practical skills that are frequently necessary for success in a variety of occupations if they do not have access to the relevant resources.

Addressing these concerns requires a comprehensive approach involving collaboration between educational institutions, industry stakeholders, and policymakers. It may involve curriculum revisions to align with industry needs, investment in resources and facilities, professional development opportunities for trainers, and improved support for student job placement.

Table 5 shows the coping strategies employed by trainers to address the issues faced by both themselves and their trainees during the implementation of TVET Programs in terms of curriculum design, training delivery, training tools, equipment and materials, training facilities and trainer's qualification.

In terms of curriculum design, trainers and trainees encountered problem that there was a lack of local industry and ineffective job placement support for the graduates where trainees could apply their newly acquired knowledge and skills to use and practice, as well as ineffective job placement support. Collaborate with local industries to secure on-job-training placements for students and establish formal agreements or memorandums of understanding (MOUs) that outline the terms and expectations for the OJT program which includes the duration of the training, learning objectives, evaluation criteria, and possible employment opportunities after completion are some of trainer's coping strategies.

Moreover, in training delivery, the results showed that the school library had a limited selection of books and journals that training materials and supplies were delivered late. As for the trainer's coping strategies, trainees share modules, display training materials visually using PowerPoint presentation. When it comes to the late delivery of materials and supplies, trainers conduct thorough inventory strictly and regularly.

Furthermore, the problems encountered during the implementation of TVET Programs regarding training facilities, it revealed space limitations. As to the trainer's coping strategies, utilization of multi-purpose spaces and implementation of flexible scheduling.

During the interviews conducted with trainees who indicated a moderate level of implementation, they expressed that while they were able to utilize the training tools, equipment, and materials provided to them, they also conveyed a sense of inadequacy regarding the availability and sufficiency of these resources. At the same time, the trainers mentioned that the training tools, equipment, and materials need to be completed and should be available during class time. This problem occurs because of late purchase request for training resources and the delayed delivery of materials and supplies. As part of the trainers' coping strategies, they conduct a thorough inventory strictly and regularly.

Furthermore, the study highlighted a scarcity of trainers with higher qualifications, attributing this shortage to cost-related financial constraints. In response to these challenges, trainers have adopted coping strategies such as engaging in free online training and seminars, as well as participating in external training and certification programs. These initiatives are aimed at enhancing their skills, adapting to evolving pedagogical methods, and improving their overall capabilities in the training domain.

The following problems encountered and coping strategies are plotted in Table 6 and mapped with the proposed strategies. In the area of curriculum design, one of the problems encountered is the lack of local industry and ineffective job placement support for graduates. To cope with this, a strategy is to collaborate with local industries to secure on-the-job-training (OJT) placements for students. By engaging in partnerships with industry leaders, educational institutions can provide students with practical experience and exposure to real-world work environments. Additionally, establishing formal agreements or Memorandums of Understanding (MOUs) can outline the terms and expectations for the OJT program, including the duration of the training, learning objectives, evaluation criteria, and potential employment opportunities after completion. This ensures a clear framework for both the educational institution and industry partner, fostering a mutually beneficial relationship.

In terms of training delivery, problems such as limited selection of books and journals and late delivery of training materials and supplies can be addressed through various coping strategies. Sharing of modules can help overcome the limited selection of resources by leveraging the expertise and materials available within the institution. Displaying training materials visually using PowerPoint presentations can enhance the delivery of content and engage learners. Conducting a thorough inventory strictly and regularly can help identify any gaps in training materials and ensure timely procurement or replenishment. Investing in digital resources and online databases can provide access to a wider range of materials, while implementing an Online Learning Management System can facilitate efficient distribution and access to training materials. Additionally, early submission of purchase requests prior to the training schedule can help mitigate delays in the delivery of necessary materials and supplies.

When it comes to tools, equipment, and materials, ensuring their availability and completeness is crucial. Conducting a thorough inventory strictly and regularly can help identify any missing or outdated items and facilitate timely procurement or replacement. Similarly, establish partnership with industry can help prevent delays in acquiring the necessary tools, equipment, and materials. By implementing these strategies, educational institutions can ensure that trainers and trainees have access to the resources they need for effective training delivery.

Space limitations in training facilities can pose challenges, but coping strategies can be implemented. Utilizing multi-purpose spaces within the facility can help maximize available space by repurposing areas such as conference rooms or cafeterias for training sessions when not in use for their primary functions. Implementing flexible scheduling allows for better utilization of space by accommodating multiple groups or departments at different times or on different days. Additionally, establishing Memorandums of Agreement (MOAs) for Off-Campus Physical Facilities can provide additional space when needed, either through rented conference rooms or partnerships with other organizations that have larger training facilities.

The low number of higher qualification holders among trainers can be addressed by availing free online training and seminars, which can provide opportunities for

professional development. External training and certification programs can also be explored, where employees can pursue advanced qualifications or certifications to enhance their skills. Providing financial assistance or time off for employees to pursue these opportunities can help overcome cost or financial constraints.

Overall, these proposed strategies aim to address the problems encountered in curriculum design, training delivery, tools, equipment, and materials, training facilities, and trainers' qualifications. By implementing these strategies, educational institutions can enhance the quality of training and better prepare graduates for the demands of the industry.

These strategies aligns to the TESDA Impact Evaluation Survey 2012, which reveals that TESDA-administered schools should provide more effort and purposive policies for interventions to strengthen the employment rate of its graduates. Policy interventions include:

- Expanding apprenticeship programs to ensure employment in the future,
- Utilizing Online Learning Management Systems (LMS),
- Continuous financial support in the provision of modern facilities and equipment and;
- Provide training and professional development opportunities

Table 7 presents the key steps to enhance the implementation of TVET programs. These address critical aspects of the program, including curriculum design, training delivery, tools, equipment and materials, training facilities, and trainer qualifications.

The proposed strategies aim to address key concerns within the educational institution systematically. For curriculum design, the institution plans to identify local industries relevant to its programs, fostering partnerships and dialogue to tailor on-the-job-training (OJT) opportunities. Similarly, in training delivery, emphasis is placed on investing in digital resources, including Online Learning Management Systems (LMS), and ensuring timely procurement of necessary materials. Clear guidelines and procedures are established for purchase requests in tools, equipment, and materials, while off-campus facilities are secured through Memorandums of Agreement (MOAs).

Finally, the institution commits to supporting trainers' qualification through financial assistance, communication of available support, and regular program assessment for continuous improvement. These strategies collectively aim to enhance curriculum relevance, resource accessibility, and trainer qualification, ensuring a comprehensive approach to educational quality and effectiveness.

Table 8 provides input for enhancing TVET programs to bridge the gap between education and the workforce. The focus is on improving skills and competencies to address unemployment, promote sustainable development, and support job growth in a dynamic economy through the expansion of TVET programs.

In curriculum design, fostering partnerships with industry, government, and other stakeholders is dominant. By engaging with these entities, TVET programs can ensure alignment with current industry needs and practices. This involves identifying potential partners, initiating discussions, and collaboratively developing initiatives such as internships and curriculum enhancements. Through these partnerships, students can gain practical experience, access industry expertise, and ultimately benefit from a more relevant and effective curriculum.

In training delivery, leveraging digital resources and online platforms can significantly enhance accessibility and effectiveness. Researching and selecting appropriate online platforms, developing digital resources, and providing instructor training are key tasks. By implementing these tools effectively, TVET programs can offer flexible learning options and ensure access to relevant materials, thereby improving the overall quality of training delivery.

Improving tools, equipment, and facilities for hands-on training is crucial for providing students with a conducive learning environment. This involves evaluating current resources, procuring necessary upgrades or replacements, and ensuring proper training for users. Up-to-date tools and facilities enable students to develop practical skills effectively, preparing them for real-world scenarios.

Strengthening the overall infrastructure of TVET training institutions is essential for long-term sustainability and effectiveness. Conducting assessments, developing improvement plans, and implementing necessary upgrades or additions are key steps. By addressing infrastructure gaps, institutions can enhance the overall learning environment and support the delivery of high-quality training programs.

Enhancing trainers' qualifications and professional development is vital for ensuring the delivery of high-quality education. Identifying areas for improvement, arranging relevant training programs, and monitoring effectiveness are crucial tasks. By investing in trainers' development, TVET programs can ensure that instructors are equipped with the necessary skills and knowledge to deliver effective training and support student success. By focusing on these areas of concern and implementing the outlined objectives and tasks, TVET programs can enhance their effectiveness, relevance, and reach, ultimately better preparing students for success in their chosen fields.

Conclusions

Based on the findings, the researcher arrived at the following conclusion, to wit:

The study provided a comprehensive assessment of the level of implementation of TVET programs, offering valuable insights into the perspectives of both trainers and trainees. Overall, the findings indicated a positive perception of the program's implementation, with both groups largely agreeing on the "fully implemented" status across various components. However, in the assessment of tools, equipment, and materials revealed slight discrepancies between trainers and

trainees, highlighting potential areas for improvement. Moreover, the identified challenges, including misalignment of curriculum design with local industry needs, limited resources, space constraints, and a shortage of highly qualified trainers, impact the quality and effectiveness of the TVET programs.

Recommendations

In the context of the above enumerated findings and conclusions, the researcher arrived at the following recommendations:

1. **While the TVET programs in Marinduque are largely successful, there are areas that need to be addressed for continuous improvement. By implementing the proposed strategies and taking the necessary steps, it is expected that the quality, relevance, and effectiveness of the TVET programs will be enhanced, ultimately improving the employment prospects of the graduates.**

2. **For TVET institution to implement a vigorous monitoring and evaluation system to continuously assess the quality and impact of TVET programs. Collect feedback from trainers, trainees, employers, and other stakeholders to identify areas for improvement and track progress towards program goals and objectives.**
3. Provide training and capacity building opportunities for both trainers and trainees to enhance their skills in using tools, equipment, and materials effectively. Offer workshops, seminars, and hands-on training sessions to familiarize trainers and trainees with the latest technologies and best practices in their respective fields.

Compliance with Ethical Standards

As the author of this study, I affirm that ethical standards were rigorously upheld throughout the research process. Prior to data collection, informed consent was obtained from all participants, emphasizing their voluntary participation and the freedom to withdraw from the study at any point without consequences. The anonymity of the respondents was meticulously preserved to ensure confidentiality and protect their privacy. Measures were taken to safeguard the well-being of the participants, prioritizing their mental and emotional welfare.

Furthermore, I confirm that there is no conflict of interest that could influence the conduct or outcomes of this study. Strict adherence to academic integrity was maintained, with plagiarism vigilantly avoided in all aspects of the research. The interpretation of the findings was approached without bias, ensuring objectivity and reliability in the analysis. The results obtained from this study are solely intended for research purposes, contributing to the advancement of knowledge in the respective field.

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IMPROVING STUDENTS' CONCEPTUAL UNDERSTANDING IN CHEMISTRY THROUGH STRUCTURED INQUIRY-BASED LEARNING

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ABSTRACT

The study aimed to assess the level of Grade 10 students' conceptual understanding in Chemistry when exposed to structured inquiry-based learning. The study employed a One-Shot Pretest-Posttest Pre-experimental Design, administering a pretest before intervention and a posttest after. Participants were 28 students from Grade 10, section Alithia at Kalilangan National High School (KNHS), during the 2023-2024 school year. Before the intervention, most students demonstrated very low conceptual understanding, with only a small percentage achieving average or low understanding levels. However, after being exposed to structured inquiry-based learning, a substantial improvement was observed in students' post-test scores. The paired T-test results further supported the effectiveness of the structured inquiry-based learning approach, showing a notable increase in mean post-test scores compared to pretest scores. The study concludes that structured inquiry-based learning significantly enhances students' conceptual understanding and academic performance in Chemistry. The findings of the study recommend that the Department of Education consider implementing structured inquiry-based learning to improve the conceptual understanding of students. Future researchers may use this study to support further investigations into the benefits of structured inquiry-based learning.

Keywords: *Structured Inquiry-Based Learning, Conceptual Understanding, Chemistry Education, Pre-experimental Design, Instructional Strategies*

INTRODUCTION

Science education was deemed very important as it played a pivotal role in a person's life. Accordingly, science education cultivates students' abilities in scientific inquiry, fostering values like objectivity, curiosity, and honesty, while also instilling habits of mind such as critical thinking (SEI-DOST & UP NISMED, 2015). Apparently, conceptual difficulties are the primary problem that students encounter when trying to understand a subject, as concepts are built upon prior knowledge and form the foundation of an individual's thinking. These difficulties arise due to challenges in grasping and fully understanding the underlying concepts (Akram, et. al., 2014). According to Naz & Mushtaq (2022), numerous studies in chemistry education literature have addressed the challenges students face in understanding fundamental chemistry concepts in schools. Concepts are formed through a process of abstraction, where ideas or thoughts are developed based on the common properties of objects or events, and difficulties or issues related to these concepts or the process of forming them are known as conceptual difficulties. These challenges in grasping chemistry concepts pose significant concerns for science educators, teachers, and students.

Integrating different learning strategies helps to address this concern among students. According to The InterAcademy Partnership (IAP) (2021), incorporating Inquiry-Based Learning enhances students' understanding of science by engaging them in the investigative nature of the subject. This approach helps students contextualize materials and develop critical thinking skills. Learning chemistry through structured inquiry-based learning made it more understandable and allowed students to be more active, which promoted conceptual understanding (Kwitonda, et. al., 2021). Szalay (2015) conducted a study on the promotion of structured inquiry-based teaching in chemistry. The research findings indicated that the implementation of structured inquiry-based activities enhanced students' cognitive abilities in the subject of chemistry. Analyzing the domain of structured inquiry-based learning revealed many positive aspects; however, it also highlighted some negative aspects. According to Wheatley (2018), Some drawbacks included the insufficient time for teachers to prepare, inadequate funding for materials, and a lack of understanding on how to effectively implement structured inquiry-based learning. Teachers often lacked the necessary experience and guidance to successfully facilitate student-led lessons. Previous research, while comprehensive, overlooked the potential challenges that teachers encountered when utilizing inquiry-based learning. The research study focused on improving students' understanding of chemistry concepts through structured inquiry-based learning within classrooms.

In addressing the pressing challenges present in teaching science, the researchers opted to investigate the effectiveness of the structured inquiry-based learning in improving the conceptual understanding of the grade 10 students in Chemistry at Kalilangan National High School. The study's results would provide evidence to guide teachers and researchers in improving teaching and learning practices.

Research Questions

The study was conducted to examine the Grade 10 students' conceptual understanding in Chemistry when exposed to a structured inquiry-based learning strategy. Specifically, it seeks to answer the following questions:

1. What is the level of Grade 10 students' conceptual understanding in Chemistry when exposed to structured inquiry-based learning strategy in terms of pre-test and post-test?
2. Is there a significant difference in the conceptual understanding of Grade 10 students in Chemistry when exposed to a structured inquiry-based learning strategy in terms of pre-test and post-test?

METHODOLOGY

This study employed a One-Shot Pretest-Posttest Pre-experimental Design, involving 28 Grade 10 students from Kalilangan National High School, with 7 males and 21 females, under the Enhanced K to 12 Basic Educational Curriculum for the School Year 2023-2024. Data was collected through a validated 30-item multiple-choice test, content-validated by a panel of Chemistry experts, assessing students' conceptual understanding of chemical reactions. The test was administered before and after the implementation of a structured inquiry-based approach. The study obtained necessary permissions from Central Mindanao University and the Institutional Ethics Review Committee (IERC) for ethical review and from the Office of the Principal at Kalilangan National High School. Student performance was evaluated using the K to 12 Basic Education Learning Progress and Achievement Indicators, with scores transmuted according to the formula:

Transmuted score = raw score/highest possible score x 50 + 50

The grading scale was as follows:

Grading Scale	Descriptive Rating	Qualitative Description
90% - 100%	Outstanding	Very High Conceptual Understand
85% - 89%	Very Satisfactory	High Conceptual Understanding
80% - 84%	Satisfactory	Moderate
75% - 79%	Fairly Satisfactory	Low Conceptual Understanding
Below 75%	Did Not Meet Expectation	Very Low Conceptual Understanding

Descriptive statistics (means) were computed for pre- and post-assessment scores to gauge the overall impact of structured inquiry-based learning on conceptual understanding. A paired-sample t-test was used to compare the mean scores of the pre- and post-assessments, assessing the significance of the difference in students' conceptual understanding following the intervention. The study's scope was limited to the specific topic of chemical reactions in Grade 10 Chemistry, and the results may not be generalizable to other subjects or grade levels.

RESULTS

The study aimed to assess the effectiveness of structured inquiry-based learning strategy on students' conceptual understanding in Chemistry. By implementing this approach, the researchers aimed to enhance learning experiences and educational outcomes.

A. Conceptual Understanding of Students in Chemistry

Table 1 presents the conceptual understanding of students in Chemistry before and after being exposed to a Structured Inquiry-Based Learning Strategy. Pretest and posttest scores are shown, detailing the frequency and percentage of students falling into different score ranges, which are categorized into qualitative descriptions based on a grading scale.

Table 1. Pretest and posttest Conceptual Understanding Scores of Students in Chemistry

		PRETEST		POSTTEST		
Score Range	Grading Scale	N	Frequency %	N	Frequency %	Qualitative Description
24-30	90-100	0	0	20	71.4%	Very High Conceptual Understanding
21-23	85-89	1	3.6	6	21.4%	High Conceptual Understanding
18-20	80-84	2	7.1	2	7.1%	Average
15-17	75-79	2	7.1	0	0%	Low Conceptual Understanding
Below 15	Below 75	23	82.1	0	0%	Very Low Conceptual

					Understanding
TOTAL	28	100	28	100	
Overall Mean		10.6		24.5	

Legend:

Grading Scale	Descriptive Interpretation	Qualitative Description
90-100	Outstanding	Very High Conceptual Understanding
85-89	Very Satisfactory	Very High Conceptual Understanding
80- 84	Satisfactory	Average
75-79	Fairly Satisfactory	Low Conceptual Understanding
Below 75	Did Not Meet Expectations	Very Low Conceptual Understanding

Table 2 presents the comparative mean scores between the student's conceptual understanding in Chemistry before and after exposure to Structured Inquiry-Based Learning Strategy.

Table 2. Paired T-Test to Compare Pretest and Posttest in Chemistry.

	Paired Difference		*t*	*Sig (2-tailed)*
	Mean	*SD*		
Pretest	10.6	4.14	1.70	0.000**
Posttest	24.5	2.20		

$p < 0.05$ is highly significant

DISCUSSION

As shown in data table 1, during pre-test, most students (82.1%) achieved a "Did Not Meet Expectations" score, indicating a very low conceptual understanding. Only a small percentage achieved satisfactory or high scores, suggesting a lack of deep understanding in Chemistry concepts prior to the implementation of structured inquiry-based learning. However, during the posttest, after exposure to structured inquiry-based learning, a significant improvement is observed. 71.4% of students achieved a "Very High Conceptual Understanding" score, indicating substantial progress in their understanding of Chemistry concepts. This improvement can be attributed to the active engagement fostered by inquiry-based learning, which encourages questioning, investigation, scientific methods, curiosity, and problem-solving. The data implies that traditional passive learning methods may not effectively foster deep conceptual understanding in Chemistry. The shift towards structured inquiry-based learning has shown promising results, with a significant proportion of students achieving high conceptual understanding. This highlights the importance of active student engagement in the learning process for effective knowledge acquisition in Chemistry. Moreover, the

data suggests that addressing factors such as the complexity of Chemistry concepts, passive learning experiences, and student motivation is crucial for improving conceptual understanding. Incorporating more effective teaching strategies, such as structured inquiry-based learning, can help address these factors and enhance student performance in Chemistry.

The findings are supported by existing research. Karpudewan et al. (2015) highlight the limitations of passive learning approaches in fostering robust conceptual knowledge, emphasizing the need for more active learning methods. Additionally, Mutoharo et al. (2015) assert that student motivation significantly contributes to understanding science concepts, aligning with the observed improvement in student performance after exposure to structured inquiry-based learning. Furthermore, Langitasari et al. (2016) suggest that conceptual understanding is best achieved through active involvement in the inquiry process, supporting the effectiveness of structured inquiry-based learning in enhancing student learning outcomes in Chemistry.

On the other hand, table 2 presents that we can observe a significant value of 0.000 at 0.05 ($p<0.05$) which indicates a significant difference. As presented on the table, it shows the results of a paired T-test comparing the pretest and posttest scores in Chemistry. The mean pretest score was 10.6 with an SD of 4.14 and the mean posttest score was 24.5 with an SD of 2.20. The t-value for both pretest and posttest was 1.70. The posttest mean score of 24.5 is higher than the pretest mean score of 10.6, indicating improvement in conceptual understanding after the intervention. The findings imply that the intervention or treatment implemented had a positive impact on the Chemistry scores, leading to a significant improvement in students' conceptual understanding. According to Naz and Mushtaq (2022), various research in the field of chemistry education has explored the challenges students encounter when trying to grasp fundamental chemistry concepts in schools. Concepts are developed through abstraction, a process where ideas or thoughts are derived from identifying the common properties of objects or events. The difficulties or issues that arise in understanding these concepts, or in the process of their formation, are referred to as conceptual difficulties. These difficulties are a major concern for educators and students alike, as they significantly impact the learning process in chemistry. Incorporating structured inquiry-based learning has been shown to significantly improve students' understanding of science by actively involving them in the investigative nature of the subject. This approach helps students connect learning materials to real-world contexts and cultivates critical thinking abilities. In the domain of chemistry, structured inquiry-based learning not only enhances comprehension but also promotes active student engagement, leading to a deeper grasp of concepts (Kwitonda et al., 2021).

Additionally, research conducted by Szalay (2015) supports these findings, demonstrating that structured inquiry-based activities enhance students' cognitive skills in chemistry and contribute to a more effective and engaging learning experience. Furthermore, the results are supported by the study of Kwitonda et al. (2021), which states that the use of structured inquiry-based learning in chemistry education has several benefits. It makes the subject more understandable for students and encourages

them to actively participate in the learning process. This hands-on approach promotes conceptual understanding, allowing students to grasp the fundamental concepts of chemistry more effectively. In line with the findings from the paired T-test analysis, the improved performance observed in the posttest scores may be attributed to the implementation of structured inquiry-based learning. By engaging students in hands-on activities, encouraging exploration, and fostering active learning, this teaching methodology facilitates a deeper understanding of the subject matter. Therefore, the results of the paired T-test, combined with the insights provided by Kwitonda et al. (2021), suggest that the use of structured inquiry-based learning in chemistry education can contribute to enhanced students' conceptual understanding.

Conclusions

Based on the results, the structured inquiry-based learning implemented in the study had a significant positive impact on students' conceptual understanding in Chemistry. Before the intervention, most students demonstrated very low conceptual understanding, with only a small percentage achieving average or low understanding levels. However, after being exposed to structured inquiry-based learning, a substantial improvement was observed in students' post-test scores. Most of the students achieved very high conceptual understanding, indicating a significant enhancement in their performance and comprehension of Chemistry concepts.

The paired T-test results further supported the effectiveness of the structured inquiry-based learning approach, showing a notable increase in mean post-test scores compared to pretest scores. This improvement signifies the success of the intervention in enhancing students' conceptual understanding and academic performance in Chemistry. The findings suggest that structured inquiry-based learning can be a valuable teaching methodology to promote active engagement, critical thinking, and deep conceptual understanding among students in Chemistry education. The results of the study indicate that there is no significant difference in the conceptual understanding of Grade 10 students in Chemistry when they are exposed to a structured inquiry-based learning strategy, as evidenced by the rejection of the null hypothesis.

However, the incorporation of a structured inquiry-based learning strategy, which includes structured support and guidance, has been found to enhance students' conceptual understanding in Chemistry and contribute to improved educational outcomes.

Recommendations

The study's findings have led to the following recommendations:

The Department of Education Teachers should consider implementing structured inquiry-based learning to improve students' conceptual understanding in Chemistry. This approach is rooted in the belief that when students engage in structured inquiry, they are more likely to develop a deeper understanding of the subject matter compared

to traditional teaching methods. They may use structured inquiry-based learning to provide students with a clear framework and specific guidelines while allowing them the freedom to explore and investigate within these boundaries. This method balances guidance with autonomy, helping students develop critical thinking skills, enhance their problem-solving abilities, and engage more actively with the content.

The Department of Education Teachers should use this as a tool to improve students' learning outcomes. By engaging in inquiry-based activities, students are encouraged to ask questions, design experiments, collect and analyze data, and draw conclusions based on their findings. This process not only reinforces their conceptual knowledge but also helps them understand the application of theoretical concepts in practical scenarios.

Future researchers may utilize this study to explore further the benefits of structured inquiry-based learning in Chemistry education. They can investigate various dimensions, such as the long-term retention of knowledge, the development of scientific skills, and the impact on students' attitudes toward Chemistry.

Compliance with Ethical Standards

The researchers conducted the study with a commitment to adhering to ethical standards. Informed consent was obtained from all participants, ensuring they were fully aware of the study's purpose, procedures, and their rights. Participants were informed that their involvement was voluntary and that they could withdraw from the study at any time without any negative consequences. The anonymity of the respondents was strictly maintained to protect their identities, and all data were kept confidential. The respondents' well-being was a top priority, and every effort was made to ensure that participation in the study did not cause any harm or distress.

The researchers obtained legal permission from Central Mindanao University and the Institutional Ethics Review Committee (IERC) for an ethical review of the implementation of the scale. No conflicts of interest were present in the conduct of this study. The researchers maintained objectivity and avoided any bias in the collection, analysis, and interpretation of data. To ensure the integrity of the research, plagiarism was strictly avoided, and all sources and contributions were properly acknowledged. The results of the study were used solely for research purposes, aimed at improving educational practices. The dissemination of the findings was conducted with the support of the School Principal, aiming to contribute to the professional development of teachers and the enhancement of students' conceptual understanding in Chemistry.

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INSTRUCTIONAL MATERIALS IN ENGLISH LANGUAGE TEACHING: REGISTER AND ACCESS TOWARDS TRANSCENDENCE AMIDST CRISIS

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ABSTRACT

This study aimed to determine the instructional materials utilized by English teachers in teaching English in the Tanjay City Division of the school year 2020-2021. With the use of purposive sampling, the researcher was able to invite 72 English teachers to take part in this investigation. Furthermore, using the explanatory sequential Mixed method, the research extracted teachers' significant experiences, including their challenges and best practices in utilizing these materials from a trained teacher to avoid bias from the researcher's perspective. Moreover, the survey questionnaire was floated manually and online for the respondents' comfort. The researcher followed strict adherence to safety protocols to avoid danger from COVID-19. Concerning data analyses, percentage distribution, weighted mean, Pearson's, and Spearman Rho Correlation were utilized for quantitative purposes. On the other hand, the researcher employed thematic analysis for qualitative data extracted from focused group discussions. The results revealed that teachers in their 30s, where the majority acquired insufficient training and could not finish advanced studies, utilized much use of Instructional Materials. Furthermore, the higher the Instructional materials are used, the more available they are, and vice versa, though teachers with higher education tend to lessen the use of instructional materials. Thus, the use and availability of instructional materials can help enhance students' learning, especially when they do tasks that experience the utilization of these materials (Theory of Cone of Experience), and they can associate their experiences by connecting to the new sets of ideas and concepts (Theory of Connectionism). Moreover, more instructional materials are used and available in the Highlands than in Lowland locations.

Keywords: *Instructional Materials in English Language Teaching, Challenges and Best Practices on the Utilization of Instructional Materials, Explanatory Sequential Mixed Method*

INTRODUCTION

"Young children learn differently from old children and adults, yet we can teach them many things if we adapt our materials and mode of instruction to their level of ability, but we miseducate young children when we assume that their learning abilities are comparable to those of older children and that they can be taught with materials and with the same instructional procedures to school-age children" – *(David Elkind*). This quote is very evident in the teaching and learning process since teachers lack knowledge on how to employ certain instructional materials that are congruently relative to the student's ability. The employment of instructional materials has significantly taken importance in their role in the student's courses in education. Students' learning experiences are greatly influenced by the instructional materials they use. These resources can include worksheets, movies, textbooks, and internet sites that offer learners crucial knowledge and direction. Students' comprehension and retention of material can be significantly impacted by the caliber and applicability of their teaching resources. In this regard, the theory of connectionism by Eduard Thorndike, an American Psychologist, says that when people can establish connections between a certain stimulus and a response, they have learned something (Lee, 2018). When learners form associations through any form of instructional materials, they have a high potential to relate and can perform in class discussions. Undeniably, the role of these materials in students' Learning becomes vital, especially when students are given opportunities to experience Learning using instructional materials. In this sense, the theory of the cone of experience by Edgar Dale (1960) takes place. Edgar Dale created the Cone of Experience, popularly called the Learning Pyramid. This model demonstrates the usefulness of various learning experiences in terms of retention. Dale asserts that students are more likely to retain the material when actively involved in their education. Concrete experiences, such as hands-on activities and direct engagement, are at the base of the cone.

In terms of retention, experiences are considered the best (S. J. Lee & Reeves, 2018). This idea means that when students are allowed to use and experience these materials in class, a higher percentage of retention and Learning will be attained. It is one of the advantages of utilizing instructional materials in teaching and Learning. However, issues will inevitably be pinned on this topic. Despite their adverse effects, the scantiness of instructional materials (IMs) generally led teachers to utilize them for all types of learners. In this aspect, the theory of constraints is relevant. According to the theory that Eliyahu M. Goldratt developed in the 1980s, every system has at least one limitation that prevents it from achieving its objectives and is one of the fundamental tenets of TOC. Organizations may significantly enhance their operations and produce better results by recognizing these limits and addressing them methodically (*Theory of Constraints (TOC) | Lean Production*, n.d.). Anent to address this problem, the Department of Education (DepEd) proactively addresses this issue. DO 13, S. 2012, or the Guidelines on the

Allocation, Delivery, and Distribution of Instructional Materials (IMs) to Support the k to 12 Curriculum. It is clearly stated in this Deped Order that The Department of Education (DepEd) has allocated funds from the Fiscal Year (FY) 2012 Textbook Funds and subsequent years until FY 2015 for the provision of the centrally procured Learning Activity Packages (LAPs), modules, and Other Instructional Materials (OIMs) to support the initial implementation of the K to 12 Curriculum. These materials will fill in the gaps in the Textbooks (TXs) and Teacher's Manuals (TMs) currently used in public elementary and secondary schools. Through this mandate, Learning can be achieved through various disciplines and strategies.

Nowadays, teachers have been using multiple tools to address learning issues among our learners in dealing with classroom issues. These strategies are proven to promote the abilities and bring the maximum potential of our learners in their respective roles in the class. These strategies include instructional materials that are utilized by teachers all over the world. These are considered sources of educational platforms such as printed materials, graphic organizers, audio, visual, audio-visual, electronic interactive, and teacher-made resources that provide timely and relevant information used in a particular course to aid learners in achieving the goal of Learning. Significantly, the instructional teaching materials make teaching and learning easier because they attract learners' attention, facilitate abstract concept understanding, save time by limiting the usage of wordy explanations, and allow learners to handle objects in the environment (Ambrocio, 2016). Some of these are multimedia tools that are also effective in delivering lessons in a classroom. Usually, these tools are animated and presented through videos (Guan et al.,2018). This static and dynamic application supports verbal instruction and comprehension (Alemdag & Cagiltay, 2018).

Furthermore, with computer-aided technology, English is no longer boring but fun. It stimulates, motivates, and encourages learners to bring their potential to the maximum level as of how learning occurs. With this advantage, these instructional materials provide knowledge and a view of the topic, including its facts and information that learners can relate to and connect to the learning process. However, utilizing these materials shall be scrutinized first to ensure the validity and effectiveness of our learner's needs, including their age and level of understanding (Bukoye, 2019). Teachers must use the right materials and knowledge for learning courses to succeed. There are a lot of tools and materials for instruction, but one must choose the ones that will fit in. In evaluating the materials, it is important to consider if these appeal to the learner, the material's credibility, validity, reliability, the ability of the materials to motivate, flexibility, and appropriateness of the material (Balachandaran, 2021).

Moreover, in preparing the content from the instructional materials, the teacher first needs to assess the student's background knowledge to have a strong foundation of contextualization. Contextualization refers to relating and presenting lessons in the context of the prevailing local environment, culture, and resources. Hence, lessons are becoming more real-life, customized, and appropriate. In this aspect, instructional materials play a vital role in developing skills among learners in the entire part of education.

Relatively, the concept of instructional materials is utilized in this paper. This study is conducted to determine the instructional materials used by English teachers teaching English during the pandemic, their demographic profile, and other variables. Moreover, this research uncovers the English teachers' challenges and their best practices in the field in the school year 2020-2021. Thus, this study specifically answered the following questions.

Research Questions

1. What is the profile of the respondents in terms of:
   1.1 age;
   1.2 highest educational attainment;
   1.3 teachers' performance rating
   1.4 number of training days in English Language 2020-2021
2. To what extent do English teachers use the following instructional materials in terms of:
   2.1 printed;
   2.2 audio;
   2.3 visual;
   2.4 audiovisual; and
   2.5 teacher made resources;
3. What is the extent of availability of instructional materials utilized by English teachers in terms of:
   3.1 printed;
   3.2 audio;
   3.3 visual;
   3.4 audiovisual; and
   3.5 teacher made resources;
4. Is there a significant relationship between the instructional materials used by English
   teachers and their demographic profile?
5. Is there a significant relationship between the extent of use and availability of instructional materials utilized by English teachers?
6. Is there a significant difference between the availability and the extent of use of instructional materials when respondents are grouped according to location?
7. What challenges do English teachers encounter in the utilization of instructional materials?
8. How do English teachers cope with these challenges?

Hypothesis:

1. There is no significant relationship between the Teachers' use of the instructional materials and their Demographic Profile.
2. There is no significant relationship between the extent of use and availability of instructional materials utilized by English teachers.

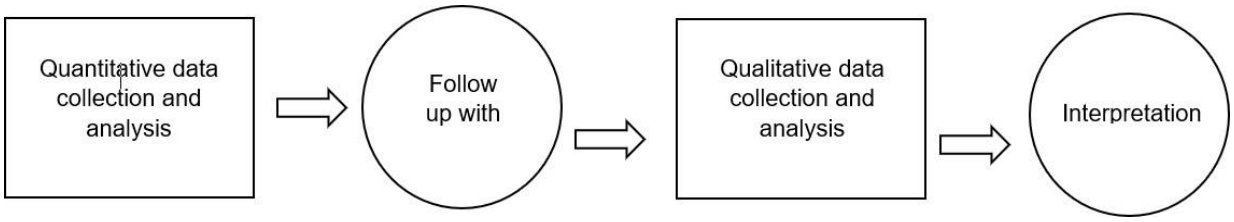
3. There is no significant difference between the availability of instructional materials when respondents are grouped according to location.

METHODOLOGY

This part of the study discusses the research design, research locale, research respondents, research instrument, data gathering procedures, and data analyses.

Research Design

The study uses an explanatory sequential mixed technique of research. The explanatory sequential design of Creswell and Plano Clark involves first gathering quantitative data and then gathering qualitative data to supplement or further explain the quantitative results (*Basic Mixed Methods Research Designs*, n.d.) This strategy is justified because, while quantitative data and results offer a general image of the study problem, further analysis, particularly through the acquisition of qualitative data, is required to enhance, extend, or clarify the overall picture. The researcher used custom-made survey questionnaires to collect quantitative data on respondents' perceptions of English teachers' availability and utilization of instructional resources.



Explanatory Sequential Mixed Method
Creswell &Plano- Clark (2011)

The study also looked at how readily available instructional materials were in connection to how much they were used by English teachers. It also looked to see if there was any correlation between the demographics of the instructor responses and the IMs. The study also sought to identify the difficulties and effective strategies English teachers used while utilizing educational resources. The researcher used a mixed method in this case.

Research Locale

The study concentrated on the teachers of Tanjay City Division who are teaching English. Due to the pandemic, the researcher floated the survey questionnaire to teachers via online (Google Forms) and manual approach. Moreover, the FGD was administered to English teachers representing the hinterland schools, and the other was for the lowland schools.

In disseminating the survey questionnaire, the researcher ensured that it would be convenient for the respondents to support this study. The survey form was sent through emails or messenger accounts for those who chose online and manual distribution for those who preferred it. The said approach strictly observed the safety protocol standards of IATF, such as wearing a mask and disinfecting through alcohol before distributing the survey material. So, the researcher and the participant observed social distancing as a preventive measure.

Research Respondents

The researcher included eleven English teachers from hinterland schools and sixty-one (61) from lowland schools, for a total of seventy-two English teachers-respondents of Tanjay City Division. The selection of respondents utilized a purposive sampling technique. Based on the criteria made by the researcher, all the respondents were qualified to be part of the data gathering.

Research Instrument

This study utilized both self-made survey questionnaires and guide questions. The survey questionnaire treated the quantitative data, and the guide questions were used for qualitative data utilizing Focused Group Discussions (FGD).

The Development of a self-made questionnaire underwent pilot testing and was administered at Bais City Division. It was necessary to check the reliability of the questionnaire. As a result, the Cronbach Alpha is 0.789, indicating a high-reliability level. Thus, the questionnaire is internally consistent. Validity-wise, the questionnaire was scrutinized by three English Experts in the field.

Moreover, the question guide for FGD was made based on the study objective and research questions. Through Structured questions, the interviewer can be flexible in asking and probing questions based on the respondents' responses.

Data Gathering Procedures

This study involved three steps in the data-gathering process: pre-, during, and post-gathering. The pre-data collection phase involved the researcher determining the eligibility requirements for the participants. An English teacher was trained as part of this process and would lead concentrated group discussions to avoid personal bias from the researcher's perspective. Consequently, a letter of intent and permission was sent to the Division of Office in Tanjay. After the approval, the respondents were invited for an online orientation related to the nature and scope of the study. In addition, during data collection, the researcher applied two strategies: 1) sending the survey questionnaire through Google Forms for online choice and 2) floating the survey questionnaire with the help of the school heads for those who chose the manual survey. The researcher strictly followed the safety protocols when administering the manual survey.

On the other hand, the data-gathering procedure in the qualitative aspect was made possible through an online platform like Google Meet. A trained teacher was assigned to conduct the FGD with seven English teachers until data saturation was reached in the fourth session. Moreover, the interviewer returned to each respondent for member checking to make the data credible. It was necessary to check whether the interviewer's interpretation accurately reflected the respondents' intended meaning and whether their responses were nuances and changes. Lastly, after data gathering, the researcher tallied and tabulated all the data sets for quantitative and transcribed the representatives' responses for qualitative purposes.

Data Analyses

This study employed separate analyses since a mixed method was utilized in this research.

The demographic profile of the respondents was determined using the frequency and percentage distribution as provided with the formula:

$$P = f/n \times 100\%$$

Where: P – percentage
f – frequency
n – number of samples

The extent use of instructional materials utilized by teachers teaching English was rated based on the quantified rating. The categories on the extent use of instructional materials utilized by teachers teaching English ranged from 1 to 5.

Extent of Use of Instructional Materials		
Scale	**Verbal Description**	**Explanation**
5	Very Much	The instructional material is used in every session
4	Much	The instructional material is used four to 5 times a week
3	Seldom	The instructional material is used 2 to 3 times a week
2	Very seldom	The instructional material is used once a week
1	Not used at all	The instructional material is never used at all

The availability of instructional materials utilized by teachers teaching English was rated based on the quantified which ranged from 1 to 5.

Availability of Instructional Materials		
Scale	**Verbal Description**	**Explanation**
5	Always	The instructional material is available in the classroom
4	Often	The instructional material is available for use twice a week
3	Sometimes	The instructional material is available for use once a week

2	Seldom	The instructional material is available for use every two weeks
1	Never	The instructional material is never found in the classroom at all.

The Weighted Mean was used in interpreting the extent and availability of instructional materials utilized by English teachers with the following formula:

Weighted mean = Σwx/Σw.
where: Σ = the sum of
W = the weights
X= the value

(https://www.statisticshowto.datasciencecentral.com/weighted mean/

The challenges and good practices on teachers 'utilization of instructional materials are simply the responses made by the respondents during the FGD. The trained teacher interviewed a group from hinterland and lowland schools to substantiate the result of the quantitative data. The qualitative data was interpreted through Thematic analysis (*Caulfield, J. (2019) How to Do Thematic Analysis. - References - Scientific Research Publishing*, n.d.), which is explained in the research procedure.

Pearson R Correlation will be used to determine the significant relationship between the instructional materials used by English teachers and their demographic profile with a ratio or interval variables, as well as the significant relationship between the extent of use and availability of instructional materials utilized by English teachers.

The result was interpreted as follows:

Pearson's Correlation Coefficient	Interpretation
0.00	No association between the two variables
0.01–0.19	Negligible association between the variables
0.20–0.39	Weak association between the variables
0.40–0.69	Medium association between the variables
0.70–1.00	The strong association between the variables

In determining the significant relationship between the instructional materials used by English teachers and their demographic profile with ordinal variables, the Spearman Rho Correlation was utilized.

The Significance of the Relationship using Pearson's R and Spearman Rho Correlations was ascertained by rejecting the null hypothesis that there is no relationship between the two variables when the P-value is less than the Significance Level of 0.05. The T-test was used to determine the significant difference between the availability and

the extent of use of instructional materials when respondents were grouped according to location.

RESULTS AND DISCUSSION

The results acquired during this investigation are presented in this section. This also demonstrates the use of statistical methods in the presentation, interpretation, and explanation of the data.

1. Profile of the Respondents

Table 1. 1 Age

Age	Frequency	Percentage Distribution (%)
20 – 29	25	34.72
30 - 39	28	38.89
40 - 49	16	22.22
50 – 59	3	4.17
Total	72	100.00

Table 1.1 shows that 38.89 percent of the respondents were aged 30 - 39 years old. This implies that a number of the respondents are almost in the middle part of practicing their profession as teachers.

Table 1.2 Highest Educational Attainment

Educational Attainment	Frequency	Percentage Distribution (%)
Bachelor's Degree	67	93.06
Masters	5	6.94
Total	72	100.00

The table above presents that 93.06 percent of the respondents had bachelor's degrees which denotes that the majority had not finished advanced studies. This implies that teachers shall continue and finish advanced studies to improve their skills and be proficient in their profession (The Importance of Professional Development for Educators, (n, d.). In addition, advanced studies such as a master's degree can improve teaching skills and increase job stability (Five Benefits of Having a Master's in Education, 2021).

Table 1.3 Teachers' Performance Rating

Performance Rating	Frequency	Percentage Distribution (%)
Outstanding	1	1.39
Very Satisfactory	71	98.61
Total	72	100.00

The table above shows that 98.61 percent of the respondents performed Very Satisfactory, meaning that most of the respondents performed better in their profession

as teachers. This idea implies that teachers are encouraged to do their best and be proficient in their profession to deliver quality education. Thus, the said goal is anchored by the Philippine Professional Standards for Teachers (PPST), which ensures the delivery of quality, accessible, relevant, and liberating basic education in the country. This concept is aligned with the Guidelines on Establishment and Implementation of RPMS in DepEd, which manages monitors. It measures performance and identifies human resource and organizational development needs (RPMS-PPST: Helping teachers improve the delivery of quality basic education, 2018).

Table 1.4 Number of Training Days in English Language Year 2020-2021

Number of Training Days	Frequency	Percentage Distribution (%)
5 – 8	21	29.17
9 – 12	48	66.67
13 – 16	3	4.16
Total	72	100.00

The table above shows that 66.67 percent of the respondents had 9 to 12 training days in the English language in the school year 2020 to 2021. This idea implies that teachers should undergo more training relevant to English. Moreover, teachers' training was necessary to employ proper methods of teaching. Based on the result of the study conducted in Spain on the utilization of instructional materials, it is recommended that teachers continue to undergo training, workshops, and advanced studies to capacitate themselves in employing the tools appropriately (Bukoye, 2019).

2. Extent of English Teachers' Use of Instructional Materials

The extent of use of English teachers of instructional materials was determined in this study. This involved the printed, audio, visual, audio-visual, and teacher-made resources.

Table 2.1 Printed

Resources	Weighted Mean	Adjectival Rating
Magazine	2.53	Very Seldom
Newspaper	2.57	Very Seldom
Textbook	4.58	Very Much
Photographs	3.19	Seldom
Activity Sheets	4.68	Very Much
Posters	2.90	Seldom
Tarp	2.78	Seldom
Handouts	3.82	Much
Mean	3.38	Seldom

Adjectival Rating Equivalences:
4.21 – 5.00 – Very Much 3.41 – 4.20 - Much 2.61 – 3.40 - Seldom 1.81 – 2.60 – Very Seldom
1.00 – 1.80 – Not Used at All

Table 2.1 shows that the respondents seldom used printed instructional materials, as demonstrated by the weighted mean of 3.38. This idea implies that Printed resources are used 2 to 3 times a week. Impressively, they used many activity sheets, as shown by the weighted mean of 4.68. On the other hand, they used Very Seldom the Magazine, as exhibited by the Weighted Mean of 2.53. Moreover, the study, Activities of Students in Using Worksheet Based on Contextual Teaching and Learning, is pertinent to this outcome. The findings showed that using student worksheets based on contextual teaching and learning improves students' comprehension of the subject matter (Fauziah & Nurita, 2019).

2.2 Audio

Resources	Weighted Mean	Adjectival Rating
Tape Recorder	2.08	Very Seldom
Radio	1.92	Very Seldom
Cellphone	4.33	Very Much
Record Player	3.07	Seldom
Composite Mean	2.85	Seldom

Adjectival Rating Equivalences:
4.21 – 5.00 – Very Much 3.41 – 4.20 - Much 2.61 – 3.40 - Seldom 1.81 – 2.60 – Very Seldom
1.00 – 1.80 – Not Used at All

The table above presents that there respondents Seldom used Audio, as exhibited by the Composite Mean of 2.85. This means that Audio is used 2 to 3 times a week. Appreciatively, Very Much use of cell phones was practiced, as evidenced by the Weighted Mean of 4.33, while Radio was Very Seldom used, as evidenced by the Weighted Mean of 1.92. This is because students' usage of cell phones might cause them to get disengaged from the lecture, which can result in worse grades (Buccino, 2018). In addition, based on respondents' experience, respondents limit the activities requiring cell phones since other students do not, especially those living in the hinterland.

2.3 Visual

Resources	Weighted Mean	Adjectival Rating
Realia (Real Objects)	3.54	Much
Chalkboard	2.76	Seldom
Bulletin Board	2.38	Very Seldom
Flannel Story Board	3.21	Seldom
Handouts	4.13	Much
PowerPoint	4.43	Very Much
Still Pictures	3.60	Much
Flashcards	3.22	Seldom
Composite Mean	3.41	Much

Adjectival Rating Equivalences:
4.21 – 5.00 – Very Much 3.41 – 4.20 - Much 2.61 – 3.40 - Seldom 1.81 – 2.60 – Very Seldom
1.00 – 1.80 – Not Used at All

The table above exposes that Much use of Visual was done by the respondents using Handouts, Still Pictures, and Realia (Real Objects) as evidenced by the Weighted Mean of 3.41 and Weighted Means of 4.13, 3.60, and 3.54 respectively. This connotes that Visual is used four to 5 times a week. Surprisingly, seldom use of a Bulletin Board

was initiated as exhibited by the Weighted Mean of 2.38. Relevantly, according to the study titled Activities of Students in Using Worksheets Based on Contextual Teaching and Learning, using student worksheets based on contextual teaching and learning improves students' comprehension of the subject matter (Fauziah & Nurita, 2019).

2.4 Audio-Visual

Resources	Weighted Mean	Adjectival Rating
Television	3.90	Much
Film	3.22	Seldom
Projector	3.42	Much
Laptop	4.51	Very Much
Composite Mean	3.76	Much

Adjectival Rating Equivalences:
4.21 – 5.00 – Very Much 3.41 – 4.20 - Much 2.61 – 3.40 - Seldom 1.81 – 2.60 – Very Seldom
1.00 – 1.80 – Not Used at All

The table above shows that Much use of Audio-Visual was done as exposed by the Weighted Mean of 3.76. This indicates that Audio-Visual is used four to 5 times a week. While the Laptop was Very Much used, as shown by the Weighted Mean of 4.51, Film was Seldom used, as demonstrated by the Weighted Mean of 3.22. Laptops are useful for helping students sharpen their writing. Once students have mastered typing, they can "write" more quickly on a computer than by hand. It is also easier to find faults and make fixes when integrated grammar and spelling checkers and thesauruses are used. Students can examine their papers for plagiarism even after they are finished (Zadvinskis, 2022). Additionally, it can help students become computer-savvy. Individuals will likely increase their computer literacy by participating in more practical computer activities (the theory of cone of experience). The research titled "Students Computer Literacy and Academic Performance" found that students' academic performance improved as their computer literacy increased (Cadiz-Gabejan & Takenaka, 2021). Moreover, the teachers use laptops because of their portability. Since they are so small, laptops are quite portable. They can easily move from one place to another in a carrying case or backpack. They are, therefore, efficient tools that teachers may carry with them wherever they go (Bhattacharya, 2021). In addition, teachers use laptops since they are useful for their jobs, particularly reviewing and grading students (Street, 2017).

2.5 Teacher-made Resources

Resources	Weighted Mean	Adjectival Rating
SIM (Strategic Intervention Material)	3.04	Seldom
Assessment tool	4.25	Very Much
Vocabulary or word walls	3.88	Much
Flannel storyboard	2.90	Seldom
Posters	3.03	Seldom
Lesson plans	4.64	Very much
Spelling Lists	3.68	Much
Activity Sheets	4.43	Very much
Composite Mean	3.73	Much

The table above presents that the respondents used Teacher-made Resources as exposed by the composite Mean of 3.73. This means that the Teacher-made Resources are used four to 5 times a week. Furthermore, they used Very Much the Activity Sheets as shown by the Weighted Mean of 4.43, and Seldom used the Flannel storyboard as indicated by the Weighted Mean of 2.90. Furthermore, based on the result of the study titled, Students can easily relate the activity sheets and with the use of assessment tools, they can gauge the learning of the students. Students' understanding of the subject matter is improved by employing worksheets based on contextual teaching and learning (Fauziah & Nurita, 2019).

Table 2.6 Summary of Use of Instructional Materials

Instructional Materials	Mean of Weighted Means	Adjectival Rating
Printed	3.38	Seldom
Audio	2.85	Seldom
Visual	3.41	Much
Audio-Visual	3.76	Much
Teacher-made Resources	3.73	Much
Composite Mean	3.43	Much

Adjectival Rating Equivalences:
4.21 – 5.00 – Very Much 3.41 – 4.20 - Much 2.61 – 3.40 - Seldom 1.81 – 2.60 – Very Seldom
1.00 – 1.80 – Not Used at All

The summary presents that Much use of the Instructional Materials was done by the respondents specifically in the use of Audio-Visual, Teacher-made Resources, and Visual as demonstrated by the Composite Weighted Means of 3.43 and Weighted Means of 3.76, 3.73, and 3.41 respectively. This implies that the Instructional Materials are used four to 5 times a week. Besides, they Seldom Used Printed and Audio Instructional Materials as shown by the Weighted Means of 3.38 and 2.85 respectively. According to studies, using audio-visual resources in the classroom significantly benefits learners in grasping difficult subjects. These tools help the students understand these ideas quickly and simply. The most recent technological developments give teachers a lot of possibilities to simplify their tasks. The use of audio-visual aids in class planning has become more common among educators all around the world as a result (Prajapati, 2020).

3. Extent of English Teacher's Availability of Instructional Materials

The extent of English teachers' availability of instructional materials such as print, audio, visual, audiovisual, and teacher-made resources was also determined in this study.

Resources	Weighted Mean	Adjectival Rating
Magazine	2.38	Seldom
Newspaper	2.67	Sometimes
Textbook	4.17	Often
Photographs	3.07	Sometimes

Activity Sheets	4.54	Always
Posters	2.75	Sometimes
Tarp	2.81	Sometimes
Handouts	4.04	Often
Composite Mean	3.30	Sometimes

Table 3.1 Printed

Adjectival Rating Equivalences:
4. 21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

Table 3.1 above shows that Printed Instructional Materials are Sometimes available as demonstrated by the Composite Mean of 3.30. This implies that Printed Instructional Materials are available for use once a week. Impressively, Activity Sheets were Always available as presented by the Weighted Mean of 4.54. But magazine was Seldom used as presented by the Weighted Mean of 2.38. Substantially, this result is similar to the study titled, Activities of Students in Using Worksheet based on Contextual Teaching and Learning. The result revealed that the employment of student worksheets based on contextual teaching and learning increases students' understanding of the material (Fauziah & Nurita, 2019). Furthermore, the use of formative and summative assessments, contextualized or localized, can help both teachers and students. Teachers can measure the performance of the students and be guided to what skills and knowledge be improved. To the students, it can also help them self-assess their performance for improvement and maintenance of good practice (Benefits of Using Summative and Formative Assessments in ESL Classrooms, 2022).

Table 3.2 Audio

Resources	Weighted Mean	Adjectival Rating
Tape Recorder	2.26	Seldom
Radio	2.18	Seldom
Cellphone	3.89	Often
Record Player	3.22	Sometimes
Composite Mean	2.89	Sometimes

Adjectival Rating Equivalences:
4.21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

The table above presents that the Audio was Sometimes available as exhibited by the Weighted Mean of 2.89. This indicates that the Audio was available for use once a week. However, the cell phone was Often available as exhibited by the Weighted Mean of 3.89, and Radio was Seldom available as reflected by the Weighted Mean of 2.18. When teachers use cell phones as instructional material in the class, students also get to use this thing to relate to and experience the task (theory of Cone of Experience). Nevertheless, students' use of cellphone can distract their attention from learning the lesson and can lead to lower grades (Buccino, 2018). Another, when it comes to

experience, English teachers corroborated that if cell phones can be part of learning a lesson, it would be unequal to those students who cannot afford to buy cell phones for their classes. Thus, the goal of teaching-learning can be compromised. Relatively, radio was seldom used. One of the reasons why teachers seldom use radio is because many devices like laptops and televisions can offer more experience than using radio. Radio alone can just target the auditory sense of the learners while laptops and television both cater to the audio-visual senses. Hearing only has 20% of remembering while hearing and seeing has 50% which is evident in the audio-visual materials (Janoska, 2021).

Table 3.3 Visual

Resources	Weighted Mean	Adjectival Rating
Realia (Real Objects)	3.63	Often
Chalkboard	4.00	Often
Bulletin Board	3.56	Often
Flannel Story Board	3.01	Sometimes
Handouts	4.11	Often
PowerPoint	4.39	Always
Still Pictures	3.56	Often
Flashcards	3.36	Sometimes
Composite Mean	3.70	Often

Adjectival Rating Equivalences:
4.21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

The table above exposes that Visual was Often Available as exhibited by the composite mean of 3.70. This connotes that Visual was available for use twice a week. Favorably, PowerPoint was Always available as proven by the Weighted Mean of 4.39. On the other hand, Flannel storyboard was Sometimes available as evidenced by the Weighted Mean of 3.01. substantially, the use of PowerPoint is essential in engaging students to participate in class discussions. The PowerPoint presentations had a great impact on pupils because they believed it was entertaining and interesting to follow the lesson from the screen. The use of PowerPoint encourages pupils to attend class. (Effects of PowerPoint Presentation in the Academic Performance, 2022). This is just one of the positive effects of utilizing PowerPoint presentations. Teachers utilize this for the better conveyance of ideas. Likely, when communication is supplied through several channels, it is more effective than communication that is done through only one. It increases the likelihood that the entire message will be received by using many channels. A suitable image adds a new channel. Thus, the use of PowerPoint can motivate learners and provide better interaction with teachers (Pros and Cons Teaching via PowerPoint, 2021).

Table 3.4 Audio-Visual

Resources	Weighted Mean	Adjectival Rating
Television	3.93	Often
Film	2.93	Sometimes
Projector	3.03	Sometimes
Laptop	4.49	Always

Composite Mean	3.60	Often

Adjectival Rating Equivalences
4.21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

The table above displays that the Audio-Visual was Often available as exhibited by the Composite Mean of 3.60. This means that the Audio-Visual is available twice a week. Moreover, the Laptop was Always available as evidenced by the Weighted Mean of 4.49 but the Film was Sometimes available as exposed by the Weighted Mean of 2.93. When it comes to assisting learners in improving their writing, laptops are helpful. Once learners master typing, they can "write" on a computer more quickly than by hand. Using integrated grammar and spelling checkers and thesauruses also makes it simpler to spot errors and make corrections. Even after finishing their papers, students can check them for plagiarism (Zadvinskis, 2022). Also, it can improve the computer skills of the learners. The more they engage in hands-on computer activities (theory of cone of experience), the higher the opportunity to improve their computer literacy. A study titled, Students Computer Literacy and Academic Performance, revealed that the more computer-literate students were, the better they performed academically (Cadiz-Gabejan & Takenaka, 2021). As for the teachers, they utilize laptops due to their portability. Laptops are extremely portable due to their small size. In a carrying case or backpack, they are simple to transport from one location to another. Because of this, they are handy items that teachers can take wherever they go (Bhattacharya, 2021). Aside from this, teachers utilize laptops because it is useful in performing their tasks, especially reviewing and giving grades to their students (Street, 2017).

Table 3.5 Teacher-made Resources

Resources	Weighted Mean	Adjectival Rating
SIM (Strategic Intervention Material)	3.10	Sometimes
Assessment tool	4.21	Always
Vocabulary or word walls	3.44	Often
Flannel storyboard	2.82	Sometimes
Posters	3.08	Sometimes
Lesson plans	4.86	Always
Spelling Lists	3.68	Often
Activity Sheets	4.33	Often
Mean	3.69	Often

Adjectival Rating Equivalences:
4.21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

The table above exposes that Teacher-made Resources were Often Available as proven by the Weighted Mean of 3.69. This indicates that the Teacher-made Resources are available for use twice a week. Impressively, Lesson Plans were Always Available as exhibited by the Weighted Mean of 4.86 but the Flannel storyboard is Sometimes available as indicated by the Weighted Mean of 2.82. Substantially, lesson plan guides teachers in delivering the lesson. Teachers combine their understanding of their teaching

situation, methodology, and curriculum goals as part of lesson planning (The Importance of Lesson Planning for Student Success, 2022). Amidst the pandemic, according to the Department of Education, teachers in public schools would still be required to create daily lesson plans and logs to guarantee high-quality instruction. The government stated in a statement that using a DLL (Daily Lesson Log) "supports teachers in upholding quality education standards and helps them plan lessons efficiently and effectively" (PNA, 2022).

Table 3.6 Summary of Use of Instructional Materials

Instructional Materials	Mean of Weighted Means	Adjectival Rating
Printed	3.30	Sometimes
Audio	2.89	Sometimes
Visual	3.70	Often
Audio-Visual	3.60	Often
Teacher-made Resources	3.69	Often
Composite	3.44	Often

Adjectival Rating Equivalences:
4.21 – 5.00 – Always 3.41 – 4.20 - Often 2.61 – 3.40 - Sometimes 1.81 – 2.60 – Seldom
1.00 – 1.80 – Never

The summary shows that the Instructional Materials were Often Available as exhibited by the Composite Mean of 3. 44. This implies that the Instructional Materials are available for use twice a week. Moreover, Visual is Often Available as provided by the Weighted Mean of 3.70 but Audio is Sometimes Available as exhibited by the Weighted Mean of 2.89. This is supported by the responses of the teachers in FGD. According to them, they utilized handouts, activity sheets, and PowerPoint presentations because they observed how students reacted and interacted with teachers in class discussions. A study titled Investigating EFL Students' Attitude toward the Use of Visual Aids in English Lectures revealed that students had a positive attitude toward the use of visual aids in English class (Aljuhani & Maroof, 2019). Further, during FGD, teachers also said that audio was sometimes available but not all the time, English lessons require them to use audio materials. Some visual learners are not comfortable with the input provided by the audio material and prefer to see the images. Plus, it would be hard for students to comprehend and explain abstract concepts through audio format only (Disadvantages of Audio Technologies, n.d.).

4. Relationship Between the Instructional Materials Used by English Teachers and their Demographic Profile

The relationship between the extent of instructional materials used by English Teachers and the demographic profile such as age, highest educational attainment, teachers' performance rating, and number of training days were determined using Pearson R and Spearman Rho Correlation.

Table 4.1 Correlation Between the Instructional Materials Used by English Teachers and their Demographic Profile

Variables Correlated with Extent Use of Instructional Materials	Correlational Tool Used	Correlation Coefficient	P-Value
Age	Pearson R	0.224	0.058
Highest Educational Attainment	Spearman Rho	-0.257	0.030
Teachers Performance Rating	Spearman Rho	-0.054	0.651
Number of Training Days	Pearson R	-0.005	0.964

As reflected in the table above, Age and Highest Educational Attainment had weak correlations with the Extent of Use of Instructional Material as presented by the correlation of 0.224 and -0.257 respectively. Furthermore, the latter was significant as demonstrated by the P-value of 0.030 at 0.05 level. This implies that the higher the educational level the teacher has, the lesser he/she uses the Instructional Materials.

5. Relationship Between the Extent Use and Availability of Instructional Materials Utilized by English Teachers

The relationship between the extent of use and availability of instructional materials was determined using Pearson R Correlation.

Table 5.1 Correlation Between the Extent Use and Availability of Instructional Materials Utilized by English Teachers

Extent of Use of Instructional Materials Correlated with Availability of Instructional Materials	Correlational Tool Used	Correlation Coefficient	P-Value
	Pearson R	0.566	0.000

As shown by the table above Extent of use of Instructional Materials has a medium association with the Availability of Instructional Materials as exhibited by the Correlation Coefficient of 0.566 and is highly significant as evidenced by the P-Value of 0.000 at 0.05 level. This indicates that the higher the Instructional Materials the more available they are and vice versa.

6. Difference Between the Availability and the Extent of Use of Instructional Materials when Respondents are Grouped According to Location

The difference between the availability and the extent of use of instructional materials, when respondents are grouped according to location, was determined using T-Test at a 5% significance level.

Table 6.1 T-Test in Finding the Significant Difference Between the Availability and the Extent of Use of Instructional Materials when Respondents are Grouped According to Location.

Location	**Use of Instructional Materials**			**Availability of Instructional Materials**		
	Mean	p-value	**Interpretation**	Mean	P-Value	**Interpretation**
Low Land	3.38	0.150	Significant	3.38	0.652	Significant
High Land	3.58			3.40		

The table above shows that Instructional Materials in Highland Location are Used more than in Low Land as presented by the means of 3.58 and 3.38 respectively. This difference is proven significant as shown by the p-value of 0.150. This implies that teachers and students in Highland Locations can utilize more of the Instructional Materials than in Low Land Locations. This is because, some of the students in the hinterland do not have gadgets which led teachers to be creative and resourceful to employ a variety of instructional materials like printed, and audio, and limited use of visual, audiovisual, and even developed materials to cater the needs of the learners. On the other hand, teachers in low-income schools prefer ICTs in teaching to using traditional instructional materials because it can make their tasks easier and more productive. Aside from this, their students have gadgets, and they prefer modern ways of teaching the learning process (How Important Is Technology in Education? Benefits, Challenges, and Impact on Students, 2020). There are also more available instructional materials in the highland location than in the lowlands as exhibited by the means of 3.40 and 3.38 respectively. Said difference is significant as manifested by the p-value of 0.652. This indicated that varied instructional materials in land locations are more available than in lowland Locations.

Table 7. Thematic map of English teachers' experiences in utilizing instructional materials

Codes	**Themes**
Power interruption	
Students have no devices	
No signal in students' residence	Challenges amidst crisis
Cannot understand the medium of instruction in modules	
Teachers' lack of training	
Provision of parallel activities	
Translating English to Vernacular	Best practices amidst challenges
Contextualizing and localizing materials	

Challenges Amidst Crisis

When using instructional materials, English teachers in schools in the hinterland confront many difficulties. A significant obstacle is the need for more current and pertinent resources. It is difficult for many schools in rural locations to get textbooks, workbooks, and other supplies essential for efficient teaching and learning. This may make it more difficult for educators to provide learners with engaging lessons and teaching. The major problem for teachers pertains to power interruption whenever using audio-visual materials such as TVs, speakers, laptops for PowerPoint presentations, and projectors. In this regard, educators and students in a virtual classroom would require vital e-learning technologies that require continuous electricity to keep them functioning and avoid problems that could obstruct the students' learning experience (Castillo, 2021). Thus, it is important to identify problems that impede learning and take action to achieve learning goals (Fons, 2022), explained by the constraint theory. Moreover, another problem is the need for more possibilities for professional growth and training for English instructors in rural schools has been another problem. Teachers could find it easier to incorporate educational resources into their courses if they can access continuing support and advice. This might result in inconsistent teaching methods and make it harder to satisfy the various demands of the pupils. English teachers in schools in the hinterland often have to deal with a need for digital infrastructure. Reliable internet connectivity, computers, and other technical equipment are necessary to access digital resources and integrate multimedia into lectures, yet they sometimes need improvement in distant places. The statements of the participants support this event.

Respondent 4 said,
"Since I am teaching in a hinterland school, we experience a lack of devices and high-end technology-mediated materials. This prompted me to utilize a variety of materials like activity sheets, lesson plans, and customized and localized materials. also, I don't know how to use other techniques in the employment of other materials since I lack training on it."

Moreover, respondent 3 added,
"I agree. Most of the time, I used a variety of materials since we majority of our students cannot relate due to the absence of gadgets. Also, in the school, we don't have an internet connection in school, and we always experience power interruptions."

Respondent 1 added,
"Unlike in our school, since we are in urban areas, internet connection is available. So, most of the time I used a laptop, cellphones, power point presentations since these are available in our context."

Respondent 5 added,
"We're the same. Our students have cell phones and the internet is also available in our school. We can just send templates for activity sheets or even assignments to our

students. for the delivery of the lesson, I always use PowerPoint presentations since it helps a lot in stimulating my students' mood and they perform better with it."

Responded 6 answered,
"On the other hand, in my case, since I am teaching in the hinterland, I found it challenging to use ICT-related materials and devices. Although I use a laptop sometimes, it is not reliable since it has a small screen. We also don't have an internet connection, so we don't have much use for live online surfing. In delivering the lessons in my subject, I always use meta strips and localized materials."

Respondent 2 highlighted,
"I am a teacher in a lowland school, but we don't have an internet connection. But have TVs and a projector that we can use to present our lessons for the day. PowerPoint presentation amazes our learners but only simple presentations I can afford to do since I am not trained to use other teaching I also use activity sheets and assessment tools. Somehow, these aid me in assessing my students' performance. But most of the time, I used ICT-related instructional materials."

Lastly, respondent 7 said,
"There in the hinterland, we always used printed materials and other teacher-made resources since we didn't have an internet connection. I always use activity sheets, lesson plans, and assessment tools."

Utilizing instructional materials presents a big problem for English teachers working in rural schools. As expressed by the hinterland respondents, they have limited use of ICT-related materials since it is not convenient in their context. With this, Policymakers, school administrators, and teacher preparation programs must make it a top priority to provide teachers working in rural locations with sufficient resources, chances for professional development, and digital infrastructure. We cannot guarantee that all kids, regardless of where they live, have access to high-quality English instruction until we address these problems.

Best Practices Amidst Challenges

English teachers are essential in helping learners become more proficient in the language and literacy. Using the right teaching resources is one of the main elements of a good teaching strategy. To optimize learning outcomes, English teachers must use best practices when utilizing these materials, even when students have differing levels of comprehension in the modules. In this pandemic, students found it hard to comprehend the module content since modules are not localized and contextualized. This prompted the teachers to be innovative and resourceful in addressing learning issues for learners. The statements of the respondents substantiate this phenomenon.

Respondent 3 said,
"I always receive complaints from my students that they don't understand what's inside of the modules since the language of instruction English is. Moreover, they found the activities irrelevant in their context.

Respondent 7 added,
"In my case, I always make a point to read the module first then knowing the background knowledge of my students, I made parallel activities and localized my materials for my students to connect. I even translated the language into vernacular so they can understand better."

Respondent 4 stressed,
"Localizing materials is the best strategy I can employ. Modules were challenging for them, so I needed to localize and translate them for better understanding. I also made parallel activities just in case they cannot answer what's in the modules."

Respondent 6 answered,
"Most of the reported problems of my students is that the words or vocabulary used in the modules were a bit hard to understand. So, I read first the module, and I made a parallel activity for them, a simpler version of the modules yet still targeting the competencies and objectives of the lesson."

Moreover, respondent 1 said,
"Sometimes, I make a simple activity and attach it to the modules. There, students are guided with what to do on the given task."

Furthermore, respondent 2 answered,
"What I did is that I translated the difficult words and replaced them with easier ones for my students to understand. Moreover, there were times when I made localized materials like parallel activities to make sure that they could relate and use materials that are found in their surroundings."

Lastly, respondent 5 emphasized,
"I agree with all they said, even when students have gadgets and others may have them, the absence of an instructor makes them receive education quite difficult. So, I always make sure the activities are well-reviewed before distributing them to my students. I make parallel activities a simpler version of the module. Through this, they can still achieve their objectives.

Effective teaching in English can be hard to attain when there limiting factors that impede the teaching-learning process. This includes teachers' utilization of instructional materials. As expressed by the respondents, it is evident that they encounter challenges such as the unavailability of the materials due to their residence's resources, and students' difficulty in dealing with modules during the pandemic time. However, teachers demonstrated innovative characteristics to address this rising crisis by creating parallel activities, localizing materials for the students to connect and relate, and translating and

replacing difficult words with simpler versions. These acts are considered best practices of teachers in the lowlands and hinterland.

Conclusion

The findings of this study concluded that with many teachers in their 30s, where the majority acquired insufficient pieces of training and were unable to finish advanced studies, they perform better with much use of the Instructional Materials four to 5 times a week for 4 to 5 subjects and often available or used twice a week. Furthermore, the higher the Instructional Materials used, the more available they are, and vice versa, though teachers with higher education tend to lessen the use of Instructional Materials. Thus, the Use and Availability of Instructional Materials can help enhance students learning, especially when they do tasks that involve the utilization of these materials (Theory of Cone of Experience), and they can associate their experiences by connecting to the new sets of ideas and concepts (Theory of Connectionism). Further, the result also showed that English teachers experience challenges, including power interruption, especially when using laptops, TVs, power points, speakers, and projectors. Despite this, English teachers kept using these tools to help improve the students' academic performance. Also, teachers find it difficult to use modules since the contents are not localized, and students find it hard to understand the language, instructions, and content. However, this does not hinder English teachers from stopping teaching; instead, teachers have made parallel activities that are localized and simplified. Moreover, more instructional materials are used and available in the Highlands than in lowland locations.

Furthermore, this study recommends that teachers undergo training to better utilize instructional materials in addressing diverse learners. Moreover, DepEd must intensify the provision of instructional materials to teachers for a greater chance of availability. School administrators and school heads must encourage and support the needs of their teachers, especially in terms of instructional materials. For future researchers, using different variables in instructional materials can be a good focus for the next study. You can use a comparative analysis technique to determine the difference in the availability and extent of use of these materials and compare them to the setup of the new normal setting.

Compliance with Ethical Standards

The researcher hereby certifies that the study was carried out with caution and ethics. The researchers requested consent from the division office of the school in writing before the study's actual implementation. The researchers invited the potential volunteers to an orientation after they were approved. The researchers invited the potential volunteers to an orientation after they were granted approval. The study's nature and objectives, informed consent, participant anonymity, data confidentiality, and withdrawal rights were all on the agenda. The potential participants comprehended all these explanations. As a result, the participants signed the informed consent and indicated their support. Additionally, the sources cited in this research are appropriately recognized, and the study is free from plagiarism.

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INSTRUCTIONAL MODULE: ITS EFFECT ON STUDENTS' MATHEMATICS PERFORMANCE

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ABSTRACT

This quasi-experimental study aimed at determining the effect of an instructional module on students' performance in mathematics of Grade 8 learners in a high school in the Municipality of Calinog, Province of Iloilo. The data were obtained through the use of a performance test and instructional module. The descriptive statistics used were frequency count and mean, while the Mann-Whitney U Test and Wilcoxon Signed-Rank Test set at 0.05 alpha were used as inferential statistics. The findings revealed that there was no significant difference in the pre-test mathematics performance in between the control group and the experimental group. Both groups fell on the same category interpreted as "satisfactory". The study further revealed that in the post-test, the experimental group scored much higher than the control group. The group's performance shifted from "satisfactory" to "very satisfactory", after the group was given the intervention, which was the instructional module. It can be concluded from the results that, the instructional module is an effective tool in teaching mathematics which resulted in better performance of the students.

Keywords: *Instructional Module, Mathematics Performance, Effect*

INTRODUCTION

It's a well-known fact that mathematics is a tough and demanding subject, and that some individuals find it boring. Specifically, it is frequently perceived as challenging, confusing, and unpleasant to some individuals. There is a stigma

associated with mathematics, and those who are good at it are often treated as if they are perfectly normal. In addition to being useful for applying basic numeracy skills, mathematics is significant. It is also the most effective method for assisting pupils in developing higher-order cognitive skills and logical reasoning. Accordingly, one of the main goals of mathematics instruction is to help students develop a positive attitude toward the subject (Abalde and Oco, 2023).

Filipino students generally do well in areas that require higher-order thinking skills, while they suffer in those that do not. According to the 2017–18 Global Competitiveness Report, which ranked the Philippines 79th out of 138 participating nations in terms of high-quality science and mathematics education, the performance of Filipino students in mathematics has to be improved (Schwab, 2018).

Thus, math presents a challenge to students. This could have to do with how the students feel about the subject or how their methods of learning mathematics are influencing their grades. These are only a handful of the inquiries that piqued the curiosity of the researcher and motivated him or her to carry out an analysis and collect information that can support the need for explanations on these persistent enemies (Raba, 2017: Zulaikha, Mansor, Jamaludin & Alias, 2021; Yusuf, Jusoh, & Yusuf, 2019).

One of the vehicles by which mathematics may become interesting is the use of different strategies like instructional modules. An instructional module is a learning material designed primarily for independent or self-study. It may also be used to complement instruction. It has benefits to both teacher and student. For the teacher, the ideal instructional model (instructional module) would make each course both a program of study and a collection of concepts to be internalized through “performance” or “competency–based” activities by the learners. Responsibility for achievement of pre-set goals is placed on the learners. The teacher in such a system coordinates, evaluates, counsels, and guides. Such activities are assumed to enhance the professional status of the teaching role.

The researchers finds it necessary to conduct a study and to find a possible solution like developing an instructional module in Mathematics that will help improve students’ performance. This instructional module which is self-pacing, non-threatening and self-evaluative will serve as supplementary material; which contains necessary exercises that will help enhance the skills learned by the students.

For the students, one purpose of an instructional module is to allow them to proceed at their own rate. The belief that self-pacing is desirable is based on the generally accepted assumption that learners do not achieve at the same rate and are not ready to learn at the same time. Another purpose is to allow the student to choose his learning mode. Choice among different learning modes is desirable if one assumes that learners solve problems and learn using different techniques based on unique behavioral repertoires.

Research Questions

This study aimed to determine the effectiveness of using instructional modules on the students' mathematics performance in a public mother school in the municipality of Calinog, Iloilo Western Visayas, Philippines.

Specifically, this study sought answers to the following questions:

1. What is the pre-test mathematics performance of the students in the control group (without instructional module) and the experimental group (with instructional module)?
2. Is there a significant difference in the pre-test mathematics performance of the students in the control group (without instructional module) and the experimental group (with instructional module)?
3. What is the post-test mathematics performance of the students in the control group (without instructional module) and the experimental group (with instructional module)?
4. Is there a significant difference in the post-test mathematics performance of the students in the control group (without instructional module) and the experimental group (with instructional module)?
5. Is there a significant difference in the pre-test and post-test mathematics performance of the students in the control group (without instructional module)?
6. Is there a significant difference in the pre-test and post-test mathematics performance of the students in the experimental group (with instructional module)?
7. What is the mean gain score in the pre-test and post-test of the students in both control group (without instructional module) and the experimental group (with instructional module)?

METHODOLOGY

This study made use of quasi-experimental research design which involved two sections of Grade 8 learners in a public mother school in the Municipality of Calinog, Province of Iloilo. These two sections were handled by the researchers. Since the study was experimental, one group was assigned as the control group (taught without using instructional module), and another group, was the experimental group (taught with instructional module). To determine the groupings, the researcher used the toss-coin procedure.

In the control group, where the lessons were presented without using the instructional module, the lessons were presented using the following procedures: (a) Presentation of the objectives; (b) Introduction of the Lesson; (c)Giving of Activities - The teacher presents activities for the students to analyze and answer; (d) Analysis - the teacher ask questions for the students to answer that will lead to the understanding of the lesson proper. (e)Assessment -Questions or exercises were given to the students to check their learning of the topic presented; and (f) Assignment - This was a follow-up of what the students had learned and applied what they have learned.

On the other hand, the experimental group taught with instructional modules, the teacher followed the following procedures: (a) Presentation of the objectives; (b) Introduction of the Lesson; (c) Presentation of the Lesson Proper. The teacher gave the instructional modules to each student and each student studied on her/his own and answered the exercises in the instructional module. They were given enough time to work on the exercises and the teacher checked the work of each student.

Instructional Module and Research Instrument

To determine the students' performance in mathematics in the two groups, researcher-constructed forty-item (40) test was used. This was validated and trial tested for reliability.

The researcher also made an instructional module containing all the required competencies for Grade 8 mathematics. These were also presented to the panel of experts for face and content validation. This instructional module was used by the researcher as intervention in the experimental group.

For both instruments, the topics included were in the fourth grading period coverage of the Grade 8 K-12 curriculum. These were: Module 10: Measures of Central Tendency and Measures of Variability; Lesson 1: Measures of Central Tendency for Ungrouped Data; Lesson 2: Measures of Variability; Lesson 3: Measures of Central Tendency for Grouped Data; Lesson 4: Measures of Variability for Grouped Data; Module 11: Introduction to Probability; Lesson 1: Basic Concepts of Probability.

Validity of the Instruments

To establish the validity of the instrument, the researcher submitted the draft of the test and instructional module to the thesis adviser for review, recommendations and suggestions. Then, the drafts were submitted to the panel of experts for face and content validation and inspection of each item for appropriateness, correctness, and meaningfulness of the specific inference. The experts' suggestions, recommendations, and corrections were considered in the refinement of the instruments.

Reliability of the Instrument

Upon the approval of the thesis adviser and panel of experts, the 70–item test was administered for reliability testing to 50 students who belong to one section of the selected school and who were not included in the study. The results underwent item analysis to determine which items would be retained, revised, or rejected. Out of 70 items, 24 items were retained, 30 items were rejected and 16 items were revised.

After retrieval of the accomplished instruments, the data were tabulated and organized. All statistical computations were processed using the Statistical Package for the Social Sciences (SPSS) software.

Data-gathering Procedures

Prior to the actual conduct of the study, the researcher secured permission to conduct the study on the aforementioned school and to use the Grade 8 students as subjects of the study.

After securing the necessary permission, the researcher then personally administered the pre-test to both groups before the start of the grading period and the post test after all the topics had been discussed during the fourth grading period.

The learning competencies and activities were the same for both experimental and control groups. The classes for both sections lasted for one hour per session and were conducted four times a week by the researcher herself. Subjects' attendance during classes was closely monitored to ensure that they completed the study.

The researcher conducted the pre-test at the start of the fourth grading period to both groups. A budgeted outlay was strictly followed and observed. The post-test was conducted by the researcher at the end of the grading period.

Data Analysis

The researcher-made test was reproduced according to the number of subjects of the study. Then the test were administered to the subjects as pre-test and post-test. The tests were corrected and results were analyzed, organized, tabulated, and interpreted using the Statistical Package for the Social Sciences (SPSS) software.

The statistical tools that were used in the study were the frequency count, the mean and Mann-Whitney U test and Wilcoxon Signed-Ranked Test for the inferential analysis.

RESULTS

Pre-test Performance in Mathematics of the Students in the Control Group and the Experimental Group

Results in Table 1 show that the pre-test mathematics performance of the control group (M = 11.34) and that of the experimental group (M = 10.24) were both satisfactory. A closer look at the results of the both groups showed that the control group obtained a mean score which was a quite higher than that of the experimental group.

Table 1. *Pre-test Mathematics Performance of the Students in the Control Group and the Experimental Group.*

Pre-test	N	Mean	Description
Control Group	53	11.34	Satisfactory
Experimental Group	51	10.24	Satisfactory
Total	104	10.80	Satisfactory

The interpretation was based on the following scale: 30.01 – 40.00 – Outstanding; 20.01 – 30.00 - Very Satisfactory; 10.01 – 20.00 - Satisfactory, and; 0.00 – 10.00 - Fairly Satisfactory.

Significant Difference in the Pre-test Mathematics Performance of the Students in the Control Group and the Experimental Group

To determine any significant difference between the control group and the experimental group's pre-test mathematics performance, the researcher employed the Mann-Whitney U. As indicated, the computed Z-ratio of -1.952 had a p-value (0.051) higher than the value set at 0.05 level of significance, hence, that the difference is "not significant".

Table 2. *Significant Difference in the Pre-test Mathematics Performance in Mathematics of the Students in the Control Group and the Experimental Group*

Pre-test	N	Mean Rank	Mann-Whitney U	Z-ratio	p-value	Remarks
Control Group	53	58.13	1053.00	-1.952	0.051	Not Sig.
Experimental Group	51	46.65				
Total	104					

p > 0.05, not significant

Post-test Mathematics Performance of the Students in the Control Group and the Experimental Group

Results in Table 2 show that the post-test mathematics performance of the control group was "satisfactory" (M = 18.92). On the other hand, the post-test mathematics performance in Mathematics of the experimental group was " very satisfactory" (M = 23.92).

Table 3. *Post-test Mathematics Performance of the Students in the Control Group and the Experimental Group*

Pre-test	N	Mean	Description
Control Group	53	18.92	Satisfactory
Experimental Group	51	23.92	Very Satisfactory
Total	104	21.37	Very Satisfactory

The interpretation was based on the following scale: 30.01 – 40.00 – Outstanding; 20.01 – 30.00 - Very Satisfactory; 10.01 – 20.00 - Satisfactory, and 0.00 – 10.00 - Fairly Satisfactory.

Significant Difference in the Post-test Mathematics Performance of the Students in Mathematics in the Control Group and the Experimental Group

To determine the significant difference between the control group's and experimental group's post-test mathematics performance, the researcher employed the Mann-Whitney U test. The computed Z-ratio of -3.81 had a p-value (0.000)lower than the value set at 0.05 level of significance, hence, the difference is "significant".

Table 4. *Significant Difference in the Post-test Mathematics Performance of the Students in the Control Group and the Experimental Group.*

Pre-test	N	Mean Rank	Mann-Whitney U	Z-ratio	p-value	Remarks
Control Group	53	41.23	754.00	-3.891	0.000	Significant
Experimental Group	51	64.22				
Total	104					

p < 0.05, significant

Significant Difference in the Pre-test and the Post-test Mathematics Performance of Students in the Control Group

To determine the significant difference in the pre-test and post-test mathematics performance of students in the control group, the Wilcoxon Signed-Rank Test was used. The results revealed that the computed Z-ratio of -5.898[a] had a p-value (0.000) lower than the value set at 0.05 level of significance, hence, the difference was "significant".

Table 5. *Significant Difference between the Pre-test and the Post-test Mathematics Performance of the Students in the Control Group*

Control Group	Wilcoxon Signed- Rank Test	N	Mean Rank	Z-ratio	p-value	Remarks
Post-test	Negative Ranks	3	9.00	-5.898a	0.000	Significant
Pre-test	Positive Ranks	47	26.55			
	Ties	3				
Total		53				

p < 0.05, significant

Significant Difference in the Pre-test and Post-test Mathematics Performance of Students in the Experimental Group

To determine any significant difference in the pre- test and the post-test mathematics performance of students in the experimental group, the researcher used the Wilcoxon Signed- Rank test. The results revealed that the computed Z-ratio of -6.097[a] had a p-value (0.000) lower than the value set at 0.05 level of significance, hence the difference is “significant”.

Table 6. *Significant Difference in the Pre-test and Post-test Performance in Mathematics of the Students in the Experimental Group*

Experimental Group	Wilcoxon Signed- Rank Test	N	Mean Rank	Z-ratio	p-value	Remarks
Post-test	Negative Ranks	0	0.00	-6.097[a]	0.000	Significant
Pre-test	Positive Ranks	49	25.00			
	Ties	2				
Total		51				

p < 0.05, significant

Mean Gain Scores of the Students in the Pre-test and Post-test in both the Control Group (without instructional module) and Experimental Group (with instructional module)

Results in Table 7 show that the main gain score in mathematics of the control group was 7.58), and that of the experimental group was 13.69). A closer look at the results for both groups would show that the control group obtained a mean gain score which is lower than that of the experimental group.

Table 7. *Mean Gain Scores of the Students in the Pre-test and the Post-test of Both the Control Group (without instructional module) and the Experimental Group (with instructional module).*

Group	N	Mean Gain
Control Group	53	7.58
Experimental Group	51	13.69

DISCUSSION

A closer look at the results of the both groups showed that the control group obtained a mean score which was a quite higher than that of the experimental group. This implies that although there was a slight difference in their mean scores, both are still described as “satisfactory”. This means that their performance was a result of previous knowledge they acquired and is limited such that they fall in the same category.

The control group scored a quite higher than the experimental group and this can be attributed to the learning styles, study habits, and attitudes of the subjects in their previous grade level. This result is consistent with a study on attitudes toward education and study habits conducted in 2019 by Capuno, Necesario, Etcuban, Espina, Padillo, and Manguilimotan. In that study, the researchers found that while the respondents had neutral attitudes toward their motivation, self-confidence, and enjoyment of mathematics, they had positive attitudes toward the subject matter overall. Additionally, the study demonstrates that although there was a weak positive correlation between respondents' academic performance in math and their belief in its value, there was a negligible positive correlation between respondents' attitudes and academic performance in terms of their motivation, enjoyment, and self-confidence. It was determined that attitudes and study habits of students have a major impact on how well they succeed in mathematics.

This implies that although both groups increased their performance, the experimental group (using instructional module) performed much higher than the control group (without using instructional module). Since, the intervention (instructional module) was given to the experimental group, it had a great effect on their mathematics performance.

Although the control group also demonstrated improvement in their post test performance, the results with the experimental group strongly pointed out the beneficial use of the instructional module. The module must have worked effectively to suit to the learners’ needs and therefore improved the mathematical competencies of the students. On the other hand, the absence of the instructional module in the control group could be interpreted as one factor that caused them to lag behind the experimental group.

The results further showed that the experimental groups' performance was given a positive impact on the use of the instructional module on the learning processes of the students. The intervention must have provided the students the opportunities to work in their own unique pacing as they went through their lessons, giving them more freedom to think and absorb well the ideas presented. The experimental group's performance shifted from "satisfactory" to "very satisfactory".

This finding is consistent with the theory put forth by Onyedikachi (2011), which was referenced in Oden's study (n.d.), according to which educational resources enable students to get a deeper comprehension of the material and become self-sufficient learners. Additionally, Ezekoka's (2008) study found that generated instructional materials were crucial to the modes of delivery of teaching and learning since they conveyed all pertinent information, data, and signals from the transmitting source—teachers—to the recipient—learners.

The outcome is consistent with the findings of Onasanwa and Omosewo (2011), who talked about instructional materials as a crucial element that may be utilized in the teaching and learning process to spread knowledge, statistics, concepts, and messages that could aid students in improving their academic performance.

The outcome and the research by Utami, Aminatun, and Fatriana (2020) are likewise similar. The data suggest that the use of student workbook offers favorable impact on students' learning since it might be one of the sources of learning besides the teacher's explanation. Additionally, the products' varied techniques and straightforward text help pupils learn them more easily. Ultimately, this study should serve as a helpful resource or manual for future researchers wishing to undertake comparable studies on the usage of student workbooks (LKS) as instructional aids.

Additionally, Susantini et al. (2016) found that using student workbooks (LKS) as a teaching tool has certain benefits for the classroom teaching and learning process. These benefits include making learning more condensed than it would be in textbooks and having a large number of practice questions that are relevant to the material being learned. Additionally, student workbooks can increase academic performance and foster greater student participation and effectiveness. As mentioned, a student workbook helps foster critical thinking abilities. Their performance shifted from "high" to "very high".

The significant difference in the pre-test and post-test results in the mathematics performance of the control group would mean that other factors might have contributed to the better performance of the students. It can also be attributed to the creativity of the mathematics teacher in his methods and approaches in teaching. According to (Sequeira (2012), learning can be considered as change that is permanent in nature because change is brought into students by a teacher through techniques like developing specific skills, changing some attitudes, or understanding specific scientific law operating behind a learning environment.The teacher tends to allow the students to their think further so that they will not be stuck "inside the box".

The teacher encourages the students to become independent in enhancing their thinking skills.

The significant improvement in the mathematics performance of the students in the experimental group can be attributed to the instructional module used as an effective intervention. The result showing the positive effect upon the learners is congruent with the study of Anwar (2017) in which stated that the use of student workbook help students to understand the lessons taught. Besides, this media not only be seen as a tool for teachers to teach but more as a means to convey and channel messages from sources (teachers, books, etc.) to recipients of messages (students learn). The student workbook is like a messenger that is not only used by the teacher as a teaching media but also can be used by the students to help their learning process.

The results provide more evidence in favor of the theory that module-based training can improve students' mathematical ability. Similar to Lim's (2016) study, which examined how word problem solving was taught to college students exposed to both the lecture style and modular training. According to his findings, modular instruction outperformed the conventional lecture style by a wide margin. It is concluded that modular instruction is a successful teaching strategy for teaching math, specifically word problem solving, based on the stated data. Similarly, Madriaga (2004) discovered that using modules allows teachers more time to work one-on-one with pupils. She went on to say that the experimental group that received modular education performed better. Additionally, in Rizaldo, et al. al., (2007), where they came to the conclusion that employing the modular teaching approach improved student performance and subject matter mastery.Hence, the use of the instructional module in mathematics as part of the study is one innovative step toward a better teaching-learning environment for students.

A closer look at the results for both groups would show that the control group obtained a mean gain score which is lower than that of the experimental group. This implies that the big difference in the mean gain scores of the experimental group and the control group could be attributed to the use of instructional module which greatly improved the mathematics performance of the experimental students.

Conclusions

Based on the foregoing results, the following conclusions were formulated:

1. The performance of the subjects in the pre-test is almost the same before the conduct of the study.
2. The instructional module is an effective tool in teaching mathematics which resulted in better performance of the students.
3. The creativity and varied teaching styles of the teacher in teaching also have an impact on students' mathematics learning.

4. Students perform better if they are exposed to materials which they can independently explore, manipulate, and use.

5. Learning is facilitated in self-contained, independent, and self-paced learning activities which are tailored to students' learning styles.

6. Collaborative learning is effectively achieved through the use of instructional module.

Parents' involvement ensures success in students' learning through performance of catch-up lessons in the modules.

Recommendations

The following recommendations are advanced:

1. Teachers should use a variety of teaching strategies and styles in teaching mathematics and not confined themselves to the traditional lecture discussion method.

2. Mathematics teachers should be encouraged to use the instructional module prepared by the researcher in their Mathematics lessons.

3. Classrooms should be equipped with support materials which students can explore, manipulate, and use independently.

4. Learning activities which are self-contained, independent, self-paced, and tailored to the students' learning styles in order to promote n interactive learning environment should be encouraged.

5. Mathematics department/division chairs should develop instructional modules in collaboration with the teachers to facilitate self-learning and provide visual instructional/ review materials to students.

6. Seminar-workshops in the development of instructional modules, workbooks, and other instructional materials should be conducted to equip teachers with skills to develop such materials for their personal and professional growth.

7. A follow-up studies may be conducted using instructional modules for other grading periods, other grade levels, and other subject areas.

Compliance with Ethical Standards

This study took into consideration the ethical standards in doing research. Informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the study's purpose, procedures, and their right to withdraw at any time without penalty. Ethical standards also required the researchers to ensure the privacy and confidentiality of the subject being studied. Two standards applied in order to protect the privacy of the research participants. Almost all research guarantees the participants' confidentiality -- they were assured that identifying information would not be made available to anyone who is not directly involved in the study.

The author confirms that this thesis is their own work and that all sources have been appropriately cited. Each author confirms that the work is original and that

appropriate credit has been given to all sources and collaborators to avoid any form of plagiarism.

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INSTRUCTIONAL PROFICIENCY OF TEACHERS IN BUSINESS COURSES AMONG PRIVATE HIGHER EDUCATION INSTITUTIONS (HEIs): BASIS FOR INTERVENTION MEASURES

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ABSTRACT

The aim of this study is to explore the role of business education in preparing individuals with the necessary skills, knowledge, attitudes, and values essential for success in a dynamically changing business environment. Emphasizing the adaptability of business education to evolving technology and business practices, the research focuses specifically on the instructional proficiency of business teachers in selected Philippine higher education institutions (HEIs) and the challenges they encounter. The overarching goal is to propose effective intervention measures that can enhance instructional proficiency and address the identified challenges within the context of business education in these institutions. The study used a descriptive comparative to determine the differences between the three groups of respondents: the school managers, business teachers and students. Correlation is also utilized to examines relationships between different variables. In the context of the study, it may explore whether there is a correlation between teacher profiles and instructional proficiency. The respondents of the study comprised 8 (93%), school managers, 94 (10.98%) business teachers, and 754 (88.08%) business students, from selected HEIs and from the business administration program. The researchers opted for the use of ANOVA and Chi-square. Research findings indicate that business teachers have diverse industry and academic backgrounds, with high proficiency in various instructional areas. Significant differences in instructional proficiency are observed among private HEIs. However, no significant relationship is found between teacher profiles and instructional proficiency. Identified

challenges include limited industry support and networking opportunities. The study's findings have yielded several significant conclusions. Firstly, it is recommended to implement the proposed Teaching Capability Program, recognizing its potential to augment the instructional proficiency of business teachers. Secondly, the study affirms the exemplary instructional proficiency of business teachers, reflecting positively on the overall quality of business education. Notably, divergent assessments between school managers-students and teachers-students underscore varying perspectives on instructional proficiency, indicating a need for nuanced evaluations. To ensure the continual enhancement of business teachers' proficiency, a well-designed intervention measure has been proposed. This intervention plan is deemed suitable, acceptable, and feasible, recommending its practical adoption by educational institutions seeking to enhance the instructional capabilities of their faculty.

Keywords: *Instruction Proficiency, Business Teachers, Higher Education Institutions, Business Courses*

INTRODUCTION

Business education as the facet of educational training helps the individual to acquire relevant skills needed for living. As time changed, business education is considered to be an educational program that equips an individual with functional and suitable skills, knowledge, attitude, and value to enable students to operate in the environment they find themselves--as business arena continue to change.

Higher education institutions especially in the Philippines, have their role in the progress and development of society and aim to prepare scientific, technical, managerial, and administrative team in modern societies. From the use of typewriter to the computer, business curriculum has continually shaped itself to meet the needs of business—the gaps in technology and other important aspects in the business were addressed and adopted by the higher learning. However, the world of business become dynamic and the success and survival of business education constantly depends on its ability to adapt and keep pace with the needs of the recipients. Educational institutions have an important role in the improvement of a country’s workforce. The teacher, as one of the most prominent figures in the academe, plays an important role in students’ schooling and education. Business teachers are vital in helping institutions to deliver quality education through the effective and efficient utilization of classroom, subject business expertise, keep students engaged through appropriate use of teaching methodology and strategy; and conduct learning assessment and evaluation.

The researcher as a business teacher in HEI, delved in determining the competencies of the teachers handling business courses. The identification of instructional proficiency of business teachers lessens the industry gaps. There are some people in the industry that don’t possess the right skills for the job available in the industry (FutureLearn, 2023). Market and employment gaps still exist as strengthened in the JP Morgan research and the speech of the newly labor secretary—discussed extensively in

the next chapter. As a result, the success and survival of business education constantly depends on its ability to adapt and keep pace with the needs of its recipient. These changes present challenges for both the learners and business instructors.

Accordingly, a gap in the market is an area that businesses don't currently serve but that there is a customer demand for. This could be a new service opens in new window that hasn't previously existed or a new way of delivering existing service-—for students' clientele might or are still need to fill this gaps that business hasn't explored yet. It is believed that a dynamic business market needs transformational partners to fill this gap in whatever form. Therefore, it is vital that business education be a useful and essential component of transformation agenda if the curriculum of business programs across the regions is to continue to meet the needs of its students and the different industry that needs business graduates. Needless to say, that when schools are supportive of its human resources, it provides all the support to be able to meet the needs and address the industry gaps needs and graduate business skills. The primary principle of the competency model improves the performance of a teacher if they have all the competencies required to carry out their duties and responsibilities. Hence, specialization in a field and the frequency of performing a task will enable the teacher to perform the tasks effectively and efficient. With the different philosophies, ideals, and views on the skills gaps in business creating barriers between the stakeholders, this study was designed to explore the instructional proficiency of business teachers considering the mentioned factors. Also, would the credentials presented succeed in transforming economy through creative solutions that catalyze change in the field of business education.

Research Questions

The study explores the instructional proficiency of business teachers in selected Higher Education Institutions (HEIs) and the challenges faced by them toward the proposed intervention measure.

Specifically, this study aims to answer the following:

The study explores the instructional proficiency of business teachers in selected Higher Education Institutions (HEIs) and the challenges faced by them toward the proposed intervention measure.

Specifically, this study aims to answer the following:

1. What is the profile of business teachers with:
    - 1.1 Industry Experience
        - 1.1.1 Previous industry experience;
        - 1.1.2 Length of industry experience;
        - 1.1.3 Job position in the industry;
        - 1.1.4 Bachelor's degree earned;
        - 1.1.5 Highest educational attainment;
        - 1.1.6 Years of teaching experience?
    - 1.2 Academic Experience:
        - 1.2.1 Bachelor's degree earned;
        - 1.2.2 Highest educational attainment;

1.2.3 Years of teaching experience?

2. How do school managers, business teachers, and business students assess the instructional proficiency of business teachers in terms of:
   - 2.1 Classroom Management;
   - 2.2 Student Engagement;
   - 2.3 Subject Matter Expertise;
   - 2.4 Teaching Methodology and Strategy; and
   - 2.5 Learning Assessment and Evaluation?
3. Is there a significant difference in the instructional proficiency of business teachers in private HEIs as assessed by the three groups of respondents?
4. Is there a significant relationship between business teachers' profiles and instructional proficiency in private HEIs?
5. What are the challenges encountered by business teachers in private HEIs?
6. Based on the findings, what intervention measure may be proposed?

METHODOLOGY

Research Design

The study used a descriptive comparative and correlational research method to systematically investigate and analyze the instructional proficiency among business teachers in selected Philippine higher education institutions. This comprehensive approach involved describing the diverse profiles of business teachers, comparing instructional proficiency across various groups or categories, and exploring potential correlations between teacher profiles and proficiency levels. By employing this method, the study aimed to provide a nuanced understanding of the intricate relationships and patterns within the data, contributing valuable insights into the current state of business education and offering a foundation for targeted interventions and improvements

Population and Sampling

The population of the study was people working and studying in private higher education institutions. The HEIs participants are the National University, Technological Institute of the Philippines, and Jose Rizal University. The sample size for the study was determined using purposive sampling. According to Crossman (2020), a purposive sample is a non-probability sample that selects a population’s characteristics and the study’s objective. A purposive sampling technique is used in selecting the school managers and business teachers in the business program. The business students were selected through purposive-random sampling. Taylor (2023) defined random sampling as selecting sample participants to derive conclusions and assumptions about an entire population.

Table 1
Population of the Study

HEI Participants	School Managers N	Business Teachers N	Students N	Total
National University	2	35	3,034	3,071
T.I.P.	2	20	153	175
Jose Rizal University	4	39	1,900	1,943
TOTAL	**8**	**94**	**5,087**	**5,189**

Table 1 presents the population of the study namely: National University (3071), T.I.P. (175), and Jose Rizal University (1943), a total of 5189. The three groups of respondents comprised of school managers (8), 94 business teachers (94), and 754 business students (5087).

Respondents of the Study

As presented in Table 2, the respondents of the study comprised 8 (93%) school managers, 94 (10.98%) business teachers, and 754 (88.08%) business students from HEIs and from the business administration program.

Table 2
Respondents of the Study

Respondents	f	%
School Managers	8	0.93
Business Teachers	94	10.98
Students	754	88.08
TOTAL	**856**	**100.00**

Research Instrument

After perusing the literature, a draft survey questionnaire was submitted to the adviser, faculty, and experts for comments and suggestions. The revised questionnaire was then distributed to three groups of respondents to test run the questionnaire. The suggestions, corrections, and recommendations were collated and reflected in the drafted instrument for modification purposes. A questionnaire with three parts was formed to collect primary data. The first part of the questionnaire determines the profile of the business teachers with both industry and academic experiences. The second part measured instructional proficiency, and the third part determined the challenges encountered by business teachers in private higher education institutions. **Part I** focuses on the profile of the respondents in terms of the type of respondents and profile of Business teachers with industry and academic experience. **Part II** determines the instructional proficiency of teachers in Classroom Management, Student Engagement, Subject Matter Expertise, Teaching Methodology and Strategy, and Learning Assessment and Evaluation. **Part III** covers the challenges encountered by business teachers in private HEIs.

Validation of the Research Instrument

The survey questionnaire checklist was drafted several times before being forwarded to the research adviser and made the necessary correction. The experts in the field validated it. A dry run to co employees was also done to test the validity and reliability of the instrument. The study adopted content validity, indicating whether the test items represented the content the test was designed to measure. The pilot study assisted in determining the accuracy, clarity, and suitability of the instruments. It helped identify inadequate and ambiguous items such that those that failed to measure the variables were modified or disregarded completely, and new items were added. To ensure validity, the instruments used in the study were examined by the educational experts and adviser who are authorities in research.

Data Gathering Procedures

The following data-gathering procedures were observed:

1. The researcher sought permission from the school officials from the three higher education institutions to conduct the survey.
2. The researcher forwarded the online survey form via Google form to the Dean of the College of Business Education, and the latter then distributed the online survey form to the business teachers and students.
3. The researcher regularly monitors the responses of the respondents in the Google form to make sure that the required number of respondents in the study is met.
4. Tallied the data by group. Forwarded to the adviser to check the data before it was subjected to statistical treatment.
5. Presented, analyzed, and interpreted the data.

Statistical Treatment of Data

The following statistical tools for the interpretation of results according to sub-problems were used:

1. Percentage. This is used as descriptive statistics that describes a part of a whole. The formula that used in computing percentage in this is:
2. Weighted Mean. This is used to get the average frequency of the responses in each weighted item.
3. Ranking. This reinforces the percentage to show the proportional importance of an item considered.
4. Analysis of Variance. The ANOVA is more fitted in the research due to the comparison of more than two groups. This research has three different groups of small firms. The systematic factors have a statistical influence on the given data set, while the random factors do not, Kenton (2019).
5. Analysis of Variance (F-Test). It was used for unpaired small samples to reject or accept the hypothesis and to present significant differences in the responses of the respondents.
6. Chi-Square test. It is a statistical procedure for determining the difference between

observed and expected data. This test can also be used to determine whether it correlates to the categorical variables in our data. It helps to find out whether a difference between two categorical variables is due to chance or a relationship between them.

Likert's' Scale. To determine the verbal description of the scale and range, the five-point Likert's Scale was used, and its interpretation follows:

On the Instructional Proficiency of Business Teachers

Scale	Numerical Value	Descriptive Value
5	4.20 – 5.00	Highly Competent (HC)
4	3.40 – 4.19	Competent (C)
3	2.60 – 3.39	Moderately Competent (C)
2	1.80 – 2.59	Least Competent (LC)
1	1.00 – 1.79	Very Least Competent (VLC)

On the Challenges Encountered

Scale	Numerical Value	Descriptive Value
5	4.20 – 5.00	Highly Encountered (HE)
4	3.40 – 4.19	Encountered (E)
3	2.60 – 3.39	Moderately Encountered (ME)
2	1.80 – 2.59	Least Encountered (LE)
1	1.00 – 1.79	Very Least Encountered (VLE)

RESULTS

Sub Problem No. 1. What is the business teachers' profile regarding industry experience and academic experience?

1.1 Profile of Business Teachers with Industry Experience

Table 3

Profile of the Business Teachers with Industry Experience

Previous Industry Connected	f	%
Banking	14	14.89
Business Process Outsourcing (BPO)	6	6.38
Construction	1	1.06
Education	6	6.38
Financial	4	4.26
Gaming	2	2.12
Insurance	4	4.26
Manufacturing	13	13.83
Real Estate	20	21.28
Retail Trading	24	25.53
TOTAL	94	100.00
Length of industry experience	f	%

20 - 24 years	10	10.64
15 - 19 years	21	22.34
10 - 14 years	30	31.91
5 - 9 years	25	26.59
Less than 5 years	8	8.51
TOTAL	94	100.00
Job Position in the Industry		
Admin Assistant	1	1.06
Assistant Manager	6	6.38
Team Leader	3	3.19
Managerial	56	59.57
Supervisory	10	10.64
Rank and File	18	19.15
TOTAL	94	100.00
Bachelor's degree earned	n	%
Accountancy	17	18.08
Banking & Finance	24	25.53
Commerce	8	8.51
Entrepreneurial Management	2	2.13
Financial & Management Accounting	1	1.06
Financial Management	10	10.64
Human Resource Mgt	3	3.19
Logistic Management	5	5.31
Marketing Management	24	25.53
TOTAL	94	100.00
Highest educational attainment		%
Doctorate	18	19.15
With Doctoral units	19	20.21
Master's Degree	56	59.57
With Master's units	1	1.06
TOTAL	94	100.00
Years of teaching experience		%
20 - 14 years	1	1.06
15 - 19 years	11	11.70
10 - 14 years	11	11.70
5 - 9 years	38	40.42
Less than 5 years	33	35.11
TOTAL	94	100.00

Table 3 presents the profile of Business Teachers with Industry Experience in terms of Previous industry experience, Length of industry experience, Job Position in the Industry, Bachelor's degree earned, Highest educational attainment, and Years of teaching experience. Findings of the descriptive statistics for the demographic characteristics revealed that the majority of Business Teachers were previously connected to Retail Trading (25.53%), Real Estate (21.28%), and Bank Industry (14.89%). Most of them had been in the industry for 10-14 years (31.91%), 5-9 years (26.59%), and 15-19 years (22.34%). Regarding Job Positions in the Industry, most

were in the Managerial position (59.57%), and some belongedto the Rank and File (19.15%). The Bachelor's Degree Earnedby the Business Teachers graduated in Banking & Finance and Marketing Management (25.53%) and Accountancy (18.08%) graduates. More than half of the business teachers' HighestEducational Attainment got a Master's Degree (59.57) and Doctoral Units (20.21). It was also observed that Years of Teaching Experience 5-9 years (40.42%) and less than 5 years (35.11). Based on the result, Business teachers at the HEIs are qualified to teach business subjects as they graduated from business programs and were highly experienced prior to teaching. The result confirms that teachers in business education had industry experience prior to joining the academic institution. The result concurs with the statement by Nelson and Kahu (2017) that one of the areas where problems emerge is education and that experience is valued more than potential, and expectations and requirements often reflect this. In today's world, the educators are expected to have a great deal of professional and personal qualities, and extraordinary skills (Asio & De Dios, 2019).

1.2 Profile of Business Teachers with Academic Experience

Table 4
Profile of the Business Teachers with Academic Experience

Bachelor's Degree Earned	n	%
Accountancy	17	18.08
Banking and Finance	24	25.53
Commerce	8	8.51
Entrepreneurial Management	2	2.13
Financial & Management Accounting	11	11.70
Human Resource Management	3	3.19
Logistic Management	5	5.32
Marketing Management	24	25.53
TOTAL	94	100.00
Highest Educational Attainment	f	%
Doctorate	18	19.15
With Doctoral units	19	20.21
Master's Degree	56	59.57
With Master's units	1	1.06
TOTAL	94	100.00
Years of Teaching Experience	n	%
20-24 years	1	1.06
15-19 years	11	11.70
10-14 years	11	11.70
5- 9 years	38	40.42
Less than 5 years	33	35.11
TOTAL	94	100.00

Table 4 revealed business teachers with Academic Experience in terms of Bachelor's degree earned, Highest educational attainment, and Years of teaching experience. Highest Educational Attainment of Business Teacherswith academic

experience showed that more than half graduated Master's Degree (59.57%), teachers with Doctoral Units (20.21%), and graduated with a Doctorate (19.15%). Business teachers' Years of Teaching revealed 5-9 years (40.42%) and less than 5 years (35.11%). The result revealed that teachers with academic experienceare more than qualified to teach business subjects, as reflected in their basic degree program, years of teaching experience, and highest educational attainment.

Sub Problem No. 2. How do school managers, teachers, and students assess the Instructional Proficiency of Business Teachers in terms of Classroom Management, Student Engagement, Subject Matter Expertise, Teaching Methodology and Strategies, and Learning Assessment and Evaluation?

Table 5
Assessment of Instructional Proficiency in Classroom Management

Indicators	School Manager		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Prepares for teaching with techniques ranging from counseling, focusing on understanding and mutually solving a problem, to behavior modification or ignoring inappropriate and reinforcing appropriate behavior.	4.88	HC	4.62	HC	4.48	A	4.66	HC	9
Prevents behavior problems through improved planning, organizing, and managing of classroom activities, better presentation of instructional material, and better teacher-student interaction, maximizing students' involvement and cooperation in learning.	4.63	HC	4.53	HC	4.50	A	4.55	HC	10
Emphasizes a positive classroom community with mutual respect between teacher and student.	5.00	HC	4.82	HC	4.60	A	4.81	HC	3
Adopts preventative techniques using praise and rewards to inform students about their behavior rather than to control student behavior.	4.88	HC	4.91	HC	4.45	HC	4.75	HC	7
Pronounces school rules, classroom rules, procedures, and consequences for positive outcomes.	4.88	HC	4.80	HC	4.49	HC	4.72	HC	8
Ensures a safe and supportive place to learn with clear routines and expectations	5.00	HC	4.77	HC	4.59	HC	4.79	HC	4
Encourages everyone to observe decorum and businesslike attitude in and outside the campus.	5.00	HC	4.90	HC	4.65	HC	4.85	HC	1
Uses affirmation teaching, which attempts to guide business students toward success by helping them see how their effort pay off in the classroom	5.00	HC	4.94	HC	4.57	HC	4.84	HC	2
Transforms a classroom into a community of well-behaved and self-directed business learners	5.00	HC	4.77	HC	4.56	HC	4.78	HC	5
. Relates to students as individuals positively, treating them with respect, making lessons interesting and varied, encouraging, and telling them to believe in themselves and their abilities.	4.88	HC	4.83	HC	4.58	HC	4.76	HC	6
Overall weighted mean	4.92	HC	4.79	HC	4.55	HC	4.75	HC	

Legend:

Scale	Range	Interpretation	Symbol
5	4.20 - 5.00	Highly Competent	HC
4	3.40 - 4.19	Competent	C
3	2.60 - 3.39	Moderately Competent	MC
2	1.80 - 2.59	Need to be Developed	ND
1	1.00 - 1.79	Highly Need to be Developed	HND

As presented by the data, the school managers, teachers, and students generally

rated the indicators of instructional Proficiency of Business Teaches in terms of Classroom Management as “Highly Competent”: “Involves business students in the learning process by understanding the learning goal and the criteria for quality work, receiving and using descriptive feedback, and taking stepsto adjust their performance” with a weighted mean of 4.85,as rank no. 1; “Business teachers are involved in the class to enhance the business learning experience of the students”with a weighted mean of 4.84, rank 2; “Develops and uses a variety of appropriate assessment strategies to monitor and evaluate learning” with a weighted mean of 4.81, as rank 3; “Prepares students for a career in business by familiarizing them with various business-related topics” with a weighted mean of 4.79, rank 4; “Uses assessment information to make decisions that support further learning and for opportunity identification” with a weighted mean of 4.78, rank 5; “Support learners in their immersion activities to feel the real world of work” with a weighted mean of 4.76, rank 6; “Integrates a pretest and post-test that effectively measure a learner’s relative competency within a core/business subject to *determine whether* learners satisfy the school’s requirements” with a weighted mean of 4.75, rank 7; “Involves students with different business-related organizations to deploy skills, subject knowledge, and also their relationship with the other students” with a weighted mean of 4.72, rank 8; “Learning and assessment are based on clear learning goals” with a weighted mean of 4.66, rank 9,and lastly, “Instruction and assessment are differentiated according to student learning needs” with a weighted mean of4.55, rank 10, respectively. Hence, the obtained overall weighted mean of 4.75 is verbally interpreted as “Highly Competent.” It can deduce from the table that Business teachers observe decorum and businesslike attitude on and outside thecampus. Furthermore, uses affirmation teaching as theyattempt to guide business students toward success as their effort pays off in the classroom. The findings concur with Garcines (2018) found that regarding classroom management, respect for authority is in order, and a great deal of patience toward students isshown. As part of the routines, learning activities must start on time, so coming to class early and leaving on time are observed. The class periods are spent productively, so aparticular subject's objectives should be achieved. In case there is a disciplinary problem, it is handled effectively.

2.1 Student Engagement;

Table 6
Assessment of Student Engagement

Indicators	School Managers		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Encourage class participation for class presentation and discussion.	4.25	HC	4.28	HC	4.36	HC	4.30	HC	10
Integrates ways and teaching strategies to make the business course related student’s lives.	5.00	HC	4.65	HC	4.58	HC	4.74	HC	7
Start the discussion with icebreaker activities that help students relax and get comfortable sharing their thoughts	5.00	HC	4.65	HC	4.60	HC	4.75	HC	6
Encourages students to work on business cases or project that requires integrating ideas or information from previous sources.	4.88	HC	4.89	HC	4.58	HC	4.78	HC	2.5
Encourages business students to interact with classmates and instructors by making learning	5.00	HC	4.87	HC	4.61	HC	4.83	HC	1

collaborative and competitive.									
Engages business students to visually conceptualize their understanding of the unit under study.	4.88	HC	4.84	HC	4.57	HC	4.76	HC	4.5
Use small group discussions, debates, role-plays, or online forums.	5.00	HC	4.64	HC	4.55	HC	4.73	HC	8
Conducts individual consultations for the most effective learning modes to engage students, as they benefit substantially in both the learning and development process	4.63	HC	4.80	HC	4.43	HC	4.62	HC	9
In-class active teaching activities are included in the teaching category, such as applied activities, case studies, business videos, and interactive business lectures.	5.00	HC	4.79	HC	4.55	HC	4.78	HC	2.5
. Encourages students' participation in peer-assisted study sessions, online practicing, and reviewing recorded lectures.	5.00	HC	4.70	HC	4.59	HC	4.76	HC	4.5
Overall weighted mean	4.86	HC	4.70	HC	4.54	HC	4.70	HC	

The assessment of respondents on the instructional proficiency of business teachers in terms of Student Engagement is in Table 6. As presented by the data, the school managers, teachers, and students generally rated the instructional proficiency of business teachers in terms of Student Engagement as "Highly Proficient" as follows: "Encourages business students to interact with classmates and instructors by making learning collaborative and competitive" with a weighted mean of 4.83, rank 1; both in rank 2.5, "Encourages students to work on business cases or project that requires integrating ideas or information from 4.78; rank 4.5 "Engages business to visually conceptualize what they understood from the specific units under study" and "Encourages students' participation in peer-assisted study sessions, online practicing, and reviewing recorded lectures" with weighted mean of 4.76;rank 6 is "Start the discussion with icebreaker activities that help students relax and get comfortable sharing their thoughts." with weighted mean of 4.75; rank 7, "integrates ways and teaching strategies to make the business course relevant to the students' lives" with a weighted mean of 4.74; rank 8, "Business faculty provides optimal opportunities for students to keep their appointment with their college/university studies and thrivein an engaging and intellectually stimulating environment" with a weighted mean of 4.73; rank 9, "Conducts individualconsultations for the most effective learning modes toengage students, as they benefit substantially in both the learning and development process" with a weighted mean of 4.62, and lastly, "Use small group discussions, debates, role-plays, or online forums" with a weighted mean of 4.30, respectively. These obtained mean values yielded an overall weighted mean of 4.70 and were verbally interpreted as "Highly Proficient." It manifests that business teachers encourage their students to interact with classmates and instructors by making learning collaborative and competitive.

2.3 Subject Matter Expertise;

Table 7
Assessment of Subject Matter Expertise

Indicators	School Manager		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Able to explain subject matter clearly	5.00	HC	4.93	HC	4.62	HC	4.85	HC	1
Makes use of their subject knowledge to organize and use content knowledge more effectively for their students to understand	4.88	HC	4.98	HC	4.44	HC	4.77	HC	8
Recognizes students who are struggling and change the way the information is presented and discussed to make it more understandable	5.00	HC	4.93	HC	4.46	HC	4.80	HC	5
Provide students with tasks that are appropriate for their academic skill level and that they can easily accomplish in the allotted time.	4.88	HC	4.88	HC	4.52	HC	4.79	HC	6.5
Demonstrates problem-solving skills and includes critical and digital literacy.	5.00	HC	4.98	HC	4.52	HC	4.83	HC	2
Allows students to solve meaningful, real-life, complex problems	4.88	HC	4.52	HC	4.50	HC	4.63	HC	10
Reinforces essential concepts and helps students cross the knowing/learning gap.	4.88	HC	4.73	HC	4.55	HC	4.72	HC	9
Demonstrate expertise by addressing students' inquiries in a confident and knowledgeable manner.	4.88	HC	4.98	HC	4.57	HC	4.81	HC	3.5
Develops innovative spirit among students to make good use of available opportunities.	4.88	HC	4.98	HC	4.52	HC	4.79	HC	6.5
Allows learners to test their knowledge regularly, reinforces essential concepts, and helps them cross the knowing/learning gap	4.88	HC	4.98	HC	4.57	HC	4.81	HC	3.5
Overall weighted mean	4.92	HC	4.90	HC	4.53	HC	4.78	HC	

The assessment of respondents on the instructional proficiency of business teachers in terms of subject matter expertise is in Table 7. As demonstrated by the data, the school managers, teachers, and students generally assessed the indicators of the instructional proficiency of business teachers in termsof classroom management as Highly Competent, which “Allows learners to test their knowledge regularly to reinforce essential concepts” with a weighted mean of 4.85, rank 1; “Develop instructional strategies, selecting appropriate resources, and designing meaningful learning activities ”with a weighted mean of 4.83, as rank 2; “Demonstrate expertise by addressing students' inquiries in a confident and knowledgeable manner.” and “Allows learners to test their knowledge regularly, reinforces essential concepts, and helps them cross the knowing/learning gap” with a mean of 4.81, as rank 3.5; “Break down difficult concepts into understandable components, use appropriate examples and analogies, and provide relevant context to enhance students' understanding” with a weighted mean of 4.80, as rank 5; “Provide students with tasks that are appropriate for their academic skill level and that they can easily accomplish in the allotted time” and “Develops innovative spirit among students to make good use of available opportunities” with a weighted mean of 4.79; “Makes use of their subject knowledge to organize and use content knowledge more effectively for their students to understand” with a weighted mean of 4.77, as rank 8; indicator 7 “Reinforces essential concepts and helps students cross the knowing/learning gap” with a weighted mean of 4.72, and lastly, 6 “Allows students to solve meaningful, real-life, complex problems” with a weighted mean of 4.63, respectively and yielded an

overall weighted mean of 4.78, verbally interpreted as Highly Competent. Based on the result, business teachers allow learnersto test their knowledge regularly to reinforce an essential concept and demonstrate problem-solving skills and include critical and digital literacy. The results concur with the study by Del Mundo and Refozar (2013) that accounting teachers are qualified to handle subjects at the tertiary level. This result intensified accounting teachers' role in the academe, notonly as CPA practitioners in their field but also in educational institutions. However, the problem identifiedin this study focused on students' behavior and attitude toward their studies. De Cree & Olsen (2023), clearly stated that teacher should be proficient in his or her subject and guide other professional and students on the project to ensure the content of their work is accurate.

2.4 Teaching Methodologies and Strategies

Table 8
Assessment of Teaching Methodology and Strategies

Indicators	School Manager		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Business teachers offer learners a competency-based approach to building their foundational business knowledge.	4.88	HC	4.91	HC	4.56	HC	4.78	HC	7.5
Business teachers communicate promptly and clearly to students, parents, and superiors about learners' progress.	4.88	HC	4.86	HC	4.48	HC	4.74	HC	9
Provides a venue for students to go beyond merely formulating a business plan.	4.88	HC	4.57	HC	4.45	HC	4.63	HC	10
Plan content instruction that will challenge individuality and entrepreneurial ability.	4.88	HC	4.98	HC	4.53	HC	4.80	HC	3
Considers national and local business environment in planning for instruction and strategy.	4.88	HC	4.98	HC	4.51	HC	4.79	HC	5.5
Uses various teaching methods, resources, and materials that allow students to be creative and innovative in learning applications.	4.88	HC	4.91	HC	4.58	HC	4.79	HC	5.5
Present business education foundational principles and develops entrepreneurial skills.	4.88	HC	4.93	HC	4.57	HC	4.79	HC	4
Enhances business problem-solving skills and analysis to develop decision-making.	4.88	HC	4.93	HC	4.54	HC	4.78	HC	7.5
Understand and operate in a climate that includes education and the business world as partners in career preparation	4.88	HC	4.98	A	4.56	HC	4.81	HC	1.5
. Develop business students with valuable entrepreneurial skills and concepts for learning.	4.88	HC	4.93	A	4.62	HC	4.81	HC	1.5
Overall weighted mean	4.88	HC	4.89	A	4.54	HC	4.77	HC	

The assessment of respondents on the instructional proficiency of business teachers in terms of teaching methodologies and strategies is in Table 8. As asserted by the data, the school managers, teachers,and students generally assessed the indicators on the instructional proficiency of business teachers in terms of teaching methodologies and strategies as Highly Competent, "Understand and operate in a climate that includes education with a weighted mean of 4.63, respectively. Thus, yielded an overall weighted mean of 4.77, verbally interpreted as and the business world as partners in career preparation" and "Develop business students with valuable entrepreneurial skills and

concepts for learning" with a weighted mean of 4.81, as rank 1.5; "Plan content instruction that will challenge individuality and entrepreneurial ability" with a weighted mean of 4.80,as rank 3; three indicators "Considers nationaland local business environment in planning for instruction and strategy," "Uses various teaching methods, resources, and materials that allow students to be creative andinnovative in learning applications," and "Present business education foundational principles and develops entrepreneurial skills" with a weighted mean of 4.79 as rank 5; "Business teachers offer learners a competency-based approach to building their foundational business knowledge" and "Enhances businessproblem-solving skills and analysis to develop decision-making" with a weighted mean of 4.78; "Business teachers communicate promptly and clearly to students,parents, and superiors about learners' progress" with a weighted mean of 4.74, as rank 9; and lastly, "Provides a venue for students to go beyond merely formulating a business plan" as Highly Competent. It can deduce that teachers understand and operate in a climate that includes education and the business world as partners in career preparation and develop business students with valuable entrepreneurial skills and concepts for learning.

2.5 Learning Assessment and Evaluation

Table 9
Assessment as to Learning Assessment and Evaluation

Indicators	School Managers		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Learning and assessment are based on clear learning goals.	4.88	HC	4.98	HC	4.64	HC	4.83	HC	1
Instruction and assessment are differentiated according to student learning needs	4.88	HC	4.83	HC	4.48	HC	4.73	HC	10
Develops and uses a variety of appropriate assessment strategies to monitor and evaluate learning.	4.88	HC	4.98	HC	4.52	HC	4.79	HC	5.5
Integrates a pre-test and post-test that effectively measure a learner's relative competency within a core/business subject to determine whether learners satisfy the school's requirements.	4.88	HC	4.87	HC	4.50	HC	4.75	HC	9
Involves students with different business-related organizations to deploy skills, subject knowledge, and also their relationship with the other students	4.88	HC	4.83	HC	4.59	HC	4.77	HC	8
Prepares students for a career in business by familiarizing them with various business-related topics	4.88	HC	4.93	HC	4.57	HC	4.79	HC	5.5
Involves business students in the learning process by understanding the learning goal and the criteria for quality work, receiving and using descriptive feedback, and taking steps to adjust their performance.	4.88	HC	4.93	HC	4.61	HC	4.81	HC	2
Business teachers are involved in the class to enhance the business learning experience of the students.	4.88	HC	4.93	HC	4.58	HC	4.80	HC	3
Uses assessment information to make decisions that support further learning and for opportunity identification.	4.88	HC	4.93	HC	4.56	HC	4.79	HC	5.5
Support learners in their immersion activities to feel the real world of work.	4.88	HC	4.93	HC	4.55	HC	4.79	HC	5.5
Overall weighted mean	4.88	HC	4.91	HC	4.56	HC	4.78	HC	

The assessment of respondents on the instructional proficiency of business teachers in terms of learningassessment and evaluation is in Table 9. As stated by the data, the school managers, teachers, and students generally assessed the indicators on the instructional proficiency of business teachers in terms of learning assessment and evaluation as Highly Competent, “Learning and assessment are based on clear learning goals” with a weighted mean of 4.83, as rank 1; “Involves business students in the learning process by understanding the learning goal and the criteria for quality work, receiving and using descriptive feedback, and taking steps to adjust their performance” with a weighted mean of 4.81, as rank 2; “Business teachers are involved in the class to enhance the business learning experience of the students,” with a weighted mean of 4.80, as rank 3; meanwhile, “Develops and uses a variety of appropriate assessment strategies to monitor and evaluate learning.,” “Prepares students for a career in business by familiarizing them with various business-relatedtopics,” “Uses assessment information to make decisions thatsupport further learning and for opportunity identification,” and “Support learners in their immersion activities to feel the real world of work” with a weighted mean of 4.79, as rank 5.5; “Involves students with different business-related organizations to deploy skills, subject knowledge, and also their relationship with the other students” with a weighted mean of 4.77, as rank 8; “Integrates a pre-test and post-test thateffectively measure a learner’s relative competency within acore/business subject to determine whether learners satisfy the school’s requirements” with a weighted mean of 4.75, as rank 9; and lastly, “Instruction and assessment are differentiated according to student learning needs” witha weighted mean of 4.73, respectively. Hence, yielded an overall weighted mean of 4.78, verbally interpreted as Highly Competent. The result shows that learning and assessment are basedon clear learning goals. It also involves business students in the learning process by understanding the learning goal and the criteria for quality work, receiving and using descriptive feedback, and taking steps to adjust their performance. The findings are reinforced in the study by De Aquino et al (2020) that assessment and evaluation are related to both instructional objectives and classroom learning activities and are indispensable elements in the learning process. They are useful for gathering data/information needed for various interests. Among other techniques to do evaluation and assessment, The teachers can use tests to evaluate and assess, starting from the small one, incorporating evaluation into the class routine, setting up an easy and efficient record-keeping system, establishing an evaluation plan, and personalizing the evaluation plan.

Table 10
Summary of Assessment

Indicators	School Manager		Teachers		Students		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Classroom management	4.92	HC	4.79	HC	4.55	HC	4.75	HC	4
Student Engagement	4.86	HC	4.70	HC	4.54	HC	4.70	HC	5
Subject matter expertise	4.92	HC	4.90	HC	4.53	HC	4.78	HC	1.5
Teaching methodology and strategies	4.88	HC	4.89	HC	4.54	HC	4.77	HC	3
Learning assessment and evaluation	4.88	HC	4.91	HC	4.56	HC	4.78	HC	1.5
Overall weighted mean	4.89	HC	4.84	HC	4.54	HC	4.76	HC	

The summary of respondents’ assessment of the instructional proficiency of

business teachers is presented in Table 10. Looking at the data, the respondents generally assessed the indicators on the instructional proficiency of business teachers as Highly Competent, “Subject matter expertise” and “Learning assessment and evaluation” with a weighted mean of 4.78 as rank 1.5; “Teaching methodology and strategies,” with a weighted mean of 4.77; “Classroom management,” with a weighted mean of 4.75, as 4; and lastly, “Student engagement,” with a weighted mean of 4.70, as rank 5, respectively. Thus, this obtained weight yielded an overall weighted mean of 4.76 and was verbally interpreted as Highly Competent. It can manifest that business teachers can be described as prepared to teach, and students can rely upon their teachers as they possess Subject matter expertise, learning assessment, and evaluation. Higher education institutions abide by the policy provided for in CHED Memo Order No. 17. The result of the study is in consonance with CHED Memorandum Order No. 17, which specifies the core competencies expected of BS Business Administration graduates regardless of the type of HEI they graduate from. In recognition of the spirit of outcomes-based education. . . of the typology of HEIs, it also provides ample space for HEIs toinnovate in the curriculum in line with the assessment of how best to achieve learning outcomes in their particular contexts and their respective missions.

Sub Problem No. 3. Is there a significant difference in the instructional proficiency of business teachers in private HEIs assessed by the three groups of respondents?

Table 11
Result of Significant Difference

Indicator	F-value	Decision	VI
1. Classroom Management	30.7068	Reject H_o	Significant
2. Student Engagement	4.7950	Reject H_o	Significant
3. Subject Matter Expertise	48.5600	Reject H_o	Significant
4. Teaching methodology and strategies	70.3043	Reject H_o	Significant
5. Learning Assessment and Evaluation	214.3888	Reject H_o	Significant
Overall	73.7510	Reject H_o	Significant

Degrees of Freedom = 2 and 27
Critical value at .05 = 3.487

The result of the significant differences among the assessment of the school managers, teachers, and student respondents in the instructional proficiency of business teachers in private HEIs is indicated in Table 11. As shown in the table, it could be observed in the results of significant differences obtained a computed F value of 30.7068, 4.7950, 48.5600, 70.3043, and 214.3888 were all exceed the critical value of 3.487. Hence, the overall computed F value of 73.7510 also greater than the critical with 2 and 27 degrees of freedom at a 0.05 level of significance. Thus, the statistical decision was to reject the null hypothesis and verbally interpreted it as significant. Since we failed to accept the null hypothesis, therefore, there is a significant difference on the assessment of the school managers, teachers, and students in the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessment and evaluation. Thus, this shows that the school managers, teachers, and students do not concur with their assessment in the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter

expertise, teaching methodology and strategies, and learning assessment and evaluation. Since the result of the Analysis of Variance indicates significant differences, it is fair to investigate where the differences lie. Post-hoc pairwise means comparisons are commonly performed after significant differences when there are more than two groups.

Table 12

Result of Post-Hoc Pairwise Comparison for Classroom Management

Groups	Mean Difference	TK-test	Verbal Interpretation
School managers – Teachers	0.13	3.7333	Significant
School managers – students	0.37	10.9036	Significant
Teachers - Student	0.24	7.1703	Significant

Result of Post-Hoc Pairwise Comparison for Student Engagement

Groups	Mean Difference	TK-test	Verbal Interpretation
School managers – Teachers	0.16	1.7772	Not significant
School managers – students	0.32	4.3557	Significant
Teachers - Student	0.16	2.5778	Not significant

Result of Post-Hoc Pairwise Comparison for Subject Matter Expertise

Groups	Mean Difference	TK-test	Verbal Interpretation
School managers – Teachers	0.02	0.8665	Not significant
School managers – students	0.32	12.4796	Significant
Teachers - Student	0.37	11.6134	significant

Result of Post-Hoc Pairwise Comparison for Teaching Methodology and Strategies

Groups	Mean Difference	TK-test	Verbal Interpretation
School managers – Teachers	0.01	0.8690	Not significant
School managers – students	0.34	14.0689	Significant
Teachers - Student	0.35	14.9378	significant

Result of Post-Hoc Pairwise Comparison for Learning Assessment and Evaluation

Groups	Mean Difference	TK-test	Verbal Interpretation
School managers – Teachers	0.03	2.5489	Not significant
School managers – students	0.32	23.9900	Significant
Teachers - Student	0.35	26.5389	significant

Tukey-Kramer Pairwise Comparisons Critical Value (.05, 3, 30) = 3.487

It could be gleaned from the results of the Tukey-Kramer Pairwise mean comparison for Classroom Management, it shows that that there is a significant difference on the assessment between group school managers, teachers, and students. For student engagement, it shows significantly differ on the assessment between groups of school administrators and teachers. Hence, no significant differences between groups of school administrators – teachers, and teachers – students. Moreover, for Subject Matter Expertise, it manifest significant different between group of school administrators - students and teachers and students. Hence, no significant differences between groups of

school administrators – teachers. Furthermore, Teaching Methodology and Strategies, it asserted significant different between group of school administrators -students and teachers and students. Hence, no significant differences between groups of school administrators – teachers. Lastly, Learning Assessment and Evaluation, it demonstrated a significant different between group of school administrators -students and teachers and students. Hence, no significant differences between groups of school administrators – teachers.

Sub Problem No. 4. Is there a significant relation between the profile and instructional proficiency of business teachers in private HEIs?

Table 13
Significant Relationship Between Bachelor's Degree Earned and instructional proficiency

Indicators	Accountancy		Banking and Finance		Commerce		Entrepreneur Management		Financial and Management Accountancy		Financial Management		Human Resource Management		Logistics Management		Marketing Management		Total	χ^2
	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E		
Classroom Management	4.90	4.84	4.82	4.84	4.79	4.78	4.70	4.79	4.80	4.76	4.68	4.67	4.43	4.49	4.66	4.78	4.76	4.57	42.54	**0.0145**
Student Engagement	4.76	4.76	4.83	4.76	4.65	4.71	4.75	4.71	4.60	4.68	4.53	4.60	4.40	4.41	4.66	4.70	4.66	4.50	41.84	**0.0106**
Subject Matter Expertise	4.96	5.00	4.93	5.00	4.95	4.94	4.85	4.95	5.00	4.92	4.83	4.83	4.57	4.63	4.94	4.93	4.90	4.72	43.93	**0.0105**
Teaching Methodology Strategies	4.93	4.93	4.96	4.93	4.88	4.87	4.95	4.87	4.80	4.84	4.81	4.75	4.64	4.57	4.92	4.86	4.38	4.65	43.27	**0.0180**
Learning Assessment and Evaluation	4.95	4.97	4.97	4.97	4.94	4.91	5.00	4.92	4.90	4.89	4.80	4.80	4.67	4.61	5.00	4.91	4.44	4.69	43.67	**0.0173**
Total	**24.50**	**24.50**	**24.51**	**24.50**	**24.21**	**24.21**	**24.25**	**24.24**	**24.10**	**24.09**	**23.65**	**23.65**	**22.71**	**22.71**	**24.18**	**24.18**	**23.14**	**23.13**	**215.25**	**0.0709**

Degrees of freedom = 32
Critical value at .05 = 43.77

The following table shows the results of the significant relationship between the profile and instructionalproficiency of business teachers in private HEIs. The result of the significant relationship between the Bachelor's degree earned and Instructional Proficiency of business teachers in private HEIs is presented in Table 13. It could be gleaned from the data that the computed chi-square value of 0.0709 is less than the critical value of 43.77 at a 5 percent level of significance with degrees of freedom equal to 32. The statisticaldecision is to accept the null hypothesis of no relationshipbetween the bachelor's degree earned by the respondents and the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology, and strategies, and learning assessment and evaluation This shows that the bachelor's degree earned by the respondents is independent of the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessmentand evaluation.

Table 14
Significant Relationship between Years of TeachingExperience and instructional proficiency

Indicators	20 - 24		15 -19		10 - 14		5 – 9		Less than 5 years		Total	χ^2
	O	E	O	E	O	E	O	E	O	E		
Classroom Management	4.80	4.81	4.90	4.91	4.85	4.79	4.76	4.72	4.76	4.83	**24.07**	**0.0021**
Student Engagement	4.60	4.70	4.79	4.80	4.74	4.68	4.68	4.62	4.71	4.72	**23.52**	**0.0037**
Subject Matter Expertise	5.00	4.84	4.97	4.94	4.93	4.82	4.43	4.75	4.86	4.86	**24.22**	**0.0298**
Teaching Methodology Strategies	4.80	4.89	4.95	4.99	4.94	4.87	4.87	4.80	4.91	4.91	**24.47**	**0.0040**
Learning Assessment and Evaluation	4.90	4.85	4.99	4.95	4.53	4.83	4.91	4.76	4.87	4.87	**24.25**	**0.0266**
Total	**24.10**	**24.09**	**24.60**	**24.59**	**23.99**	**23.99**	**23.65**	**23.65**	**24.19**	**24.19**	**120.53**	**0.0662**

Degrees of Freedom = 26.30
Critical value at .05 = 26.30

The result of a significant relationship between years ofteaching experience and instructional proficiency of business teachers in private HEIs is presented in Table 14. It could be gleaned from the data the computed chi-square value of 0.0662 is less than the critical value of 26.30 at a 5 percent level of significance with degrees of freedom equal to 16. The statistical decision is to accept the null hypothesis of no relationship between the years of teaching experience of the respondents and the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learningassessment and evaluation. This shows that the years of teaching experience of therespondents are independent of the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessmentand evaluation. The result of the significant relationship between job position in the industry and instructional proficiency of business teachers in private HEIs is presented in Table 15.

Table 15
Significant Relationship between job position in theindustry and instructional proficiency

Indicators	Administrative Assistant		Assistance Manager		Managerial		Rank and File		Supervisory		Team Leader		Total	χ^2
	O	E	O	E	O	E	O	E	O	E	O	E		
Classroom Management	4.90	4.89	4.74	4.67	4.78	4.77	4.54	4.73	4.82	4.81	4.90	4.81	**28.68**	**0.0104**
Student Engagement	4.90	4.81	4.60	4.59	4.72	4.69	4.69	4.65	4.70	4.73	4.57	4.72	**28.18**	**0.0072**
Subject Matter Expertise	5.00	5.01	4.83	4.79	4.87	4.89	4.87	4.85	4.92	4.93	4.90	4.93	**29.39**	**0.0007**
Teaching Methodology Strategies	5.00	5.03	4.74	4.81	4.89	4.91	4.92	4.87	4.96	4.95	5.00	4.95	**29.51**	**0.0023**
Learning Assessment and Evaluation	5.00	5.06	4.77	4.83	4.92	4.93	4.97	4.89	4.99	4.97	5.00	4.97	**29.65**	**0.0030**
Total	**24.80**	**24.80**	**23.68**	**23.69**	**24.18**	**24.19**	**23.99**	**23.99**	**24.39**	**24.39**	**24.37**	**24.38**	**145.41**	**0.0236**

Degrees of freedom = 20
Critical value at .05 = 31.41

It could be gleaned from the data that thecomputed chi-square value of 0.0236 is less than thecritical value of 31.41 at a 5 percent level of significancewith degrees of freedom equal to 20. The statisticaldecision is to accept the null hypothesis of no relationship.between the job position in the industry of the respondents and the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology, and strategies, and learning assessment and evaluation. This shows that the job position in the industry of therespondents is independent of the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessment and evaluation.

Table 16
Significant Relationship between length of service rendered in the industry and instructional proficiency

Indicators	20 - 24		15 -19		10 - 14		5 – 9		Less than 5 years		Total	χ^2
	O	E	O	E	O	E	O	E	O	E		
Classroom Management	4.74	4.72	4.80	4.83	4.72	4.71	4.81	4.78	4.79	4.82	**23.86**	**0.0006**
Student Engagement	4.59	4.65	4.84	4.76	4.62	4.64	4.69	4.71	4.77	4.75	**23.51**	**0.0025**
Subject Matter Expertise	4.89	4.85	4.92	4.96	4.82	4.84	4.93	4.91	4.95	4.95	**24.51**	**0.0007**
Teaching Methodology Strategies	4.82	4.84	4.95	4.95	4.86	4.83	4.88	4.90	4.95	4.94	**24.46**	**0.0011**
Learning Assessment and Evaluation	4.92	4.89	4.99	5.00	4.88	4.88	4.92	4.94	4.99	4.99	**24.70**	**0.0004**
Total	**23.96**	**23.95**	**24.50**	**24.50**	**23.90**	**43.90**	**24.23**	**24.24**	**24.45**	**24.45**	**121.04**	**0.0053**

Degrees of Freedom = 16
Critical value at .05 = 26.30

The result of t h e significant relationship between t h e lengthof service rendered in the industry and the instructionalproficiency of business teachers in private HEIs is presented in Table 16. It could be gleaned from the data in Table 16 that the computed chi-square value of 0.0053 is less than thecritical value of 26.30 at a 5 percent level of significancewith degrees of freedom equal to 16. The statisticaldecision is to accept the null hypothesis of no relationshipbetween the length of service rendered in the industry of the respondents and the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessmentand evaluation This shows that the length of service rendered in the industry of the respondents is independent of the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology andstrategies, and learning assessment and evaluation. The result of the significant relationship between the highest educational attainment and instructional proficiency ofbusiness teachers in private HEIs is presented in Table 17. It could be gleaned from the data that the computed chi-square value of 0.0023 is less than the critical valueof 21.03 at a 5 percent level of significance with degreesof freedom equal to 12. The statistical decision is toaccept the null hypothesis of no relationship between the highest educational attainment of the respondents and the instructional proficiency of business teachers in private HEIs in terms of classroom management,

student engagement, subject matter expertise, teaching methodology andstrategies, and learning assessment and evaluation.

Table 17
Significant Relationship Between Highest Educational Attainment and instructional proficiency

Indicators	Doctoral Degree		With Doctoral units		Master's Degree		With Masteral Units		Total	χ^2
	O	E	O	E	O	E	O	E		
Classroom Management	4.91	4.88	4.81	4.80	4.74	4.77	4.90	4.90	**19.36**	**0.0004**
Student Engagement	4.79	4.81	4.69	4.74	4.72	4.71	4.90	4.84	**19.10**	**0.0012**
Subject Matter Expertise	4.97	4.98	4.94	4.91	4.88	4.88	5.00	5.02	**19.79**	**0.0002**
Teaching Methodology Strategies	4.97	4.97	4.87	4.89	4.88	4.86	5.00	5.00	**19.72**	**0.0000**
Learning Assessment and Evaluation	4.99	4.99	4.96	4.92	4.88	4.89	5.00	5.03	**19.83**	**0.0005**
Total	**24.63**	**24.63**	**24.27**	**24.26**	**24.10**	**24.11**	**24.80**	**24.79**	**97.80**	**0.0023**

Degrees of Freedom = 12
Critical value at .05 = 21.03

This shows that the highest educational attainment of the respondents is independent of the instructional proficiency of business teachers in private HEIs in terms of classroom management, student engagement, subject matter expertise, teaching methodology and strategies, and learning assessment and evaluation. The findings support the study conducted by Francisco (2020) found a significant relative contribution of the teacher's academic qualification, teachers' content knowledge, teachers' instructional quality, teachers' evaluation procedure, and teachers' job satisfaction to the academic performance of the participants.

Table 18
Summary of Significant Relationship

Indicators	Critical value	Computed Chi-square	Decision	Verbal Interpretation
Bachelors degree earned *vs* instructional proficiency	43.77	0.0709	Accept H_o	No relationship
Years of teaching experience *vs* instructional proficiency	26.30	0.0662	Accept H_o	No relationship
Job position in the industry *vs* instructional proficiency	31.41	0.0236	Accept H_o	No relationship
Length of service rendered in the industry vs instructional proficiency	26.30	0.0053	Accept H_o	No relationship
Highest educational attainment vs instructional proficiency	21.03	0.0023	Accept H_o	No relationship

In summary, Between BS degree earned, Teaching Experience, Job Position in the Industry, Length of Service rendered in the industry, and Highest educational attainment vs. Instructional Proficiency vs. instructional proficiency resulted in a critical value (43.77, 26.30, 31.41, 26.30, and 21.03), degrees of freedom (32, 26.30, 20, 16, and 12), the computed chi-square (0.0709, 0.0662, 0.0236, 0.0053, 0.0053, and 0.0023) tested at .05.

Sub Problem No. 5. What are the challenges encountered by business teachers in HEIs?

Table 19
Assessment of the Challenges Encountered

Indicators	Business Teachers		School Managers		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	
The formal education system lacks focus on developing creativity, innovation, and student mindset.	2.53	MiP	2.00	MiP	2.27	MiP	4
Lack of support in building relationships, networks, and social capital for teachers and students with entrepreneurial linings.	2.59	MiP	2.63	MoP	2.61	MoP	2
There is no funding support for students for start-up and procurement of products to help start the venture.	2.30	MiP	2.00	MiP	2.15	MiP	6
There is minimal support from the academe and industry to aid promising entrepreneurial undertaking to start and grow a business.	2.20	MiP	2.25	MiP	2.23	MiP	5
Availability of industry support for teacher's immersion	3.62	SP	3.50	SP	3.56	SP	1
There is no venue for students to go beyond merely formulating a business plan.	1.79	NAP	2.13	MiP	1.96	MiP	7
Lack of the knowledge to implement pedagogies prescribed in the syllabus.	1.53	NAP	1.75	NAP	1.64	NAP	9
Teachers lack the training to apply entrepreneurial pedagogies.	1.70	NAP	3.25	MoP	2.48	MiP	3
Faculty members lack the knowledge and skills to manage the business market's complexity and unpredictability.	1.34	NAP	1.88	MiP	1.61	NAP	10
The faculty lacks business skills and literacy.	1.14	NAP	1.75	NAP	1.45	NAP	11
The faculty lacks the management skills to improve planning, organizing, managing classroom activities, and better presentation of instructional materials.	1.59	NAP	1.75	NAP	1.67	NAP	8
Overall weighted mean	2.03	MiP	2.08	MiP	2.06	MiP	

Legend

Scale	Range	Interpretation
5	4.20 - 5.00	Very Serious Problem (VSP)
4	3.40 - 4.19	Serious Problem (SP)
3	2.60 - 3.39	Moderate Problem (MoP)
2	1.80 - 2.59	Minor Problem (MiP)
1	1.00 - 1.79	Not at all a problem (NAP)

The assessment of business teachers and school managers on the challenges encountered in the instructional proficiency of business teachers in private HEIs is stated in Table 19. As clearly indicated by the data, the business teachers and school managers generally assessed the indicators on the challenges encountered in the instructional proficiency of business teachers in private HEIs, “Availability of industry support for teacher's immersion” rated Encountered with a weighted mean of 3.56, as rank 1; “Lack of support in building relationships, networks, and social capital for teachers and students with entrepreneurial linings” rated Moderately Encountered with a weighted mean of 2.61 as rank 2; “Teachers lack the training to apply entrepreneurial pedagogies” rated Least Encountered with a weighted mean of 2.48, as rank 3; “ The formal education system lacks focus on developing creativity, innovation, and student mindset” rated Least Encountered with a weighted mean of 2.27, as rank 4; “There is minimal support from the academe and industry to aid promising entrepreneurial undertaking to start and grow a business” rated Least Encountered with a weighted mean of 2.23, as rank 5; “There is no funding support for students for start-up and procurement of products to help start the venture” rated Least Encountered with a weighted mean of 2.15, as rank 6;

“There is no venue for students to go beyond merely formulating a business plan” rated Least Encountered with a weighted mean of 1.96, as rank 7; “The faculty lacks the management skills to improve planning, organizing, managing classroom activities, and better presentation of instructional materials” rated Very Least Encountered with a weighted mean of 1.67, as rank 8; “Lack of the knowledge to implement pedagogies prescribed in the syllabus” rated very Least Encountered with a weighted mean of 1.64, as rank 9; “Faculty members lack the knowledge and skills to manage the business market's complexity and unpredictability” rated Very Least Encountered with a weighted mean of 1.61, as rank 10; and lastly, “The faculty lacks business skills and literacy” rated Very Least Encountered with a weighted mean of 1.45, as rank 11, respectively. Thus, yielded an overall weighted mean of 2.06 and was verbally interpreted as Minor Problem. This means that schools should better equip the business teacher through immersion programs and the lack of support in building relationships, networks, and social capital for teachers and students with entrepreneurial linings. The result justifies the study by Ajisafe, Bolarinwa, and Edeh (2015) revealed the issues in Business Education as the inadequacies in the curriculum content of business education, non-relevance of the course content, poor implementation of the curriculum, time allocation, current issues and debates, qualification and quality of teachers, and facilities. It was mentioned by Ferguson (2022), it is important that teacher must juggle curriculum and lesson planning. In conclusion, business education remains the foundation of human resource development which provides knowledge, skills, attitudes, and understanding needed to perform in the business world as a producer or consumer of economic goods and services that business offers.

Sub Problem No. 6. Based on the findings, what Teaching Capability Program may be proposed?

An intervention measure was developed to address the issues faced in business education. The intervention covers the Key Areas, Objectives, Strategies & Activities, Time Frame, Person Involved, Fund, and Success Indicators.

Table 20
Matrix of the Teaching Capability Program

KEY RESULT AREA	OBJECTIVE	STRATEGY	ACTIVITIES	PERSON IN CHARGE	FUNDS / BUDGET	TIME FRAME	SUCCESS INDICATORS
Student Engagement	Identify students who needs activities	Establish a supportive and inclusive classroom culture	Use icebreakers or warm-up activities Flipped Classroom	Faculty	P10,000	1 School Year (August – May)	90% of the students in the class participated in the activity
	Individual consultations for optimizing student engagement in the learning and development process.	Engage students in a discussion about their preferred learning modes.	Create a timetable for faculty consultation Academic advising sessions Mentoring programs Use Online	Program Chair Faculty	P10,000		100% of the students in the class made for a scheduled faculty consultation

KEY RESULT AREA	OBJECTIVE	STRATEGY	ACTIVITIES	PERSON IN CHARGE	FUNDS / BUDGET	TIME FRAME	SUCCESS INDICATORS
			communication platforms				
	Utilization of small group discussions, debates, role-plays, or online forums.	Select topics that are relevant, thought-provoking, and meaningful to students' lives. Choose subjects that allow for multiple perspectives and encourage critical thinking.	Fishbowl Discussion Think-pair-share (TPS)	Faculty	P10,000		90% of the students in the class participated in the discussion and role playing
Classroom Management	Prevention of behavior problems through enhanced planning, organization, and management of classroom activities, improved presentation of instructional material, and optimized teacher-student interaction, maximizing students' involvement and cooperation in learning.	Encourage students to share any challenges or barriers they face in their learning journey. Discuss specific approaches, techniques, or resources that align with their preferred learning modes.	Discuss Challenges and Barriers Personalized Learning Strategies	Faculty	P20,000	1 School Year (August – May)	90% of the students have been prevented through classroom activities
	Preparation for teaching encompassing a range of techniques, including a counseling approach for problem understanding and mutual problem-solving, as well as behavior modification and the practice of ignoring inappropriate behavior while reinforcing appropriate	Encourage students to reflect on their own behavior, identify areas for improvement, and set goals for behavior modification. Acknowledge and reward students when they exhibit desired behaviors, such as active participation, respectful communication, or following instructions. Actively monitor	Monitor and observe Teach Self-Regulation Skills	Faculty	P20,000		Achieved 100% preparation of teaching techniques

KEY RESULT AREA	OBJECTIVE	STRATEGY	ACTIVITIES	PERSON IN CHARGE	FUNDS / BUDGET	TIME FRAME	SUCCESS INDICATORS
	behavior.	and observe students' behavior to identify instances of appropriate and inappropriate behavior.					
	Announcement and enforcement of school rules, classroom rules, procedures, and consequences to foster positive outcomes.	Organize the presentation of the rules, procedures, and consequences in a structured and logical manner. Explain the rationale behind each rule, procedure, or consequence.Demonstrate how to follow the rules, adhere to the procedures, and handle consequences calmly and respectfully.	Rule Presentation and Discussion Model Behavior Rule Collage	Faculty	P20,000		100% enforcement of school classroom rules and procedures
Teaching Methodology & Strategies	Provision of an avenue for students to extend their efforts beyond the formulation of a business plan.	Conduct or join a business idea competition	Business plan development	Faculty	P20,000	1 School Year (August – May)	Achieved 90% of students' formulation of business plan
	Timely and clear communication by business teachers to students, parents, and superiors regarding learners' progress.	Establish Communication Channels Prepare a progress report for individual learners	Student Progress Report	Faculty	P20,000		100% timely communication to parents and superiors regarding learners
	Enhancement of business problem-solving skills and analysis for the development of decision-making.	Utilized Problem-Based Learning	Give students a Real-World Case Studies Simulations and Role-Playing Exercises Group Projects and Collaboration	Faculty	P20,000		90% of business problem solving skills are enhanced
Subject Matter Expertise	Facilitation of student engagement	Assign activities involving	Internships or Work-Based Learning	VPAA Dean	P1,000,000	1 School Year	90% of the students in the class

KEY RESULT AREA	OBJECTIVE	STRATEGY	ACTIVITIES	PERSON IN CHARGE	FUNDS / BUDGET	TIME FRAME	SUCCESS INDICATORS
	in solving meaningful, real-life, complex problems.	relevant, meaningful, and real-life application	Cross-Curricular Projects Field Studies and Site Visits Authentic Assessments	Program Head Faculty		(August – May)	participate in cross-curricular projects, authentic assessments, field studies and site visits
	Reinforcement of essential concepts and assistance in bridging the knowing/learning gap for students.	Conduct activities involving unlocking difficulties such as defining terms and concepts, relation to other fields, identifying prior knowledge	Concept Mapping Conceptualize through Examples and Analogies	Faculty	P100,000		Conducted 100% on activities unlocking difficulties
	Utilization of subject knowledge to enhance the organization and effective utilization of content knowledge for student understanding	Design activities or exercises that gradually scaffold students' understanding	Scaffolded Activities	Faculty	P100,000		Utilized 100% of the subject knowledge
Learning Assessment & Evaluation	Differentiation of instruction and assessment based on student learning needs	Review the teaching, and learning activities to ensure that it is aligned with the assessment and learning objectives	Horizontal and Vertical Alignment of Learning Outcomes	Dean Program Chair Faculty	P1,000,000	1 School Year (August – May)	Instructional assessment based on student learning skills have been 100% differentiated
	Integration of a pre-test and post-test that effectively assesses a learner's relative competency within a core/business subject, aiming to determine whether learners meet the school's requirements.	Conduct mapping of pre-test and post-test given on core/business subjects if it measures learners' competency	Develop pre-test and post-test activity	Faculty	P100,000		100% integration of pre-test and post-test to assess learner's competency
	Engagement of students with various business-related organizations to apply skills,	Coordinate internships or work placements with the selected organizations.	Internships or Work-Based Learning Immersion Program	VPAA Dean Program Head	P1,000,000		100% of engagement of students on various business-related

KEY RESULT AREA	OBJECTIVE	STRATEGY	ACTIVITIES	PERSON IN CHARGE	FUNDS / BUDGET	TIME FRAME	SUCCESS INDICATORS
	subject knowledge, and foster relationships with other students.	Reach out to the identified organizations / industries and establish partnerships		Faculty			organization to apply skills

DISCUSSION

1. On the business teachers' profile with industry experience and academic experience

   The business teachers with industry experience revealed that they were previously connected to Retail Trading (25.53%) and Real Estate as they had been in the industry for 10-14 years (31.91%) and mostly occupying Managerial positions (59.57%) with earned BS Banking &Finance and Marketing Management (25.53%) and Accountancy (18.08%) graduates. More than half of the business teacherswith Master's Degrees (59.57); and have been teaching for 5-9 years (40.42%). Meanwhile, for business teachers with Academic Experience: Highest Educational, more than half graduated Master's Degree (59.57%); Years of Teaching revealed 5-9 years (40.42%) and less than 5 years (35.11%); and graduated their baccalaureate program in Banking & Finance and Marketing Management (25.53%).
2. On the Instructional Proficiency of Business Teachers in Classroom Management, Student Engagement, Subject Matter Expertise, Teaching Methodology, and Strategies, and Learning Assessment and Evaluation

   The instructional proficiency of business teachers in Subject Matter Expertise, Learning Assessment & Evaluation, Teaching methodologies & strategies, Classroom Management,and Student Engagement were rated as Highly Competent,with a grand mean of 4.76.
3. On the significant comparison

   The computed F value of 57.6308 with 2 and 12 degrees of freedom is greater than the critical value of 3.89 at a 0.05 level of significance. Thus, the statistical decision was to reject the null hypothesis and verbally interpretedit as significant.
4. On the significant relationship between the profile and the instructional proficiency of business teachers

   In summary, Between BS degree earned, Teaching Experience, Job Position in the Industry, Length of Service rendered in the industry, and Highest educational attainment vs. instructional proficiency resulted in a critical value (43.77, 26.30, 31.41, 26.30, and 21.03), degrees of freedom (32, 26.30, 20, 16, and 12), the computed chi-square (0.0709, 0.0662, 0.0236, 0.0053, 0.0053, and 0.0023) tested at .05. The statistical decision is to accept the null hypothesis of No Relationship between the profiles and the instructional proficiency of business teachers.

5. On the challenges encountered by business teachers in HEIs
   The prevalent challenges faced by the business teachersof HEIs revealed that the availability of industry support for teacher immersion and the lack of support in building relationships, networks (Encountered), and social capital for teachers and students (Moderately Encountered) as supported by mean values of 3.56 and 2.61, respectively withan overall value of 2.06, described as Least Encountered.

Conclusions

Based on the findings of the study, the conclusions were derived:

1. Adaptation of the proposed Teaching Capability Program.
2. Business teachers excel in their instructional proficiency.
3. The school managers-students and teachers-students do not share the same assessments.
4. Concerns met are found to be minimal.
5. The proposed intervention measure was developed to address the continuity and sustainability of teachers' proficiency.

Recommendations

1. Adapt the proposed Teaching Capability Program.
2. School managers may consider the strategies presented in the output of the study.
3. Conduct an immersion program for business teachers to keep them updated on the dynamics of the environment. This could be done by establishing strong partnerships with the industry for teachers' immersion programs.
4. The proposed output can be regularly subjected to review and improvement. Apply and retool it to other schools.
5. The issues slightly encountered should be addressed as follows:
   5.1. Availability of industry support for teacher's immersion. Establish partnerships or collaborations with various industries.
   5.2 Lack of support in building relationships, networks, and social capital for teachers and students with entrepreneurial linings. Create a platform or community where teachers and students with entrepreneurial interests can come together, share ideas, and collaborate. This could be an online forum, a social media group, or a dedicated physical space within the school.
   5.3 Teachers lack the training to apply entrepreneurial pedagogies. Organize workshops, seminars, or training sessions specifically focused on entrepreneurial pedagogies. These programs should provide teachers with an overview of entrepreneurship education, examples of best practices, and practical strategies for incorporating entrepreneurial elements into their teaching.
6. Further study may be conducted in different settings but similar variables to validate the result of the study.

Compliance with Ethical Standards

This is a declaration by the author/s in his/their own words and in paragraph form which includes compliance with obtaining informed consent, the respondents' freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents' well-being was safeguarded, no conflict of interest exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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INTERDISCIPLINARY CONTEXTUALIZATION IN THE DEVELOPMENT OF INSTRUCTIONAL MATERIAL IN GRADE 7 MATHEMATICS

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ABSTRACT

This developmental research aimed to create interdisciplinary contextualized instructional material in mathematics for Grade 7 students. The progress was based on the Analyze, Design, Develop, Implement, and Evaluate (ADDIE) Model. The analyze, design, and develop stages were done with the data gathered from observations and interviews of two Grade 7 mathematics teachers, and two department heads from two public schools in Iloilo. The participants suggested to develop an activity book for fourth quarter topics that focused on statistics concepts. For the implementation stage, an activity book was pilot tested in one Grade 7 section composed of 50 students. The evaluation stage involved expert's rating of the material's acceptability and the students' satisfaction. Mean and standard deviation were used in the analysis. The results showed that the developed material was highly acceptable, and the students' satisfaction was also highly satisfied. The activity book was clearly an appropriate material for interdisciplinary contextualization in the classroom. Experimental studies may be done in order to ascertain the effectiveness of the developed material.

Keywords: *Interdisciplinary Contextualization, ADDIE Model, Activity Book, Acceptability, Satisfaction*

INTRODUCTION

The belief was inculcated in everyone's mind that Mathematics becomes harder as time goes by (Thompson, 1994) which turn into notion that affects and limits the

students' mathematical performance. It creates a mental barrier that significantly impacts individual's performance and attitude towards the subject. Heckman & Weissglass (1994) believed that Mathematics will be learned by more students if: (1) taught with other subjects in a real-world context, (2) practical learning apprenticeships are developed, and (3) educators articulate and challenge their own beliefs and values about Mathematics, learning, and teaching. This suggests that teachers should use available resources in their locality and within the context of the students so that they could relate and appreciate the real context of Mathematics. This supports the study of Barrido (2015) that the student learns best when he acts on objects and events within his environment and in the process, gains understanding and derives meaning of those objects and events. Also, Akande (1985) claims that learning can occur through one's interaction with one's environment which refers to facilities that are available to facilitate students learning outcome.

The DOST-SEI and MATHTED, Inc. (2011a) expounded that the goal of Mathematics education in the Philippines is mathematical empowerment. The goal encompasses skills and one of those skills is making mathematical connections. They also promote Interdisciplinary Contextualization (ICon) which defined as connecting/linking concepts/skills within learning areas (e.g., Math or Science) and across learning areas (e.g. Math and Science and Others). In fact, many universities are making campus wide efforts to teach interdisciplinary courses that often adopt contextual learning as a way to integrate course content (Curry, et. al., 2012). Interdisciplinary contextualization is connecting and reinforcing the subject matter rather separate and unrelated (Chernus & Fowler cited by Tan, 2016). This allows instructors and students to make broad and easy connections among disciplines, even those with distant epistemologies (Nikitina, 2002) and it achieves broad external connections between distant disciplinary shores (Nikitina and Mansilla, 2003). Nikitina (2002) identified that uncovering the difference in the underlying assumptions of different disciplines helps the instructor and the student see different systems of knowledge as complementary or connected as ways of making meaning of the world around us. Interdisciplinary contextualization strengthens learning by providing students with a more comprehensive understanding of the subject matter and preparing them for success in a rapidly changing world.

Aramide and Bolarinwe, cited by Adipo (2015), opine those instructional materials have the potential for enhancing students learning. The use of instructional materials in teaching and learning of Mathematics makes students to learn more and retain better what they have been taught and it also promotes and sustains students' interest (Adebanjo as cited in Adebule and Ayoola, 2015). These serve as support system of the teacher in imparting the lesson and aid in cultivating the teaching and learning process in mathematics.

Without seeing the practical applications of math, students might find it abstract and irrelevant, which can diminish their interest and engagement. This gap in teaching and learning mathematics pushes the researcher to conduct this research study. The researcher aims to develop an instructional material that provide a richer, more engaging learning experience for students. In the context of grade 7 mathematics, interdisciplinary

contextualization can help students see the relevance of math in different areas of their lives and academic pursuits.

Research Questions

This study aims to develop instructional material in Mathematics that integrate interdisciplinary contextualization. Specifically, it will seek to answer the following:

1. What are the features of an interdisciplinary contextualized instructional material in Mathematics?
2. What is the level of acceptability of interdisciplinary contextualized instructional material in terms of:
    a. physical aspects
    b. objectives
    c. learning activities
    d. evaluation procedure; and
    e. integration of interdisciplinary contextualization.
3. What is the students' level of satisfaction of the Math 7 interdisciplinary contextualized instructional material in general in terms of:
    a. physical aspects
    b. pedagogical uses
    c. evaluation procedure; and
    d. relevance to the real-world context.

METHODOLOGY

This study employed a Type 1 developmental research. This category typically involves situations in which the product development process used in a particular situation is described and analyzed and the final product is evaluated (Richey, Klein, and Nelson, 2015). The progress was based on the Analyze, Design, Develop, Implement, and Evaluate (ADDIE) Model.

This research was composed of two intact classes of Grade 7 students from two schools in Iloilo of School Year 2017-2018. The two schools were chosen purposively through the qualification of having a large number of the student population. Two grade 7 Mathematics teachers and two head Mathematics teachers from these schools were also included as participants of this study. Moreover, in evaluation phase, six experts were included in which two experts for each field of expertise (Grade 7 Mathematics, production of instructional materials, and interdisciplinary contextualization) and 1 intact class to each school.

The data gathered from the thorough interviews with the teachers and objective classroom observations were the bases in developing the instructional material.

Thematic analysis was used for the qualitative data. Means and standard deviations were used to analyze quantitative data.

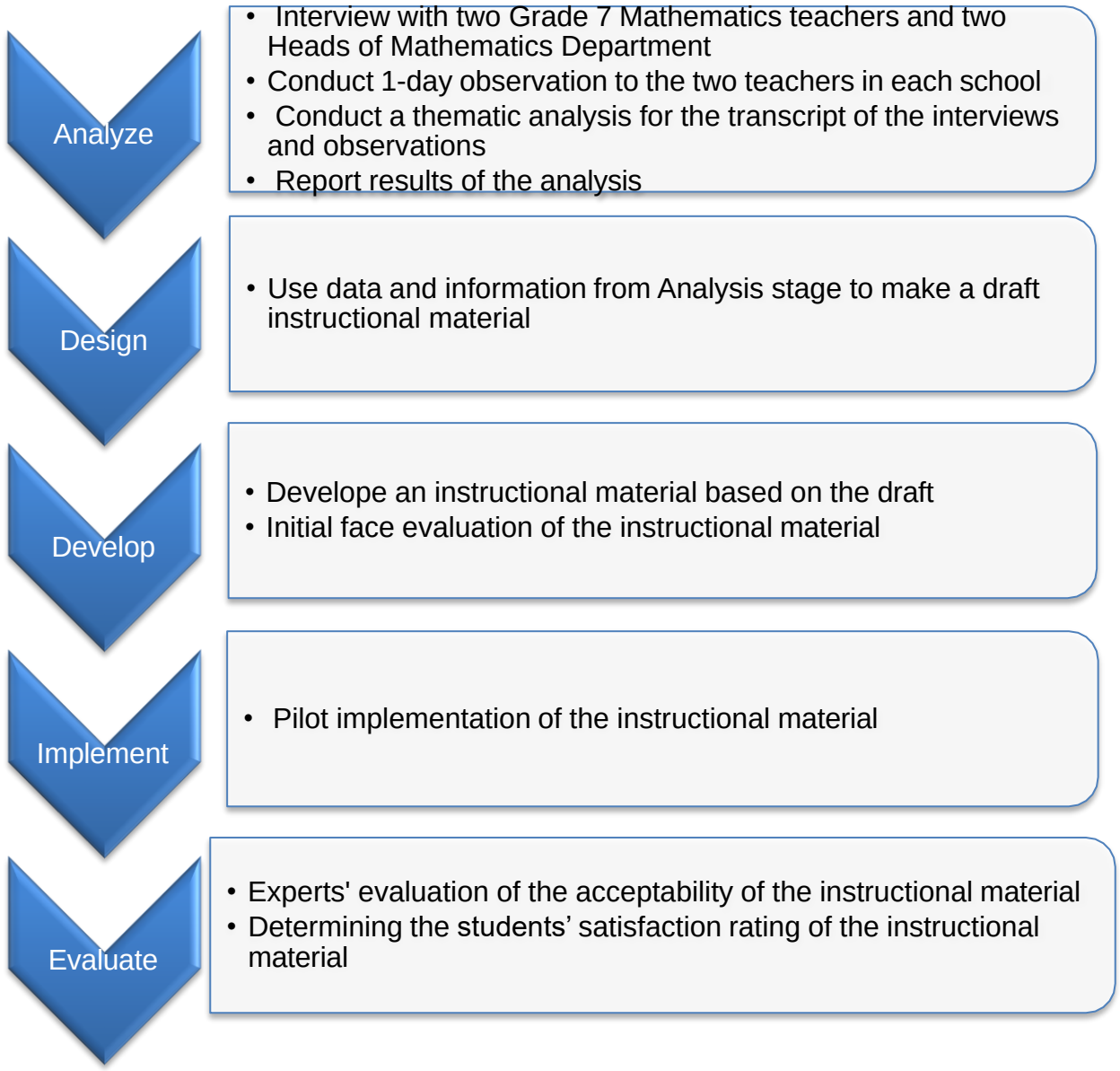


Figure 1. The research procedure

RESULTS

Table 1 summarizes the features in developing instructional material implemented in interdisciplinary contextualized mathematics.

Table 1
Features in Developing Instructional Material Implemented in Interdisciplinary Contextualized Mathematics

Features	Descriptions	Sources of Data	Sample Coded Extracts
Students' Common Environment/Status	Slum areas and poverty status	Interview and Observation	". . .*ara gid sila na ya iban ya* poverty *ang iban gani ya* below poverty *gid* in terms of socio-economic status."
Classroom Management	Give students a collaborative learning process	Interview and Observation	"So from time to time *gina* group *ko sila* or *gina pares-pares*"
Student's Learning Tactics	Peer tutoring	Interview and Observation	"So *makita mo man kis-a nga ga* peer tutoring *sila duwa sang* seatmate *niya*."
Instructional material needed in implementation of interdisciplinary contextualization	Activity book	Interview	"It must be associated with the pictures that are connected to the problems."

Table 2 shows the ratings of the activity book in general and in terms of physical aspects, objectives, learning activities, evaluation procedure, and integration of the interdisciplinary contextualization.

Table 2
Overall Acceptability Rating of the Interdisciplinary Contextualized Activity Book

	N	*SD*	*M*	*Description*
Overall Rating		0.23	3.44	*Highly Acceptable*
Physical Aspects	6	0.21	3.40	*Highly Acceptable*
Objectives	6	0.33	3.60	*Highly Acceptable*
Learning Activities	6	0.28	3.42	*Fairly Acceptable*
Evaluation Procedure	6	0.32	3.33	*Highly Acceptable*
Integration of Interdisciplinary Contextualization	6	0.33	3.45	*Highly Acceptable*

Note: Description is based on the following scale: 3.26-4.00 (Highly Acceptable), 1.76-3.25 (Fairly Acceptable), 1.00-1.75 (Unacceptable)

Table 3 summarizes the ratings obtained by the interdisciplinary contextualized activity book in statistics in physical aspects, pedagogical uses, evaluation procedure, relevance to the real-world context. The overall mean (*M* = 3.33, *SD* = 0.39).

Table 3
Overall Students' Satisfaction Rating of the Interdisciplinary Contextualized Activity Book

	N	*SD*	*M*	*Description*
Overall Rating		0.39	3.33	*Highly Satisfactory*
Physical Aspects	50	0.38	3.38	*Highly Satisfactory*
Pedagogical Uses	50	0.36	3.36	*Highly Satisfactory*
Evaluation Procedure	50	0.45	3.26	*Highly Satisfactory*
Relevance to the Real-World Context	50	0.46	3.31	*Highly Satisfactory*

Note: Description is based on the following scale: 3.26-4.00 (Highly Satisfactory), 1.76-3.25 (Fairly Satisfactory), 1.00-1.75 (Unsatisfactory)

DISCUSSION

After analyzing the data gathered from the interviews and observations, the researcher came into a conclusion to worked on a homework type of activity book that more on pictures wherein connected to the activity and with step-by-step process so that the students could answer on their own. This serves as remedy for the untackled topics for the fourth quarter.

The overall mean (*M* = 4.69, *SD* = 0.22) shows that the interdisciplinary contextualized activity book was “highly acceptable.” This means that the interdisciplinary contextualized activity book has highly met the experts’ expectations.

The overall mean (*M* = 3.33, *SD* = 0.39) means that the interdisciplinary contextualized activity book in selected topics in statistics was “highly satisfactory.” It means that the interdisciplinary contextualized activity book in selected topics in Statistics had highly met the students’ expectations.

With this, even the developed activity book is homework type and the topics involved have not yet been discussed but then the students were able to answer the activities because of the presence of different disciplines and the involvement of authenticity which they are experiencing.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. Activity book is certainly one of the means and highly needed in implementing interdisciplinary contextualized mathematics 7.
   The interdisciplinary contextualized activity book in statistics consists of the basic features such as objectives, summary of the important terms and concepts in the lesson, learning activities and iconnect.
2. The interdisciplinary contextualized activity book in statistics was acceptable in terms of physical aspects, objectives, learning activities, evaluation procedure, and integration of interdisciplinary contextualization as reflected in the evaluation by the experts.
3. The interdisciplinary contextualized activity book in statistics addressed the need of the students to have activities that aid to cope with the last topics of the school year which is about statistics that cannot be covered anymore due to insufficient time. Moreover, the students were satisfied in terms of physical aspects, pedagogical uses, evaluation procedure, and relevance to the real-world context.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are suggested:

1. The LRMDS may consider interdisciplinary contextualized resource materials such as activity book.
2. IMCS may promote interdisciplinary contextualization to researches not only in the field of Mathematics but also to other subject areas.
3. School heads, policy-makers and curriculum designers may consider looking into the development of an integrated curriculum or integrated lessons.
4. The teachers, most especially the Mathematics teachers because most of the students found this subject difficult, may include other disciplines and real life contexts based on students' experiences in teaching.
5. To the students, especially those who are constructivist type, may be given an opportunity to learn and appreciate mathematical concepts through such material.
6. A research to compare the effectiveness of interdisciplinary contextualization not only in mathematics but also to the other subject area may be undertaken. A research study that may also use and improve the research instruments, especially the experts' evaluation form and students' satisfaction survey form, and test its reliability on a larger number of samples. Other researchers are encouraged to conduct similar investigations or even enhance this study not only in mathematics but also in other disciplines in which the experts will observe the actual implementation of the activity book.

Compliance with Ethical Standards

A letter and consent form for the participants were provided. The consent form contains the assurance of their rights that will not be violated and will take their identity privately. Also, they were informed that their participation in this study was voluntary and will not cause them any harm. The results were used solely for research purposes only, ensuring integrity and ethical conduct throughout the study.

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INVESTIGATING THE RELATIONSHIP BETWEEN RESILIENCE AND ACADEMIC PERFORMANCE IN FILIPINO ADOLESCENTS: A QUANTITATIVE ANALYSIS

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ABSTRACT

Resilient adolescents often demonstrate adaptive behaviors, such as effective coping mechanisms, strong social support networks, and a positive self-concept, contributing to their ability to navigate challenges and succeed academically (Masten, 2014). These adaptive behaviors allow resilient youth to regulate emotions, focus on goals, and persevere despite setbacks (Luthar & Cicchetti, 2000). This adaptability is crucial for navigating the pressures and demands of adolescence, ultimately leading to greater academic success (Rutter, 1987). Through quantitative analysis, the research delves into the connection between resilience and academic performance in Filipino adolescents. Therefore, this study examines how resilience is connected to academic performance in Filipino adolescents through a quantitative method. In educational settings, it is essential to have resilience, which is the capacity to adjust and recover from obstacles, to succeed. The study explores resilience's effect on Filipino teenagers' academic performance. Furthermore, the research utilizes quantitative techniques to examine data gathered from Filipino teenagers, most likely through surveys or questionnaires assessing resilience and academic achievement. Thus, the examination will establish the magnitude and orientation of the relationship between these two variables.

Keywords: *resilience, academic performance, Filipino adolescents, quantitative analysis*

INTRODUCTION

Some factors contribute to academic success, and understanding them is essential. In this period of technological advancement, resilience has become an important psychological construct. Resilience means the ability to adjust to adversity constructively by an individual. In this context, Filipino teenagers confront different challenges, including socioeconomic disparities, cultural expectations, and academic pressures. Academic performance fluctuation among students in various community settings is a prevalent issue for students, administrators, and school counselors (Delestre, 2016). Several studies have shown resilience is important in determining students' performance (Mirza & Arif, 2018). This study explores the relationship between resilience and academic achievement to provide useful insights for educators, parents, and policymakers.

The relationship between resilience and academic achievement among Filipino adolescents will be examined quantitatively. In this study, the researchers will assess resilience factors such as coping strategies, self-efficacy, and social support. The researchers will also identify patterns that influence their performance in school. Additionally, the study will explore potential moderating variables, such as gender and school environment.

The results of this research help enhance understanding of the factors that impact academic performance in Filipino teenagers. This study can guide the creation of programs that enhance resilience in Filipino youth, to improve their academic performance.

Due to the pandemic, Filipino teenagers face various emotional challenges due to exposure to social media platforms and the changing socio-economic environment. Filipino adolescents say that some students use grit to deal with adversities, while others lack the necessary skills to overcome challenges.

Adolescents face academic difficulties, societal expectations, and self-discovery during this important developmental stage. Teenagers in the Philippines, like all others, encounter particular challenges that can influence how well they perform in school. This research explores how resilience may impact the academic performance of Filipino teenagers.

In the Philippines, education is given top priority; however, students face numerous challenges and grapple with various hurdles. Socioeconomic factors such as poverty and a lack of resources may impede quality education access and lead to a challenging learning atmosphere. Furthermore, societal values that prioritize group unity and expectations from parents can contribute to the academic pressure to excel.

Resilience, which is the capacity of an individual to adjust and bounce back from challenges, is crucial for achieving success in academics, as stated by Wu in 2013. Various factors, such as genetics, epigenetics, development, psychosocial influences, and neurochemical elements, play a role in influencing it (Wu, 2013). Factors that provide protection and support, like self-regulation abilities, positive parenting, community

support, and quality education, are essential for developing resilience (Masten, 2009; Cutuli, 2018). Furthermore, resilience is crucial for job longevity in teaching and can be improved by evaluating challenges, understanding how to cope with them, and finding effective solutions (Bobek, 2002).

It is also the capacity to adjust to and recover from challenges. In an academic setting, resilient adolescents can handle stress, conquer obstacles, and stay motivated even when faced with adversity. Research has demonstrated a beneficial connection between resilience and academic success among different cultural groups.

Research indicates that resilience plays a key role in academic achievement, though there is limited information on this matter, especially among Filipino adolescents. Understanding this relationship within the Philippine setting is crucial. Family dynamics, cultural values, and educational systems are resilience factors that have demonstrated their influence on academic success.

Studying the connection between resilience and academic achievement in Filipino adolescents can offer important understanding. We can create specialized interventions and support systems by pinpointing the particular elements of resilience that play a role in achieving academic success. This can help Filipino teenagers overcome academic obstacles, creating a stronger and more successful student community.

Research Questions

The primary objective of this study is to investigate the relationship between resilience and academic achievement among Filipino teenagers. To achieve this objective, this study answered the following specific questions:

1. How do resilience levels differ between boy and girl Filipino adolescents, and how does this difference quantitatively impact their academic performance?
2. Is there a significant difference between Filipino adolescents with high resilience and those with low resilience levels?
3. Do Filipino adolescents with specific resilience factors exhibit significantly different academic performance levels compared to those without these factors?

METHODOLOGY

This research utilized a quantitative research methodology. Three hundred sixty Filipino adolescents from public and private schools, aged eleven to seventeen, were gathered as participants through an online platform with help from their class advisers. They filled out a validated survey instrument called the Student Resilience Survey based on CORC (SRS, 2016) and modified its format for this study. The survey includes a 40-question assessment with 10 subscales that gauge how students view their traits and the supportive elements in their surroundings. Self-esteem, empathy, problem-solving, goals and aspirations, family connection, school connection, community connection, autonomy

experience, meaningful participation in community activity, and peer support. A 5-point scale was used to rate each item (*1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always*). The participants were selected using a basic homogeneous random sampling technique based on the adolescents' age.

To measure the resilience and academic performance of the participants, resilience inventories were also supported by their average grades for the school year 2023–2024. The information was analyzed statistically to understand the connection between the variables. The basic information was obtained utilizing descriptives and frequencies, and the associations and impacts were analyzed using ANOVA, correlation, and linear regression techniques as well. Moreover, to calculate descriptive statistics, correlation analysis, analysis of variance, and t-tests, the SPSS 22 program is used.

RESULTS

Research Question #1:

How do resilience levels differ between boy and girl Filipino adolescents, and how does this difference quantitatively impact their academic performance?

In this study, the focus was on examining the relationship between resilience and academic achievement in Filipino adolescents. For the resilience factors in family connection, Table 1.1 displays the weighted mean scores, frequencies, and standard deviations differentiated by gender. The findings indicate that girls exhibit higher resilience scores in the family connection domain than boys. There is variability in the responses, with the highest responses in subscale 1 and the lowest in subscale 3. Overall, the data suggests that most items show a tendency toward more frequent "often" occurrences concerning the family connection factor across the entire sample.

Table 1.1: *Comparison of resilience factors between boys and girls in the family connection*

Gender	*Factors* **Family Connection**			
	At home, there is an adult who *is interested in my schoolwork*	At home, there is an adult who *believes that I will be a success*	At home, there is an adult who *wants me to do my best*	At home, there is an adult who *listens to me when I have something to say*
	Weighted Mean and Level of Frequency			
Boys N = 180	2.71 Sometimes	3.52 Often	3.76 Often	3.18 Sometimes
Girls N = 180	3.48 Sometimes	4.33 Often	4.48 Often	3.65 Sometimes
Total N=360	3.09 Sometimes	3.92 Often	4.12 Often	3.42 Often
Std. Deviation	1.239	1.024	.868	1.124

The data in Table 1.2 reveals that, in comparison to boys, girls tend to report a higher frequency of school connections. The overall pattern across all subscales shows a tendency towards more frequent occurrences of 'often' in the entire sample. Subscale 2 exhibits the highest frequency, while subscale 4 shows the least. These findings suggest that girls may perceive or mention these subcategories more frequently than boys, potentially influenced by the school context.

Table 1.2: *Comparison of resilience factors between boys and girls in school*

Gender	*Factors* **School Connection**			
	At school, there is an adult who *cares about me*	At school, there is an adult who *tells me when I do a good job*	At school, there is an adult who *listens to me when I have something to say*	At school, there is an adult who *believes that I will be a success*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.37 Sometimes	3.33 Sometimes	3.40 Often	3.46 subscale 3
Girls N = 180	4.28 Often	4.08 Often	3.92 Often	4.34 Often
Total N=360	3.83 Often	3.71 Often	3.66 Often	3.90 Often
Std. Deviation	1.053	1.054	1.022	1.009

connection

In examining community connection as a contributing factor, it is notable that Table 1.3 demonstrates significant gender discrepancies in the assessed subscales through frequencies, with consistently higher frequencies reported by girls across all items. The overall data indicates that “often” is the more commonly reported frequency across all subscales, suggesting that these experiences are prevalent among the population. Although there are slight variations in responses, indicating a considerable degree of consistency in how participants perceive or experience specific events, some subscales show more variability in the responses. Hence, this analysis underscores the importance of considering gender disparities, given the widespread occurrence of these situations in the community.

Table 1.3: *Comparison of resilience factors between boys and girls in the community connection*

Gender	*Factors* **Community Connection**			
	Away from school, there is an adult who *cares about me*	Away from school, there is an adult who *tells me when I do a good job*	Away from school, there is an adult who *believes that I will be a success*	Away from school, there is an adult who *I trust*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.29 Sometimes	3.09 Sometimes	3.42 Often	3.24 Sometimes
Girls N = 180	3.99 Often	3.89 Often	4.11 Often	3.96 Often
Total N=360	3.64 Often	3.49 Often	3.76 Often	3.60 Often
Std. Deviation	1.065	1.168	1.027	1.184

The findings in Table 1.4 demonstrate substantial gender-related differences in the factors linked to self-esteem, with girls indicating higher occurrences. The overall data shows in this table that the experiences measured are prevalent among the participants. The diversity in responses, especially for subscale 1, indicates the extensive array of individual experiences. These outcomes emphasize the importance of considering gender disparities and individual experiences when interpreting and utilizing this data in the future.

Table 1.4: *Comparison of resilience factors between boys and girls in self-esteem*

Gender	*Factors* **Self-esteem** *Are there students at your school who would*			
	Tell you you're their friend	*Ask you to join in when you are all alone*	*Tell your secrets*	*I can do most things if I try*
	Weighted Mean and Level of Frequency			
Male N = 180	3.49 Often	3.21 Sometimes	2.27 Sometimes	3.22 Sometimes
Female N = 180	4.52 Often	3.79 Often	3.14 Sometimes	3.86 Often
Total N=360	4.01 Often	3.50 Often	2.71 Sometimes	3.54 Often
Std. Deviation	2.885	1.220	1.393	1.016

The data presented in Table 1.5 reveals a significant gender gap in empathy. The participation of girls led to an increase in the number of subscales considered. The data overwhelmingly suggests that girls commonly reported experiencing the subscales, and the variability in responses ranged from minimal to very slight, indicating a reasonable level of consistency in how individuals perceive and respond to specific circumstances.

Table 1.5: *Comparison of resilience factors between boys and girls in empathy*

Gender	*Factors* **Empathy**			
	Choose you on their team at school	*Make you feel better if something is bothering you*	*I feel bad when someone gets their feelings hurt*	*I try to understand what other people feel*
	Mean and Level of Frequency			
Boys N = 180	3.00 Sometimes	3.27 Sometimes	3.42 Often	3.49 Often
Girls N = 180	3.56 Often	3.66 Often	4.18 Often	4.25 Often
Total N=360	3.28 Sometimes	3.46 Often	3.80 Often	3.87 Often
Std. Deviation	1.152	1.191	1.044	.969

The results presented in Table 1.6 highlight a significant gender gap in problem-solving factors, with a consistent increase reported by girls across all subscales. The collective data indicates that subscales 1 and 2 are commonly encountered, while the others are only sporadically reported. The responses vary widely, ranging from slight to high. Additionally, the high variability of responses in a broader range of human experiences underscores the need for strategies.

Table 1.6: *Comparison of resilience factors between boys and girls in problem-solving*

Gender	*Factors* **Problem-Solving**			
	I can work out my problems	*When I need help, I find someone to talk to*	*I know where to go for help when I have problems*	*I try to work out problems by talking to them*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.15 Sometimes	2.69 Sometimes	2.85 Sometimes	2.72 Sometimes
Girls N = 180	3.65 Often	3.65 Often	3.52 Often	3.41 Often
Total N=360	3.40 Often	3.17 Sometimes	3.19 Sometimes	3.06 Sometimes
Std. Deviation	1.097	1.294	1.319	1.292

In Table 1.7, a notable gender disparity in goals and aspirations is evident, as girls consistently indicate a higher frequency for each subscale. The collective data indicates that subscales 3 and 4 are generally perceived as “often,” while subscales 1 and 2 are reported as “sometimes.” The moderate variations in responses underscore a wide spectrum of individual experiences and gender differences.

Table 1.7: *Comparison of resilience factors between boys and girls in goals and aspirations*

Gender	*Factors* **Goals and Aspirations**			
	I do things at home that make a difference (i.e. make things better)	*I do things at school that make a difference (i.e. make things better)*	*I have goals and plans for the future*	*I think I will be successful when I grow up*
	Weighted Mean and Level of Frequency			
Boys N = 180	2.86 Sometimes	2.77 Sometimes	3.42 Often	3.31 Sometimes
Girls N =180	3.57 Often	3.56 Often	4.29 Often	4.27 Often
Total N=360	3.22 Sometimes	3.17 Sometimes	3.86 Often	3.79 Often
Std. Deviation	1.123	1.084	1.046	1.057

The analysis of the data presented in Table 1.8 indicates gender disparities in autonomy experience, with girls reporting higher levels on subscales 2 and 4 compared to boys. The collective data suggests that subscale 4 is commonly experienced “often,” while the other subscales are experienced “sometimes.” The considerable variance of experiences among the participants in responses to subscale 1 points to a wide range. Hence, these results underscore the importance of delving deeper into the data to examine distinctions between boys’ and girls’ experiences.

Table 1.8: *Comparison of resilience factors between boys and girls in autonomy experience*

Gender	*Factors* **Autonomy Experience**			
	I am a member of a club, sports team, church group, or other group	*I take lessons in music, art, and sports, or have a hobby*	*At school, I decide things like class activities or rules*	*There are many things that I do well*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.01 Sometimes	3.20 Sometimes	2.43 Sometimes	2.98 Sometimes
Girls N = 180	2.81 Sometimes	3.58 Often	3.12 Sometimes	3.87 Often
Total N=360	2.91 Sometimes	3.39 Sometimes	2.77 Sometimes	3.43 Often
Std. Deviation	2.146	1.208	1.263	1.042

The data presented in Table 9 indicates significant differences in the participation of girls and boys in community activities. It shows that girls consistently report higher frequencies for all subscales, indicating a notable gender gap. Subscales 1 and 3 are encountered “often,” while subscales 2 and 4 are encountered “sometimes,” demonstrating a range of experiences. Whilst, the results emphasize the relevance of considering gender-specific variations and diverse experiences in future applications of this data.

Table 1.9: *Comparison of resilience factors between boys and girls in meaningful participation in community activities*

Gender	*Factors* **Meaningful Participation in Community Activities** *Are there students at your school who would*			
	Explain the rules of a game if you don't understand them	*invite you to their home*	*Pick you for a partner*	*I help my family make decisions*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.36 Sometimes	2.86 Sometimes	3.23 Sometimes	2.83 Sometimes
Girls N = 180	4.09 Often	3.46 Often	3.68 Often	3.47 Often
Total N=360	3.73 Often	3.16 Sometimes	3.45 Often	3.15 Sometimes
Std. Deviation	1.092	1.288	1.203	1.118

The data analysis presented in Table 1.10 indicates significant gender disparities in peer support factors, with girls consistently reporting higher rates across all measures. The overall data in this table shows that most participants experience subscales 1, 2, and 4 "often," while subscale 3 is experienced "sometimes" by the majority. The variation in response rates suggests a wide range of personal experiences, and these findings underscore the importance of considering gender-specific characteristics and diverse experiences of the participants.

Table 10: *Comparison of resilience factors between boys and girls in peer support*

Gender	*Factors* **Peer Support** *Are there students at your school who would*			
	share things with you	*help you if you hurt yourself*	*I would miss you if you weren't at school*	*help you if other students are being mean to you*
	Weighted Mean and Level of Frequency			
Boys N = 180	3.46 Often	3.36 Sometimes	3.09 Sometimes	3.23 Sometimes
Girls N = 180	4.17 Often	3.79 Often	3.50 Often	3.72 Often
Total N=360	3.81 Often	3.57 Often	3.30 Sometimes	3.47 Often
Std. Deviation	.999	1.112	1.277	1.137

The data presented in Table 1.11 demonstrates that boys have a lower weighted average mean (3.13) compared to girls (3.82), indicating that, on average, girls are outperforming boys in this particular measure. The standard deviation results reveal that the boys' scores are more closely clustered around the mean, while the girls' scores are more widely spread. Although the higher mean for girls suggests better average performance, the higher standard deviation implies a wider range of performance among girls. This variability may indicate that while some girls achieve very high scores, others may score much lower, resulting in a greater disparity within the group.

On the other hand, the boys' scores are more consistent but lower on average. This could indicate a more uniform level of performance among boys, with fewer high and low extremes compared to the girls. Overall, while girls show higher average performance, the variability in their scores is also greater.

Table 1.11: *Summary of the comparison of resilience factors between boys and girls*

Group Statistics			
Resilience Factors	***Gender***	***Average Mean***	***Average Std. Deviation***
Home Connection	*Boys*	*3.29*	*0.823*
	Girls	*3.99*	*1.138*
School Connection	*Boys*	*3.39*	*0.832*
	Girls	*4.16*	*1.070*
Community Connection	*Boys*	*3.26*	*0.865*
	Girls	*3.99*	*1.208*
Self-Esteem	*Boys*	*3.05*	*0.949*
	Girls	*3.83*	*1.968*
Empathy	*Boys*	*3.30*	*0.865*
	Girls	*3.91*	*1.191*
Problem-Solving	*Boys*	*2.85*	*0.995*
	Girls	*3.56*	*1.372*
Goals and Aspiration	*Boys*	*3.09*	*0.877*
	Girls	*3.92*	*1.096*
Autonomy Experience	*Boys*	*2.91*	*1.012*
	Girls	*3.35*	*1.646*
Meaningful Participation in Community	*Boys*	*3.07*	*0.985*
	Girls	*3.68*	*1.267*
Peer Support	*Boys*	*3.29*	*0.932*
	Girls	*3.80*	*1.245*
Total	*Boys*	*3.13*	*0.911*
	Girls	*3.82*	*1.328*

The data presented in Table 1.12 shows that the average grade of 87.47 suggests that the overall performance of the students is quite high. The median grade of 88 and the relatively symmetrical distribution of grades around the median signify a balanced performance across the board. The range of 23 points, with the highest average grade reported being 97 and the lowest grade of 74, demonstrates a considerable spread in the grades achieved. The most common average grade level is 91, achieved by 9.2% of students, followed closely by a grade of 84 with 8.9%, and grades of 94 and 90, each with 6.9%. Conversely, the least common average grade is 97, achieved by only 0.6% of students, indicating relatively few students reach this high level of performance. Grades 74, 75, and 76 are rare, each achieved by only 0.3% of students.

The distribution of grades shows that most adolescents perform well, with a significant percentage achieving grades in the low to mid-90s. Few students excel with a grade of 97, while a small percentage of teenagers have grades lower than 76.

This study indicates that although academic performance is generally positive, there are chances for enhancement, especially for students with lower grades. Examining the elements that play a role in high and low achievements could help in creating approaches to assist all students in achieving their academic best.

Table 1.12: *Students' Academic Performance based on their average grade*

Students' Academic Performance based on their Average Grade Average Grade = 87.47 Median = 88 Highest Average = 97 Lowest Average = 74			
Average Grade (Most)	**Percentage**	**Average Grade (Least)**	**Percentage**
91	9.2%	**97**	0.6%
84	8.9%	**74**	0.3%
94	6.9%	**76**	0.3%
90	6.9%	**75**	0.3%
93	6.7%		

Research Question #2

Is there a significant difference between Filipino adolescents with high resilience and those with low resilience levels?

Table 2: *Mean comparison between high and low resilience levels results of T-Test*

Variables	F	Sig	t	df
Resilience Factors	14.039	.000	.069	358

Resilience is one factor influencing adolescents' well-being, or the specific measures used weren't sensitive enough to capture the nuances of resilience in a Filipino context. The findings reveal that there is no identifiable distinction between Filipino teenagers who have high resilience and those with low resilience levels. The degrees of freedom (358) and the very small t-value (.069) indicate that the means of the two groups are almost the same and the discrepancy is not statistically important. Therefore, Filipino adolescents' academic performance is inversely related to their resilience.

Research Question #3

Do Filipino adolescents with specific resilience factors exhibit significantly different academic performance levels compared to those without these factors?

Table 3: *Relationship of Academic Performance to Factors of Resilience*

Variables	df	F	Sig.	Interpretation	Decision to Ho
Academic Performance * Resilience	1	11.958	.001[b]	Significant	Reject the Ho and accept the H1

The data presented in Table 3 shows that resilience factors significantly impact Filipino adolescents' academic performance. An F-value of 11.958 is quite high, and a p-value of 0.001 indicates that the model accounts for a significant portion of the variance in educational achievement. Although, the level of significance means the importance of the flexibility factors. Even though the model is statistically significant, it explains only a diminutive part of the variance, suggesting that other factors not included in this model can also significantly affect academic performance.

DISCUSSION

Filipinos are known survivors of circumstances and strong fighters in desperate situations. Despite facing disappointments and tragedies, they emerge more determined to overcome the odds. Resilience is one of the most outstanding characteristics of Filipinos, who consistently exhibit a positive attitude and the belief that they can triumph over adversity. In this era of technology, Filipino adolescents still have the unwavering

conviction that they can overcome any challenges, such as school achievement. Hence, this study focuses on the relationship between resilience and the academic performance of Filipino adolescents.

The data presented in Table 1.1 indicates that girls tend to have a higher score on resilience in the home connection domains than boys. Research findings have proved that the level of family support that girls enjoy in their academic activities is at a higher level than that enjoyed by their male counterparts. This disparity is often exhibited in various aspects, including parent activity, encouragement, and resource provision in their involvement (Eccles, 1993). For example, mothers are, in most cases, more likely to engage daughters in academic discussions, study facility provision, and school function participation (Hill & Lynch, 1998). For instance, the fact that girls are associated with getting better grades than boys is a factor that explains the higher parental support accorded to girls.

In addition, cultural and societal orientations perpetuate the common myth that girls are more "academically-oriented" than boys, thereby subjecting them to higher investment in their academic success. For example, this can be manifested in terms of expanded opportunities for girls, such as the availability of extracurricular activities, tutoring, and college preparatory programs (Epstein, 1988). This tends to create more opportunities and support for girls, enhancing their academic growth and success.

While much progress has been made in promoting gender equality in education, data indicates that girls in some areas still receive more school support than boys (refer to Table 1.2). Studies have found that teachers tend to provide girls with more positive feedback, offer them more opportunities to participate in class, and hold higher expectations for their academic performance (Sadker & Sadker, 1994). This differential treatment may stem from unconscious biases and traditional gender roles that often associate academic success with femininity (Eccles, 1993). Therefore, it is only fair to say that such trends are not universal and significantly vary from one factor to another, whether it is socioeconomic background, school culture, or individual teacher practices. It is important to ensure a balanced and fair educational environment where all students, regardless of gender, receive the support they need to flourish academically (National Academies of Sciences, Engineering, and Medicine, 2019). In this respect, work to reduce unconscious bias in pedagogical activities and work on creating an inclusive learning environment will ensure that boys also get the attention and encouragement being offered to girls.

According to the data analysis from Table 1.3, girls stated they are more involved in the community than boys. The academic achievement of teenagers is significantly enhanced by the influence of their peers. Multiple studies have shown that children who spend time with classmates and peers who value education are more likely to be actively engaged, hardworking, and successful in school (Wentzel, 2002). Positive peer pressure can come in many different forms, such as encouraging study habits, providing assistance, or serving as a source of encouragement by setting a good example. Peer groups can also

be informational and knowledgeable resources, foster a sense of community, and increase academic self-efficacy (Wentzel & Asher, 1995).

Similarly to this, peers can play a positive or negative role in academia. Adolescents who associate with disengaged classmates or harbor pessimistic views about learning are at a higher risk of experiencing disengagement from school.

Some research indicates that girls tend to receive more social support from their peers at school than boys (Table 1.4). Among the reasons for attempting to explain this are societal expectations and gendered norms that have associated girls with emotionality and emotional expression. It has been established that girls offer more prosocial behaviors and practices, including supportive emotionality and building closer and more intimate friendships with peers, than boys. These close friends therefore offer a sense of belonging and security, and this relates to elevated well-being and academic performance.

However, it is important to note that this difference in social support does not imply that boys do not experience social support or that they are less capable of offering it. Differences that may be observed may emerge due to the different socialization practices and encouragements of boys and girls in ways of expressing emotions and seeking support (Goodwin, 2002). Schools have a crucial role in this respect in creating supportive and socially inclusive environments for all students, regardless of gender, by promoting positive peer relationships and emotional literacy and providing diverse opportunities for social interaction and connection.

Data analysis shows a notable gender gap in this specific factor of empathy (Table 1.5). Girls' participation increased the number of subscales considered. Moreover, research has shown that girls are more empathetic than boys, an observation linked to a blend of biological and social elements. Studies have revealed that girls are more likely than boys to express and recognize emotions, especially those associated with sadness and distress, from a very young age (Eisenberg & Lennon, 1983). This may result from hormonal factors, with females having high levels of *oxytocin*, a hormone proven to play a role in social bonding and empathy (Taylor et al., 2000).

Societal expectations and gender role stereotypes also strongly influence empathetic development. Girls receive more encouragement to be open about their emotions and to be nurturing and caring, whereas boys receive stronger socialization practices that encourage them to be emotion-suppressing in favor of assertiveness and independence (Eisenberg et al., 2007). Differences in such socialization factors, therefore, affect how empathy is expressed and understood, which could be an explanation for this observed gender gap. To acknowledge the differences between males and females, it also has to be stated that empathy is a complex product that a whole host of other factors can influence.

Studies have found that girls tend to do well in verbal fluency, reading comprehension, and social problem-solving (Table 1.6), while boys may perform better in visual-spatial

reasoning, mathematical skills, and problem-solving involving logical thinking (Hyde, 2005). However, the differences tend to be rather subtle and brought up by cultural expectations and opportunities.

It's important to consider that within each gender group, there is a broad range of individual variations. Socioeconomic background, educational opportunities, and parental support, among many other factors, are known to be significant moderators of the development of problem-solving abilities. Thus, both girls and boys should be provided with a diverse set of learning experiences while fostering a growth mindset where perceived gender gaps are narrowed for the benefit of individual potential (Dweck, 2006).

The concept that girls are inherently more motivated and interested in studies compared to boys (Table 1.7) is a complex one since this is often based on societal expectations and stereotypes. It has been demonstrated that girls tend to do better academically during primary and secondary school, primarily in language arts and social studies, when compared with boys (Hyde, 2005). There is no guarantee, however, that such differences imply a more intense level of inherent motivation. Parental support, teacher expectations, and social influences can significantly affect a child's level of interest and performance in school, regardless of gender.

A further piece of research indicates that boys can be more prone to risk-taking behaviors, which in rare cases might cause a decrease in their academic achievements. But this doesn't exactly make them less motivated or uninterested in learning. It's right to stress that both genders can have quite a wide scope of motivations and interests, which is why a supportive and inclusive learning environment is likely to help all students succeed and reach their full potential.

Challenges often noted for boys, who may mask their underestimation of abilities with lower self-perceptions of academic performance relative to girls (Marsh, 1990), are plausible through a multitude of explanatory routes concerning societal demands on masculinity, peer influences, and the perceived importance of traditionally masculine characteristics of physical and verbal assertiveness. This might mean that boys, also, are encouraged not to undertake "feminine" activities that require much cognitive stimulation.

Solving this problem demands a rather comprehensive approach, including the creation of an all-inclusive and congenial learning atmosphere where boys feel free to express their talents and interests. Teachers and parents can be of immense help in developing a growth mindset concerning boys so that they are allowed to expose their capabilities and encouraged to seek help in areas where they require assistance. In addition, encouraging collaboration and teamwork within academic circles would help negate the stereotype because boys will appreciate teamwork.

Besides, many times, the girls demonstrate a greater degree of motivation and involvement in community programs and initiatives compared to their boys counterparts

(Table 1.9). This can be attributed to various factors, such as greater expectations from society to be nurturing, caring, and empathetic. Perhaps a girl is more likely to identify herself with social causes and hence more duty-bound to effect a positive change in the community. Moreover, in line with research, girls tend to develop more advanced social skills and communication abilities, which can contribute to their comfort and confidence in engaging in group activities and community-based initiatives.

Additionally, girls often have unique challenges and experiences that make them want to advocate for social change. For example, girls may be more aware of gender equality, social justice, and environmental sustainability issues. Such heightened awareness can translate into a strong desire to make a difference in the world. Involving girls in community programs and initiatives is not only beneficial for their development but also encourages a sense of agency and civic engagement, empowering them to positively change the world.

Research has also indicated that girls are likely to have a more favorable perception among peers in many respects compared to boys (Table 1.10), especially concerning social competence, empathy, and emotional intelligence (Goodwin & Watts, 2014). There are various reasons for this trend, including societal expectations regarding the same, which would be much more relevant for girls. More likely, girls engage in prosocial behavior, such as support or displays of kindness, which can contribute to a better reputation among their peers. Additionally, girls may have an advantage in understanding social dynamics and how to resolve conflicts in the process of communication, making their communication smoother and relationships stronger.

In summary of the findings related to research question 1 using the T-Test, data analysis reveals that girls with a weighted average mean of 3.82 are more resilient than boys with a weighted average mean of 3.15. Multiple studies have consistently shown that girls tend to demonstrate greater resilience than boys, particularly in domains such as literacy, numeracy, and overall well-being (Dwiningrum, 2022; Ivonne, 2007; Wasonga, 2002; Shukla, 2009). This trend is often attributed to the presence of stronger support networks, both within the family and in the broader community, for girls compared to boys (Wasonga, 2002). Nevertheless, it is crucial to note that resilience is not solely determined by gender but is also influenced by individual experiences and the learning process (Dwiningrum, 2022).

Furthermore, research by Zacharias (2020) and Sunarti (2018) did not find significant differences in resilience levels based on depressive symptoms, anxiety, region, poverty, gender, or type of school. Additionally, Medina (2019) also found no significant difference in resilience levels among adolescents in a specific educational institution. These findings suggest that while gender may play a role in resilience, other factors such as mental health, socio-economic status, and environmental influences may not significantly impact resilience levels in Filipino adolescents.

Similarly, the study may have been affected by sample bias, as the resilience scales utilized may not have been appropriate for the Filipino cultural context. Cultural elements

such as "pakikisama" (harmonious interpersonal relationships) that impact resilience may not be fully understood. Looking back, the Philippines has an extensive history of dealing with difficulties, ranging from natural calamities to socio-economic hurdles. However, Filipinos are famous for their outstanding resilience, which is their capacity to recover from difficult situations. Factors in Filipino culture that contribute to this resilience include placing importance on the welfare of the community and nurturing robust social connections that offer support in times of hardship. Therefore, it is important in Filipino culture to uphold harmonious interpersonal connections, as this encourages teamwork, resolution of disputes, and a feeling of being part of a community, all vital for overcoming obstacles. A component of Filipino culture involves the "bahala na" mentality, which translates to "leaving it to God" or accepting whatever may come. It may appear passive at times, but it can also be seen as a hopeful acknowledgment of things beyond one's control, enabling adjustment and concentration on finding solutions.

In Filipino culture, there is a significant focus on interpersonal connections, referred to as "pakikipagkapwa-tao," showcasing their resilience. The importance of strong social connections and community support are essential for overcoming difficulties and creating a feeling of inclusion (Enriquez, 1992). Filipinos depend greatly on their families, friends, and communities for emotional backing, practical help, and shared moments, aiding them in dealing with hardship and staying optimistic (Hollnsteiner, 1970). This deeply rooted belief in interconnectedness enables Filipinos to gain strength from their social connections, enhancing their resilience and nurturing a feeling of unity in the face of challenges (Jocano, 1999).

Filipinos are famous for their bravery and determination when confronted with challenges. This quality drives their resolve to conquer obstacles. (Albay, 2021) stated that there are four aspects to Filipino resilience: self-efficacy, positive attitudes towards challenges, cognitive emotion regulation, and future orientation among youth. Additionally, they possess a strong dedication to work and a persistent attitude, which are crucial for overcoming challenges and bouncing back from failures.

In brief, the sample might not represent the broader Filipino adolescent population and could be skewed toward a specific socioeconomic background or geographical location where challenges are less severe. Generally, Filipino adolescents might exhibit a high baseline level of resilience due to cultural values such as family support (kapwa) and a positive outlook (bahala na). This could narrow the range of scores, making it challenging to detect differences between high and low-resilience groups.

It has been demonstrated in this study that resilience factors have a notable influence on the academic achievement of Filipino adolescents, as depicted in Table 3. Findings from Robilla's (2012) research indicated that greater economic and material pressure on children correlates with lower academic performance due to diminished mental and psychological well-being, as well as reduced life satisfaction. Addressing these factors has the potential to empower students and contribute to their educational success. It’s

important to remember that resilience goes beyond bouncing back from adversity; it's about perseverance despite challenges.

This suggests that adolescents with specific resilient attributes generally exhibit slightly better academic performance than those without these attributes. Thus, there is compelling evidence indicating the presence of a linear correlation between adolescents with certain factors and those without said factors. The positive correlation (0.179) shows that when one variable increases, the other usually increases as well (and vice versa). Nevertheless, correlation should not be mistaken for causation, requiring additional analysis and interpretation in a specific context is necessary to understand the practical consequences of this relationship.

Consequently, resilience factors like strong social support networks (kapwa) and positive coping mechanisms can help adolescents manage academic stress more effectively, leading to better focus and concentration during studies. In total, cultural values like "sipag at tiyaga" and a strong sense of family obligation can motivate students to persist through academic challenges and achieve their goals. Factors such as strong family connections, support systems, and a sense of belonging fostered by "pakikisama" can contribute to higher self-esteem and confidence, as these can translate into a more positive attitude toward learning and a willingness to take academic risks. Ultimately, resilience can help adolescents cope with personal challenges that might otherwise lead to absenteeism. This allows for consistent participation in classes, which is important for academic progress.

Conclusions

This research investigates through quantitative methods, how resilience and academic performance are linked in Filipino adolescents. It analyzes how gender may relate to resilience within the school setting. Although the results indicate that girls might show more academic resilience than boys, a deeper understanding is needed. Teen girls often present a higher level of empathy, aspiration, and community engagement core to academic success. This might cause them to attend more school activities, go on field trips, access study help, and also the various academic programs. These children frequently strengthen their working relationships with peers regarding their social roles to be more capable of and ready to assist others. In contrast, boys potentially showing more autonomy and independence may experience difficulties asking for help and in doing so, may cooperate less in the way they learn. While both sexes are being supported more or less similarly by the school community and their problem-solving skills are even similar, their social expectations and the consequences for their personalities can affect their academic success in the end. To begin with, managing emotions, having strong social support, and believing in oneself are complex concepts of resilience. To pinpoint and understand where gender disparities may be most visible, future studies need to explore this specific aspect. Do girls excel at reaching out to peers or teachers for assistance? Are they equipped with more effective methods for managing their emotions? These questions need to be looked into more closely. Secondly, the effect of other factors, like

sociocultural factors, must be considered. Gender biases, cultural norms, and school settings can all influence the development of academic perseverance. Expectations to adhere to conventional ideas of masculinity could prevent boys from asking for assistance or showing weakness, which could impede their ability to bounce back from challenges. Likewise, educational systems that perpetuate these stereotypes may accidentally put boys at a disadvantage.

It seems that while resilience factors do influence academic performance, the data does not show significant differences in academic outcomes between adolescents categorized as having high or low resilience. The results showed a modest but statistically significant positive relationship, indicating that teenagers with high and low resilience levels do not differ significantly in their academic performance, and resilience factors are connected to academic performance in teenagers. This suggests that while resilience contributes to academic success, it does not necessarily differentiate academic performance among those with varying levels of resilience. It appears that other factors such as support systems, learning environments, and personal circumstances may play a more critical role in influencing academic performance among adolescents. Therefore, fostering resilience should be part of a broader strategy that addresses multiple aspects of a student's life to effectively support their academic journey.

This implies that Filipino adolescents with greater resilience generally achieve higher academic success, although the impact may be small. The weak connection suggests that other variables may also have a considerable influence, though these findings can reinforce the increasing focus on resilience in achieving academic success. Further studies could investigate these factors, like economic status, the availability of educational materials, and teaching strategies concerning academic success among the students. Furthermore, the small impact size highlights the multifaceted characteristics of resilience, and while promoting resilience is beneficial, it may not be the only way to enhance academic achievement. Studying certain aspects of resilience that are most strongly linked to academic success could be productive. This research also provides important insights into how resilience influences academic achievement in teenagers. Although the correlation is positive, it is important to recognize its limitations and examine how other elements interact. Understanding this delicate connection allows educators, guidance counselors, and policymakers to create a more comprehensive approach and plans that help teenagers succeed academically.

To summarize, this research provides a simple start to a nuanced discourse that gives insight into a possible gendered feature of academic resilience by recognizing the various dimensions of resilience and the impact of social and cultural factors, which is vital for understanding its whole character. Further research and investigation into these intricacies may lead to the development of more specific interventions that promote resilience in every student, regardless of gender, and can help students overcome academic obstacles and excel in their educational journey by fostering this valuable quality in every person. This research contributes to understanding the factors that determine academic success in the Philippine context. The emphasis on resilience sets the foundation for applying strategies and treatments to develop it.

Recommendations

Cultural characteristics of coping and support systems are validated for Filipino adolescents to ensure that samples include participants from various socioeconomic backgrounds, regions, and experiences that can be considered in employing resilience scales in future research. In addition, mixed methodologies can be used to obtain insights into the lived experiences of adolescents with different levels of resilience and follow teenagers to see how resilience affects their mental health, academic achievements, and other outcomes.

Even if there are no statistically significant differences between the groups, a qualitative approach may show practical discrepancies, making it beneficial to investigate additional factors that influence and promote resilience, such as religious views, resource availability, and coping techniques. Future research can provide a more nuanced picture of resilience among Filipino adolescents by addressing these issues. This insight can help design programs aimed at promoting resilience and positive mental health in this population.

Compliance with Ethical Standards

This research study adheres to the highest ethical standards, following established guidelines. Participants were informed about the study's purpose, procedures, and potential risks. Confidentiality and anonymity were maintained throughout the study.

Data collection followed ethical guidelines and relevant institutional policies. Personal identifiers were removed from the datasets to ensure privacy, and the data was securely stored and accessible only to authorized researchers.

The study has one major author (myself) and two co-authors. Authorship was determined based on substantial contributions to the research. All authors participated in the data analysis using SPSS.

Moreover, no conflict of interest exists among the authors. The researchers declare no financial or personal relationships that could bias the study. In addition, the study received no external funding, and all data collection, analysis, and publication costs were self-supported. Hence, the researchers are committed to upholding ethical principles and ensuring the integrity of our research.

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JOB SATISFACTION OF TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS IN PANGUTARAN DISTRICT

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ABSTRACT

This study examined the job satisfaction of the teachers in selected public elementary schools situated in the diverse region of Muslim Mindanao, Pangutaran district. This paper primarily aimed to delve into the relationship of teacher's profile with the level of job satisfaction of elementary school teachers in Pangutaran District. Specifically, the researchers were driven to find answers to these following questions: a) What is the profile of teachers in selected elementary school in Pangutaran district? b) What is the level of job satisfaction of teachers in selected elementary school in Pangutaran District? And lastly c) Is there any significant relationship of teacher's profile with their job satisfaction of teacher's in selected elementary school in Pangutaran District? The researchers used Mean and Standard Deviation as statistical tools in dealing with the three research questions mentioned above. SPSS or Statistical Package for Social Sciences was used in analyzing the data. The findings revealed that the null hypothesis is rejected in Job satisfaction in terms of the work itself and working condition and environment when grouped according to educational attainment, current position, and length of service and accepted when grouped according to age, gender, and monthly income. In the final analysis, teachers are more satisfied in terms of the work itself and their working condition when their profile is grouped according to age, gender, and monthly income while they fell less satisfied when their profile is grouped according to educational attainment, current position and length of service.

Keywords: *job satisfaction, teachers, supervision, profile, working conditions and environment*

INTRODUCTION

Job satisfaction describes the feelings attitudes or preference of individual regarding work. It indicates how content an individual is towards his or her work. Armstrong (2006) defines job satisfaction as the attitudes and feelings people have about their work. Positive and favorable attitude towards work indicate job satisfaction, while negative and unfavorable attitude indicate dissatisfaction. Accordingly, the teachers' job satisfaction is significantly correlated to their commitment to the institution and that teachers who are content with their jobs always get committed to the organization. Therefore, the satisfied feeling of the teachers towards their institution positively affects their performance, thus, contributes to school success as a whole. (Balla et al, 2024; Jupakkal et al, 2024; Isa et al, 2024 & Abdurahman, 2023)

Pangutaran District consists of 23 public elementary and 8 primary schools headed by 16 school heads under the stewardship of 1 district supervisor. Most of the head teachers, principals and teachers in-charge holds masteral units if not a master or doctor's degree. For the school year 2016-2017, the overall numbers of teaching and non-teaching personnel of public elementary and primary schools in Pangutaran District were totaled to 177. Of which, 118 are females and 59 are males which can be further specified into the position of 135 Teacher I, 15 Teacher II, 3 Teacher III, 3 Master Teacher I, 1 Head Teacher III, 11 Principal I, 1 Principal II, 3 Teachers in-Charge, 3 School Nurses, 1 Administrative Aide and 1 District Supervisor.

Public school teachers as with any other professions have to be satisfied or must feel the satisfaction in carrying out their job no matter where their place of assignment (Abdurahman & Omar, 2021; Abdurahman, 2024). Teachers in the far-flung island municipality of Pangutaran, Sulu must find job satisfaction wherein at par comparable to the other more accessible areas in Sulu. Job satisfaction in order to be acquired is motivated and developed by giving the school teachers at hand their basic needs, peaceful environment, just leaders and moral support from their school head. Job satisfaction is tied up with economic, social, and cultural conditions where the public-school teachers are assigned. Many experts said that job satisfaction has something to do or related with job incentives.

Satisfaction of the public-school teachers, along with the just leadership of school heads, effective teaching learning activities and high students' achievements is a hallmark of a well-managed educational institution; favorable attitudes are the product of effective behavioral management, the continuing process of building a supportive human climate in the school. According to Locke (1976: 25) job satisfaction is a pleasurable or positive emotional state resulting from the appraisal of one's job experience. It is like any attitude, which generally acquired over a period as an employee gives more and more information about the work place. Job satisfaction is a critical factor in organizational behavior it needs to be understood, mentioned and built with so many haunt organizations. This study is concerned with the job satisfaction of public-school teachers in Pangutaran School District based on the perspective of their personal experiences.

Job satisfaction of the elementary school teachers in Pangutaran school district needs to be assessed whether they are still affected with organizational culture given the curriculum, delayed release of salary, newly deploying order, and sluggish process of the promotion. Generally, teachers at the island municipality have experienced problem in the k-12 curriculum due to inadequate teaching learning materials. The indicators of dissatisfaction of teachers investigated included teachers' commitment to work. This research attempted to link the above indicators and the main factors under the study which included the factors influence of work environment on teacher job satisfaction, colleagues, job security, work itself, and supervision.

Despite their deprived of many privileges, public school teachers kept on reporting, however, it does not necessary mean that they are satisfied. It needs further investigation and thorough observation, Butuan (1997; 22) citing McDonald said that to be happy in one's work is a privilege which we might argue, is the prerogative of few rather than of the many. Everyone has the right of a rewarding and satisfying job. Thus, concern over whether people like their jobs, their freedom to express their feelings about their work, and their ability to alter destiny through work are not parts of our tradition. According to Abdurahman et al (2024) that people clearly experience varying degrees of job satisfaction in their work according to the degree of their relationship with their upper level managers.

Moreover, this study sought to answer the level of job satisfaction of the faculty members of Pangutaran District, MBHTE, Sulu, Philippines. This investigation further give a baseline data for the school administrators and teachers to improve their performance in the academic playing field.

Research Questions

This study aimed to determine the relationship of teacher's profile with the level of job satisfaction of elementary school teachers in Pangutaran District. Specifically, this study sought to answer the following questions:

1. What is the profile of teachers in selected elementary school in Pangutaran district?
2. What is the level of job satisfaction of teachers in selected elementary school in Pangutaran District?
3. Is there any significant relationship of teacher's profile with their job satisfaction of teachers in selected elementary school in Pangutaran District?

RESEARCH METHODOLOGY

Research Locale

The setting of the study was conducted at diverse region of Muslim Mindanao, the Pangutaran District. The Pangutaran District consists of 23 public elementary and 8 primary schools headed by 16 school heads under the stewardship of 1 district

supervisor. Most of the head teachers, principals and teachers in-charge holds masteral units if not a master or doctor's degree. For the school year 2016-2017, the overall numbers of teaching and non-teaching personnel of public elementary and primary schools in Pangutaran District were totaled to 177.

Sampling Method

In this study, the researchers used Purposive Sampling or Judgement sampling to select the participant of the study. According to According to Crossman (2020), Purposive Sampling is a non-probability sample that is selected based on characteristics of a population and the objective of the study. Moreover, this study used descriptive research method. Descriptive method is scientific research involved in determining the description of the characteristics or attributes of the subject and the interaction of these characteristics with other environmental linkages.

Research Instrument

The study will utilize survey questionnaire. The first section that measured personal information, 50 items in five categories measured the key variables using a standard degree with 51-100% satisfied = 5 column VS, 1-50% satisfied = 4 column S, neither satisfied nor dissatisfied = 3 column U, 1-50% dissatisfied =2 column D, and dissatisfied =1 column VD. Teachers of the Pangutaran Public Elementary School shall be the target respondents. Statistics will be used in the analysis of the data.

Statistical Treatment of Data

For the analysis of data, the researchers used Mean and Standard Deviation as statistical tools in dealing with these following question; a) What is the profile of teachers in selected elementary school in Pangutaran district? b) What is the level of job satisfaction of teachers in selected elementary school in Pangutaran District? And c) Is there any significant relationship of teacher's profile with their job satisfaction of teacher's in selected elementary school in Pangutaran District?

Scope and Delimitation

This study focuses on the job satisfaction of the teachers in selected public elementary schools situated in the diverse region of Muslim Mindanao, Pangutaran district. The participant of this study is delimited to the teachers in selected elementary school in Pangutaran district. The study is confined in the academic year 2020-2021.

RESULTS

Profile of Teachers in Pangutaran District

This section presents the answer to question number 1: "what is the profile of the elementary school teachers in Pangutaran District?" This includes the age, gender, marital status, educational attainment, current position, salaries and length of service. The following distribution were revealed: As to age, majority (36%) were below 25 years old; as to gender, Majority (68%) were female; As marital status, Majority (64%) were married; as to educational attainment, majority (44%) were having their bachelor's

degree; as to monthly income, majority (62%) have an income of below 18,999.00; and as to length of service, majority of the faculty members were only serving 10 years and below.

Table 1: Profile of Respondents

CHARACTERISTICS	Frequency	Percent
Age		
below 25	18	36.0
26-35	16	32.0
36-45	16	32.0
Gender		
Male	16	32.0
Female	34	68.0
Marital Status		
Single	18	36.0
Married	32	64.0
Educational Attainment		
Baccalaureate	22	44.0
With Masteral Units	16	32.0
Masteral	12	24.0
Current Position		
teacher 1	44	88.0
teacher 2	4	8.0
teacher 3	2	4.0
Monthly Income		
below 18,999.00	31	62.0
P18,000-24,999	19	38.0
Length of Service		
below 10	37	74.0
11-20 years	12	24.0
21-30	1	2.0

Level of Job Satisfaction of Teachers in Pangutaran District

This section presents the level of job satisfaction of among elementary school teachers in selected elementary schools in Pangutaran District. The statistical tool used

in this problem is Mean and Verbal description. In a normal distribution, the Mean is used to determine the arithmetic Average for the measure of central tendency and the verbal description is the interpretation label for each corresponding mean. Meanwhile, the level of job satisfaction of the public elementary school teachers in Pangutaran District are distributed as follows: They are satisfied with the nature of the work itself (mean=3.93) ; satisfied with the working conditions and environment (mean= 3.84); satisfied with colleagues in the district (mean = 4.19); satisfied with the school supervision (mean = 3.68) but they are undecided in terms of safety and security (mean = 3.41).

Table 2: Level of Job Satisfaction of elementary school teachers in Pangutaran District.

JOB SATISFACTION	MEAN	VERBAL DESCRIPTION
A. The Work Itself		
1. teaching inside the classroom the whole weekdays	3.94	Satisfied
2. preparing lesson plans and other required reports	3.98	Satisfied
3. dealing with problem kids	3.80	Satisfied
4. maintaining classroom and other facilities	4.04	Satisfied
5. identifying pupils' needs	3.84	Satisfied
6. implementing school policies	4.10	Satisfied
7. evaluating pupils' achievement	3.86	Satisfied
8. Encouraging open communications for effective delivery of services.	3.80	Satisfied
9. Clearly defined and logically structured job.	3.92	Satisfied
10. Participating in various activities in the school and community.	4.02	Satisfied
Mean	3.93	**Satisfied**
B. Working conditions and Environment		
1.The attractiveness of your surroundings	4.24	Satisfied
2. The cleanliness, sanitation, lightning, ventilation and temperature of classrooms.	4.16	Satisfied
3. The friendly atmosphere prevailing among people in the school	3.98	Satisfied
4. Availability of teaching modules and gadgets	3.34	Undecided
5. Adequacy and equity of equipment's and supplies.	3.24	Undecided
6. Performing varied tasks, parts of which are incidental and intervening in your regular functions.	3.50	Satisfied
7. Your job's involvement in societal development.	4.06	Satisfied
8. Living up to the expectations of the school and the community.	4.04	Satisfied
9. Having contacts with local public officials.	3.82	Satisfied
10. Well defined and prescribed daily routine.	4.04	Satisfied
Mean	3.84	**Satisfied**
C. Colleagues		
1. The congeniality of your co-teachers	4.44	Satisfied
2. The spirit of teamwork with co-teachers	4.22	Satisfied

3. The acceptance you get from people in your school	4.36	Satisfied
4. The personal and official concern you get from people in your school.	4.28	Satisfied
5. Working with co-teachers having equal educational qualification with you.	3.98	Satisfied
6. Working with co-teachers having higher educational qualifications with you.	4.08	Satisfied
7. Having local co-worker to work with	3.96	Satisfied
8. The way co-teachers get along with each other	4.16	Satisfied
9. Experiencing a feeling f common purpose with co-teachers	4.28	Satisfied
10. Genuine interest in learners' educational progress of co-teaches.	4.20	Satisfied
Mean	4.19	**Satisfied**
D. Supervision		
1. The way the boss handles his staff.	3.90	Satisfied
2. The competence of my supervisors in making decisions	3.78	Satisfied
3. Being kept busy all the time	3.68	Satisfied
4. The chance to work alone in the job	3.64	Satisfied
5. The concern of your superiors on matters affecting you officially and personally	4.00	Satisfied
6. The chances for professional advancement and promotion on this job.	3.04	Undecided
7. The feeling of accomplishment and appropriate recognition you get from the job.	3.70	Satisfied
8. Supervisor's role in the performance appraisal of teachers.	3.84	Satisfied
9. Frequent delegation of authority	3.68	Satisfied
10. Healthy working relationships existing among school personnel	3.60	Satisfied
Mean	3.68	**Satisfied**
E. Safety and Security		
1. The peace and order situation in your assignment	3.82	Satisfied
2. The accessibility and means of transportation to your place of work	3.20	Undecided
3. The condition of the school plant and facilities in terms of your safety.	3.70	Satisfied
4. The provision in the constitution for teachers in terms of tenure in the office means a lot of you	3.68	Satisfied
5. The nature of your appointment in term of your civil service eligibility.	3.64	Satisfied
6. The adequacy of the benefits and assistance exerted by the GSIS and PAG-ibig in terms of loans, Medicare, retirement and life insurance.	3.36	Undecided

7. The fairness and effectiveness in the promotion of teacher's welfare by membership to local and national associations/union.	3.16	Undecided
8. As a teacher you are doing at least as well financially, as you would probably be doing in some other job.	3.36	Undecided
9. Adequacy of pay in providing your personal and family needs	3.18	Undecided
10. Having ample amount left for recreation and vacations.	3.04	Undecided
Mean	3.41	**Undecided**

C. Relationship Between Teacher's Profile of Selected Schools of Pangutaran District with Their Job Satisfaction on the Work Itself and Working Conditions and Environment

Table 3 presents the relationship of elementary school teachers of Pangutaran District with their job satisfaction in terms of Work itself and Working Condition and environment Moreover, the sig value are distributed as follows: Age (p=>.205 & .455); Gender (p=>.345 & .095); Marital status (p= > .241 & .130); Educational Attainment (p=<.004 & .035); Current Position (p=< .005 & .041); Monthly Income (p=>.067 & .451) and Lenth of service (p=<.001 & .000).

Table 3: Relationship teacher's profile and teacher's job satisfaction in terms of the work itself and working conditions and environment

Profile	JOB SATISFACTION			
	The work Itself		Working Cond & Environ	
	X^2	Sig. (2-sided)	X^2	Sig (2-sided)
Age	36.086[a]	.205	35.300	.455
Gender	13.333[a]	.345	20.000	.095
Marital Status	15.000[a]	.241	20.000	.130
Educational Attainment	57.000	.004**	60.000	.035*
Current Position	40.00	.005**	37.333	.041*
Monthly Income	20.000	.067	15.000	.451
Length of Service	52.000	.001**	47.000	.000**

***Significant at .01 level of confidence*
**Significant at .05 level of confidence*

The data in table 3 showed that the null hypothesis is rejected in Job satisfaction in terms of the work itself and working condition and environment when grouped according to educational attainment, current position, and length of service and accepted when grouped according to age, gender, and monthly income.

The data suggest that teacher's combined contributions of educational attainment, current position and length of service have significant influence on their level of job

satisfaction in terms of work itself and working conditions. Hence, it can be deduced that teachers who only finished baccalaureate degrees, occupying teacher 1 position; and serving below ten years in the profession are still less satisfied and therefore, they still have high level of satisfaction on their present work and their working conditions in the school.

On the other hand, teachers' combined contribution of age, gender, and monthly income do not significantly influence their level of job satisfaction in terms of work itself and working conditions. This finding explicitly views that in spite of the teacher's age, gender and monthly income, they felt contented and more satisfied in the present status of their work itself and working condition.

In the final analysis, teachers are more satisfied in terms of the work itself and their working condition when their profile is grouped according to age, gender, and monthly income while they fell less satisfied when their profile is grouped according to educational attainment, current position and length of service.

Table 4: Relationships of Job Satisfaction in terms of Colleagues and Supervision Grouped According to Profile

Table 4 presents the relationship of elementary school teachers of Pangutaran District with their job satisfaction in terms of Work itself and Working Condition and environment Moreover, the sig value are distributed as follows: Age (p=>.305 & .381); Gender (p=>.172 & .220); Marital status (p= > .172 & .324); Educational Attainment (p=>.168 & .149); Current Position (p=>.060& .103); Monthly Income (p=>.220& .172) and Lenth of service (p=>.071 and p=<.040).

Table 4: Job Satisfaction in terms of colleagues and supervision with the Profile of the respondents

Profile	JOB SATISFACTION			
	Colleagues		Supervision	
	X^2	Sig (2-sided)	X^2	Sig (2-sided)
Age	39.800	.305	40.000	.381
Gender	20.000	.172	20.000	.220
Marital Status	20.000	.172	18.000	.324
Educational Attainment	48.500	.168	56.000	.149
Current Position	33.107	.060	44.750	.103
Monthly Income	20.000	.220	20.000	.172
Length of Service	46.800	.071	52.200	.040*

Significant at .05 level of confidence

DISCUSSIONS

This section discusses the profile of the respondents which incorporates the age, gender, length of service and educational qualification. Besides this also tackles the level of teacher's job satisfaction in the context of the work itself , colleagues, working

condition and environment, supervision, and safety and security.

A. Profile of the Respondents

In table 1, the statistical tools used in this problem are Frequency and percentage distribution. The profile of the respondents is measured using frequency in order to tally the number of times each occurs. The number counted and listed under the column entitled Frequency. The *percentage* distribution for a category is obtained by multiplying the relative frequency for that category by 100 to derive the percentage value of each category.

In the first category which is age, the age starts in below 25 has frequency 18 at 36%, age 26-35 and 36-45 has same frequency of 16 at 32%. It would mean that majority of the teacher respondents have ages that ranged from 25 and below. In the second category which is gender, the Male has frequency of 16 at 32% and Female has a frequency of 34 at 68%. Obviously, majority of the respondents are females. In third category which is the Marital Status. Single respondents have a frequency of 18 at 36% and Married have a frequency of 32 at 64%. It means that majority of the teacher respondents are married.

The fourth category is the Educational Attainment. Frequency responses testify that respondents with Baccalaureate degree has are 22 at 44%; those with masteral units are 16 at 32% and masteral has frequency 12 at 24 %. Therefore, Majority of the respondents have only finished their bachelor's degree.

The fifth category pertains to the current position. Frequency responses also testify that 44 (88%) of the respondents are occupying teacher I position. While 4 (8%) of them are teacher II, and only 2 (4%) are currently occupying teacher III position.The sixth category is the Monthly Income. There were two options answered by the respondents as follows: Below 18,000.00 has a frequency of 31 at 62%, and P18, 000-24,999 has a frequency 19 at 38%. It can be said that majority 62% of the respondents have a monthly income of below 18,000 pesos only. Lastly, the seventh category is the Length of Service. Below 10 years has a frequency of 37 at 74%; 11-20 years has a frequency of 12 at 24%; and 21 - 30 years has a frequency of 1 at 2%. It is also obvious that majority 74% of the teacher respondents are serving in the government below 10 years.

Corollary, Saner and Eyupoglu (2012) found that there was no significant relationship between intrinsic job satisfaction and age; there is a major variety in extrinsic job satisfaction among academics in regard of age. The result of the study showed that older educators are, in general, more satisfied than the younger ones. The findings of another study (Clark et al., 1996) has also showed that until an educator reaches the age of approximately 31, job satisfaction decreases and only after that age it increases. As for payment, what teachers care is rank and their ages rather than their genders and devoted holidays. In addition; as teachers get older, their satisfaction derived from their occupation increases (Guo & Wang, 2017). Besides, Shrestha (2019) conducted a study with 345 teachers and she concluded that older teachers display more job satisfaction, hence, they have more commitment to the job, leading the way to high performance.

As to respondents' gender, Ma and MacMillan (1999), found in their study that

gender and professional seniority were important in job satisfaction. According to this study, female teachers were more satisfied than their male counterparts. Seniority showed a statistically significant but negative effect on job satisfaction of teachers. Teachers who stayed longer in the teaching profession were less satisfied with their professional roles. However, contrary to his finding, in Luuk National High school, there are more male teachers (56%) as compared to female teachers (Asanji et al, 2024).This means that male teachers are dominant in this national high school.

When the job experience is considered, it is stated that teachers working for a long time were found to be happier with their jobs (Ogedengbe et al., 2018). It was also noted that duration of teachers' working years did not have any effect on job satisfaction (Fattah, 2010). Tye and O'Brien (2002) also stated in their work that even though the longer one continues teaching the harder it gets to quit the profession, teachers feel battered. It is also mentioned that newly-joining teachers affect the motivation of teachers who are already in the profession for a long time.

Moreover, Bivona (2002) states in her research that teachers who have at least ten years of teaching experience are more optimistic towards teaching. It is also found that experienced teachers majored in education while only some of the novice teachers did so as they thought majoring is a loss of time. Furthermore, it was revealed that teacher training and experience decrease teachers' stress levels, enable them to feel adequate.

B. Job Satisfaction of the Elementary School Teachers in Pangutaran District

B.1. Job Satisfaction in terms of the Work Itself

Table 2 showed the level of job satisfaction of the elementary school teachers in Pangutaran District. Generally, the teachers were satisfied (mean = 3.92) as to the nature of their work in the Pangutaran District. Specifically, the teachers show their passion in their chosen career. They are satisfied in teaching inside the classroom the whole weekdays, prepared lesson plans and other required reports. Satisfied in dealing interpersonally like kid's problem, identifying pupils' needs, evaluating pupils' achievement, and as well as on external matters like maintaining classroom and other facilities and have no difficulty in implementing school policies. Teacher aim to encourage open communications for effective delivery of services to clearly defined the logically structured job by participating in various activities in the school and community.

B.2. Job Satisfaction of Teachers in Terms of Working conditions and Environment

As to the teacher's working condition and environment, there were eight (8) questions have obtained the rating of "satisfied" and two (2) were rated "undecided" with a rating of 3.34 and 3.24 respectively and these are - on the Availability of teaching modules and gadgets with weighted and Adequacy and equity of equipment's and supplies. In other words, teachers are satisfied in terms of working conditions and Environment specifically in the attractiveness of surroundings, the cleanliness, sanitation, lightning, ventilation and temperature of classrooms and the friendly atmosphere prevailing among people in the school and because of it they tend to perform varied tasks

with well-defined and prescribed daily routine, parts of which are incidental and intervening in regular functions, and somehow the job's involvement will lead in societal development that contacts with local public officials and but is undecided in the availability of teaching modules and gadgets and adequacy and equity of equipment's and supplies. In a nutshell, the teachers were satisfied (mean= 3.84) in terms of their working conditions and environment in the same district.

B.3. Job Satisfaction in Terms of their Colleagues in the District

Gleaning from table 2, the teachers of Pangutaran District were satisfied (mean = 4.19) in terms of their relationship with colleagues in the workplace. Specifically, teachers are satisfied with the congeniality of co-teachers with a spirit of teamwork. In the same vein, they are also satisfied working with co-teachers with equal and higher educational qualifications that constitute a good working experience. They also felt satisfied of having a local co-worker to work with and get along with each other and experiencing a feeling of common experience with a genuine interest in learners' educational progress.

B.4. Job Satisfaction in Terms of Supervision of Their School Heads

It was generally found in Table 2, that the elementary school teachers of Pangutaran District were satisfied (mean = 3.68) in terms of the supervisory activities conducted by their school heads in the district. The data also justifies that the pattern of supervisory relationships between teacher and administrators or supervisors is satisfying. This is to say, that that administrator or supervisor can handle his staff well. The competence of supervisors is seen in decision-making and in proper delegation of authority which in turn leads to a healthy working relationship among school personnel. The teachers were also being kept busy all the time, were given the chance to work alone in the job and felt the concern of their superiors on matters affecting them officially and personally. They strongly agreed on supervisor's role in the performance appraisal of teachers but is undecided on the relation of supervisors in their chances for professional advancement and promotion on this job.

The finding is reinforced by Parker as cited by Doctora (1994) pointed out that satisfaction caused productivity. He further said that a happy person is a productive one. Thus, school administrators and supervisors should design a school environment which is physically, mentally, socially, economically and spiritually satisfying. This is likewise supported by Lowler (1994) in Jacoba (1994), who pointed out the satisfaction and productivity are in circular relationship wherein one effect the other. A person who is satisfied tends to be motivated to work and is productive. Corollary to this statement is that a person who is not satisfied is more or less not motivated to work and is less productive.

B.3. Job Satisfaction in Terms of Their Safety and Security

Generally, the elementary school teachers of Pangutaran District were undecided (mean = 3.41) in terms of their safety and security in the workplace. This means they are not sure whether they are safe in the their respective school considering that most of the schools in the said district are located in the island municipalities and prone to the threat coming from the instability of whether conditions and the like.

Specifically they are undecided on the following aspects namely : on the means of transportation; adequacy of benefits from the GSIS and Pag-ibig; On welfare and promotions of teachers; on other financial benefits and maintenance of the their family; and laxity of time to be spent for their family recreations and other activities. However, they are also satisfied in some other aspects such as; peace and order, educational facilities in the school, administrative policies and other civil service rules on tenureship.

C. Relationship Between Teacher's Profile of Selected Schools of Pangutaran District and their Job Satisfaction

C.1. Teacher's Profile and Job Satisfaction on the Work Itself and Working Conditions and Environment

The data in the table 3 showed that the null hypothesis is rejected in Job satisfaction in terms of the work itself and working condition and environment when grouped according to educational attainment, current position, and length of service and accepted when grouped according to age, gender, and monthly income.

The data suggest that teacher's combined contributions of educational attainment, current position and length of service have significant influence on their level of job satisfaction in terms of work itself and working conditions. Hence, it can be deduced that teachers who only finished baccalaureate degrees, occupying teacher 1 position; and serving below ten years in the profession are still less satisfied and therefore, they still have high level of satisfaction on their present work and their working conditions in the school.

On the other hand, teachers' combined contribution of age, gender, and monthly income do not significantly influence their level of job satisfaction in terms of work itself and working conditions. This finding explicitly views that in spite of the teacher's age, gender and monthly income, they felt contented and more satisfied in the present status of their work itself and working condition.

In the final analysis, teachers are more satisfied in terms of the work itself and their working condition when their profile is grouped according to age, gender, and monthly income while they fell less satisfied when their profile is grouped according to educational attainment, current position and length of service.

C.2. Teacher's Profile and Job Satisfaction on the Work Itself and Working Conditions and Environment

The data in table 4 affirmed that the null hypothesis was rejected on the perceptions on job satisfaction in terms of supervision when the data are grouped according to length of service and accepted when grouped according to age, gender, marital status, educational attainment, current position and monthly income. The finding reveals that, of among the independent variables, only the length of service is considered to be a significant predictor of teacher's job satisfaction in terms of supervision. It would mean that new and inexperience teachers still need to deal with their peers in the

workplace in order to have a smooth working relationship.

Meanwhile, teacher's combined contribution of age, gender, marital status, educational attainment, current position and monthly income do not significantly influence their level of job satisfaction in terms of supervision. It would mean that they already feel more satisfied on the supervisory process of their administrator in the school.

In the same vein, the null hypothesis is accepted on their level of job satisfaction in terms of colleagues when grouped according to age, gender, marital status, educational attainment, current position, monthly income and length of service. It would mean that the combined contributions of the independent variables above do not significant influence the teacher's job satisfaction in terms working with colleagues in the workplace. It is further noted that none of these variables to have significantly influence teacher's job satisfaction in dealing with colleagues.

In the final analysis, teachers are more satisfied in term of supervision when their profile is grouped according to their age, gender, marital status, educational attainment, current position and their monthly income. And they are also more satisfied in terms of working with colleagues when their profile is group according to age, gender, marital status, educational attainment, current position, monthly income and length of service.

Conclusions

Given all the findings and the data at hand, it is therefore deduced that; A) Majority of the elementary school teacher at Pangutaran District age 25 and below. More females than males and married. On educational attainment, most of them have only finished their baccalaureate degrees and few are pursuing their graduate studies and still occupying Teacher I position. In terms of monthly income, majority are only receiving 18,000 and below and serving in the government below 10 years. B) The teachers are generally satisfied with their present work, working conditions and environment, colleagues in the school district, and supervision. C) Teachers are more satisfied in terms of the work itself and working condition when their profile is grouped according to age, gender, and monthly income while they fell less satisfied when their profile is grouped according to educational attainment, current position and length of service. D) Teachers are also more satisfied in term of supervision when their profile is grouped according to their age, gender, marital status, educational attainment, current position and their monthly income. And E) they are also more satisfied in terms of working with colleagues when their profile is group according to age, gender, marital status, educational attainment, current position, monthly income and length of service.

Recommendations

In the light of the aforementioned findings, the following recommendations are hereby advanced:

1. Since, majority of the teachers are female, higher authorities should hire more male teachers to handle several co-curricular and extra-curricular activities like sports activities and the like.
2. The school administrator should look into professional promotion since majority of the teachers are occupying teacher I position.
3. The school administrators should be directed towards single focused- that is solely to raise the level of motivation. Because, teachers can perform better if they are intrinsically and extrinsically motivated. Thus lead to satisfaction in the workplace
4. Teachers should pursue graduate studies since most of them have acquired only baccalaureate degrees. This is to ensure the maximization of the professional and pedagogical knowledge.
5. Further research studies on job satisfaction must be conducted. Specifically, this writer highly recommends the following research titles:
    a) Variables affecting Job Satisfaction and Performance of the Elementary School Teachers in Tapul District.
    b) Determinants of Job Satisfaction of the Elementary School Teachers in Lugus District.
    c) Determinants of Job Satisfaction of the Elementary school teachers in Jolo 1 district.

Ethical Considerations

The researchers hereby declare that an informed consent was obtained. In accumulation, the researchers assured that the information gathered from respondents are kept intact and confidential whereby all the data were kept in an archive where only the researchers can access. Ethical processes were strictly observed throughout the research endeavor in which the researchers have enjoyed their freedom to answer or refrain from participating along the process.

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KASANAYANG PAGBASA SA FILIPINO NG MGA MAG-AARAL

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ABSTRAK

Ang pangunahing layunin ng pag-aaral na ito ay matukoy at masuri ang kahandaan, mga hamon at solusyon sa kasanayang pagbasa sa Filipino ng mga mag-aaral. Ginamitan ito ng deskriptibong pamamaraan. Ang pag-aaral ay isinagawa sa Tocmo Integrated School, Itogon, Benguet sa panuruang taon ng 2022-2023 na may kabuuang bilang dalawampu't apat (24) na mga mag-aaral mula sa ika-sampung baitang bilang tagatugon. Ginamit ang talatanungan sa pag-aaral para sa kinakailangang datos at ito ay sinuri batay sa kinalabasan gamit ang frequency, weighted mean, at pagraranggo. Ang sumunod ay ang kinalabasan ng pag-aaral: Pinaghandaan ng mga mag-aaral ang mga kahandaan sa kasanayang pagbasa sa Filipino. Seryoso ang mga hamong hinaharap ng mga mag-aaral sa paghawan ng sagabal sa mga akda. Napakaepektibo ang Solusyon sa mga mag-aaral dahil Pinaghandaan ang kahandaan sa kasanayang pagbasa sa Filipino. Mula sa kinalabasan nito, ang mga sumusunod na konklusyon Pag-ibayuhing panatilihin ang ginawang paghahanda ng mga mag-aaral sa kasanayang pagbasa sa Filipino sa pamamagitan ng pagtiyak muna sa kahandaan sa pagbasa bago turuan sa pormal na pagbasa. Anumang galing at pagsisikap ng guro, hindi matututong bumasa ang mag-aaral na wala pang kahandaan sa pagbasa. Pagsasagawa ng team teaching ng dalawa o higit pang mga guro. Pag-iba-ibahin ang paraan, hindi lamang pamaraang pabuod at pamaraang pasaklaw, hindi lamang pamaraang pabalak, pamaraang pasuliranin at pagtuturong pangkatan, gumamit din ng pamaraang patuklas, aliwang paglalakbay, araling pagpapahalaga at pagdulog konseptwal. Gawing masining at kasiya-siyang karanasan ang kasanayan sa pagbasa. Kaiga-igaya at kasiya-siya para sa pag-aarala ang bumigkas ng tula, ang makilahok sa mga sabayang bigkasan, ang makisali sa mga kwentuhan at mga dula, ang lumikha ng mumunting tugma o tula, ang kumatha ng isang akda o kaya ay bumigkas ng isang talumpati. Lalo pang sumisigla ang mga gawaing ito, kung magdaraos ng mga patimpalak sa pagbasa.

Keywords: *kahandaan, hamon, solusyon, pagbasa, paghinuha, pagkilatis*

BATAYAN NG PAG-AARAL

Nakapagpapahaba ng interes ng mambabasa ang mga sulating pampanitikan. Nagsasalaysay ito tungkol sa buhay, pamumuhay, lipunan, pananampalaya at mga karanasang kaugnay ng iba't ibang uri ng damdamin tulad ng pag-ibig, kaligayahan, kalungkutan, pag-asa, pagkapoot, pagkasuklam, sindak at pangamba. Maaaring mawala o maubos ang kayamanan ng isang tao at maging ang kanyang pagiging makabayan, subalit hindi ang panitikan. Ito ang isang dahilan kung bakit pinag-aaralan ang larangan ng literatura sa mga paaralan.

Ang maikling kwento ay isang masining na anyo ng panitikan na naglalaman ng isang maiksing salaysay tungkol sa isang mahalagang pangyayari na kinabibilangan ng isa o ilang tauhan. Nag-iiwan ito ng isang kakintalan sa isip ng mga mambabasa.

Ayon sa lumabas na pag-aaral ng Generational White Paper (2016), ang mga tinatawag na kabilang sa Generation Z ay may pag-uugali na mas maikli ang pasensya, mabilis sa lahat ng bagay, maikli ang atensyon at may mataas na pagdepende sa teknolohiya. Kung ganito ang uri ng mga kabataan sa henerasyon ngayon, ang usapin sa literasi sa makrong kasanayan ay dapat na mapagtuunan kung talaga bang ito ay nalilinang. Pinagtibay ni Frankel et.al. (2016), na ang literasi ay dapat na patuloy na pinauunlad sa pamamagitan ng iba't ibang gawain o kaparaanan.

Isa ang kasanayang pagbasa sa limang makrong kasanayan na dapat mahubog sa mga mag-aaral. Ito ay may malaking kaugnayan sa iba pang makrong kasanayang pakikinig, pagsasalita, pagsulat, at panonood ng isang tao dahil nagkakaroon ng kakayahang makabuo ng mga kaisipan at makapagpahayag ng damdamin at maayos na makipagkomunikasyon sa lahat ng disiplina o larangan. Ang pagbasa ay isa sa mga kasanayang pangwika na tulay ng mga mag-aaral upang mapahusay at malinang ang kasanayan sa mabisang pag-unawa sa teksto. Ang mga kaisipang nakukuha at nabubuo sa pamamagitan ng pagbabasa, pakikinig, pagsasalita at panonood ay maaaring isulat upang maibahagi sa iba. Ang pagbasa ay isa ring kognitibong proseso ng pag-unawa sa mensaheng nakalimbag o ng anumang wikang nakasulat.

Batay sa International Reading Association (2019), ang pagbasa ay pagkuha ng kahulugan sa mga nakatalang titik o simbolo na nangangailangan ng sumusunod:

a. Ang paglinang at pananatili ng kawilihan sa pagbasa;
b. Ang paggamit ng istratehiya upang makuha ang kahulugan ng teksto;
c. Ang sapat na kaalaman o dati nang kaalaman at bokabularyo na tutulong sa pag-unawa sa teksto;
d. Ang kakayahan sa matatas na pagbasa;
e. Ang istilong gagamitin upang maunawaan ang salitang di-pamilyar;
f. Ang kakayahang umunawa sa mga nakatalang salita batay sa tunog o pagbigkas nito.

Ayon kay Baltazar (2017), ang pagbasa ay kasangkapan sa pagkatuto ng mga kabatiran ukol sa iba't ibang larangan ng pamumuhay. Sa katunayan, 90% sa napag-aralan ng tao ay mula sa kanyang karanasan sa pagbasa. Ayon naman kay William Gray (2016), ang proseso ng pagbasa ay may apat na hakbang gaya ng pagkilala sa salita, pag-unawa, reaksyon at integrasyon. At ito aniya ay nangangailangan ng matalas na pag-iisip, kakayahan sa pagtutulad o comparison, pagpapahalaga o valuing, pagpapasya at pagbuo ng reaksyon at paglutas ng suliranin.
Noong ika-25 ng Oktobre 2011, itinalaga ng Kagawaran ng Edukasyon ang Division Memorandum No. 244 na nagdedeklarang Nobyembre ang buwan ng pagbasa na gaganapin taun-taon. Ito ay para mapaunlad pa ng mga mag-aaral ang kanilang mga kasanayan sa pagbabasa na naglalayong magkaroon ng mataas na antas ng kaalaman. Kaakibat ng pagbasa ang komprehensyon ng mga mag-aaral sa interpretasyon ng kanilang binasa. Ika-29 ng Nobyembre 2018, itinalaga naman ang DepEd Memorandum No. 175, s.2018 bilang Pambansang Buwan ng Pagbasa para sa pampubliko at pribadong paaralan sa ating bansa. Layunin nitong ipagdiwang ang pagkakaiba-iba ng mga mag-aaral at kultura sa pamamagitan ng pagbasa.

Batay sa DepEd Order no. 14, S. 2018 na may pamagat na Policy Guidelines on The Administration of The Revised Philippine Informal Reading Inventory, nakasaad sa Seksyon 1 na ang pangunahing layunin nito ay matuto ang mga mag-aaral na bumasa at sumulat.

Ang Phil-IRI ay isang "assessment tool" na tumataya sa kakayahan sa pagbasa ng mga mag-aaral sa elementarya at sekondarya. Ito ang kauna-unahang patunay na panukat na naglalayong alamin ang kakayahan sa pagbasa ng mga mag-aaral sa larangan ng komprehensyon kasama ang bilis ng pagbasa na impormal na sinusukat sa paraang kwalitatib at kwantititib sa pamamagitan ng mga babasahin gaya ng maikling kwento at sanaysay. Ayon sa pananaliksik ng Phil-IRI (2018), isinasaad na may tatlong suliranin na kasangkot sa pagbasa. Ito ay sa bahagi ng dekowding, pag-unawa sa binasa, at pananatili sa malinaw na ipinapahayag sa resulta ng Phil-IRI Oral Test.

Inisa-isa naman ni Hebert (2019), ang sampung dahilan kung bakit kailangang araw-araw na ginagawa ang pagbasa. Una, ito ay nakatutulong sa mental na simulasyon. Ikalawa, nakababawas ng mga alalahanin. Ikatlo, nagbibigay kaalaman ang pagbabasa. Ikaapat, ito ay nagpapalawak sa kaalaman sa bokabularyo, Ikalima, sa tulong nito ito ay nakapagpapatalas ng memorya. Ikaanim, nagpapalakas din ito ng analitikal na kakayahan sa pag-iisip. Ika-pito, nakatutulong ito upang magkaroon ng pokus at konsentrasyon ang isang tao. Ikawalo, pinagbubuti nito ang kakayahan sa pagsusulat. Ika-siyam, nagbibigay ito ng kapahingahan at kapayapaan sa mambabasa at Ika-sampu, nagdudulot ito ng libreng libangan sa mga taong nagbabasa. Batay sa mga magandang dulot ng pagbabasa, tunay nga na ang gawaing ito ay hindi lamang basta nakasanayang gawain bagkus nagbibigay ito ng maraming benepisyo sa tao na dapat na binibigyang diin sa paaralan upang higit na mahikayat ang mga mag-aaral na bumasa.

Sa pagtuturo ng pagbasa, ang isa sa mga naituring na kabiguan ng guro ay ang kawalan ng kakayahan ng mag-aaral na unawain ang kanyang binasa, may kakayahan silang

basahin ang bawat salita ngunit hindi nauunawaan ang mensahe na nais iparating nito at ito ay isa sa mga salik na dinadahilan kung bakit nakakabagot sa kanila ang pagbasa. Mayroon din namang nakakaintindi subalit karamihan sa kanila ay hindi nakasasagot sa katanungan na hango sa akdang binasa na sumusukat sa kakayahan ng isipan kaugnay ng mga kasanayang pang-intelektwal na dapat malinang sa mga mag-aaral. Binanggit ni Estremera (2018), na may mga salik na nakaaapekto sa pagbasa. Una, mag-aaral, ikalawa, wika, ikatlo, guro, ika-apat, mga namumuno sa paaralan, ikalima, paaralan, ika-anim, tahanan at ika-pito, komunidad na kinabibilangan.

Inilahad naman ni Imam (2016) at ng kanyang mga kasama, ang mga kahinaan ng mga mag-aaral kung bakit natatamo ang mababang literasi lebel sa pagbasa ang mga mag-aaral. Una, bokabularyong konteksto. Ikalawa, pagtatala ng mga importanteng detalye. Ikatlo, panghuhula at Ika-apat, paghihinuha patungkol sa binasa. Ibig sabihin upang matamo ang mataas na pag-unawa sa pagbabasa kinakailangang magkaroon ng iba't ibang pagsasanay, aktibidades, drills, at mga pagsusulit sa paaralan. Ang kakayahan na magbasa ay lubos na nagpapayaman at nagpapahalaga para sa panlipunan at pang-ekonomiyang pag-unlad.

Sa mga guro upang maipabatid sa mga mag-aaral ang kahalagahan ng pagbasa sa pangkalahatan. Ang kasanayan sa pagbasa ang nagiging batayan upang ang mga mag-aaral ay magtagumpay sa kanilang pag-aaral. Natutulungan silang magkaroon ng kawili-wiling pagbasa at mapatunayan na ang pagbasa ay isang paraan ng pagkatuto (Van Den Broek at Espin, 2019).

Ang pakikilahok ng mga magulang sa pag-aaral ng kanilang mga anak ay lubhang mahalaga (Cabigao, 2021). Kapag gumugol ka ng oras sa pagbasa sa iyong mga anak, maaaring mas malamang na ipahayag niya ang kanyang sarili at angkop na makipag-ugnay sa iba sa isang malusog na pamamaraan. Dagdag ng website na life Hack, ang pagbasa ay nagdudulot ng mas mabuting writing skills sa mga bata. Dulot na rin ng mas maigting na bokabularyo, ang pagbasa ng mga magaganda at mabubuti ang pagkakagawa na mga libro at iba pang babasahin ay nagkakaroon ng magandang epekto sa pagsusulat ng mga nakababasa sa mga ito.

Sa mga administrador ng paaralan, ang resulta ng pag-aaral na ito ay nagdudulot ng kapakinabangan upang mas tuunan ng pansin ang pagbasa ng mga mag-aaral dahil magiging malaki ang epekto nito sa kanilang maayos na pagganap hindi lamang sa paaralan kundi pati na rin sa lipunan.

At sa mga kapwa mananaliksik, upang higit na suriin ang mahahalagang bagay o ideya na nakatutulong upang mapalawak ang hangarin ng bawat isa na mabuksan ang pananaw ng mga mag-aaral sa pagpapaunlad ng kanilang pagbasa lalo na sa mga akdang pampanitikan gaya ng maikling kwento sa Filipino.

Sa Teoryang Iskema, ang lahat ng ating naranasan at natutunan ay nakalagak sa isipan at maayos na nakalahad sa kategorya. Ang mga iskemang ito ay nadaragdagan,

nililinang, nababago at napapaunlad (Anderson & Pearson 1984). Bawat bagong impormasyon ay nadaragdag sa dati ng iskema.

Sa panulat ni John Locke (1690) na An Essay Concerning Human Understanding (Incarta Premium 2009), ipinalagay na sa pagsilang, ang isipan ng tao ay tabula raza o blank states. Nangangahulugang blangko ang isipan, at ang blangkong isipan ay unti-unting napupunan ng mga impormasyon dahil sa mga karanasan ng tao. Ang bawat natutunan ng tao ay naging iskema sa isipan. Sa teoryang ito, bawat bagong impormasyong nakukuha sa pagbasa ay naidagdag sa dati nang iskema. Ang iskema na ito ay ang mga nakaimbak na kaalaman. Maaring makapanghula ang mambabasa sa tulong ng kanyang taglay na dating kaalaman. Nagagawang basahin ang teksto upang mapatunayan ng mambabasa ang kanyang mga hinuha at hula. Nagsisilbing input ang teksto. Hindi ang teksto ang iniikutan ng proseso ng pagbasa kundi ang konsepto o kaisipang nabubuo sa isipan ng mambabasa.

Inilarawan ang prosesong ito bilang teoryang sikolohikal sapagkat ang teksto ay nagbibigay lamang ng direksyon sa mambabasa kung paano nabuo ang pagpapakahulugan. Binabasa niya ang teksto upang patunayan kung ang mga hinuha o ekspektasyon niya ay wasto, may kulang o dapat baguhin. Dahil dito, ang teksto ay lunsaran lamang sa pagbuo ng kahulugan. Hindi ang teksto ang sentrong iniikutan ng pang-unawa kundi ang tekstong nabubuo sa isipan ng mambabasa.

Ang Teoryang Bottom-up ay bunga ng tradisyunal na pananaw ng Teoryang Behaviorist na higit na nagbigay pokus sa kapaligiran sa paglinang komprehensyon sa pagbasa. Ayon sa teoryang ito, ang pagbasa ay pagkilala ng serye ng nakasulat na mga simbolo upang maibigay ang katumbas nitong tunog. Nanalig ang teoryang ito na ang pagkatuto sa pagbasa ay nagsimula sa pagkilala sa mga titik, salita, parirala, at pangungusap bago malaman ang kahulugan ng teksto. Ang pagbasa ay pagkilala ng mga serye ng mga nakasulat sa simbolo (stimulus) upang maibigay ang katumbas nitong tunog (response). Astorga (2010). Nasa teksto ang kahulugan at kailangang lumikha ng kahulugan batay sa teksto pagkatapos ay bibigyan ng interpretasyon saka maunawaan. (McCarthy, 1999 sa aklat ni Arrogante, 2007).

Sang-ayon sa kaisipan ni Bloomfield, ang Teoryang Bottom-up ay kailangang may kakayahang unawain ang mga simbolong pangwika gaya ng mga letra, kahulugan ng bawat salita o kaisipan at anupamang mga krokis na makikita at mga talababa upang pagsama-samahin ito hanggang maunawaan ang mensaheng taglay nito. Kung walang mga simbolong pangwika hindi rin mangyayari ang pag-unawa sa mga mensahe.

Ang Teoryang Top-Down ay matatawag na Teoryang Kognitibo na naniniwalang ang pagbasa ay nagmula sa isip ng mambabasa patungo sa teksto. Ang teoryang ito ay tinatawag ding inside-out model, concept-driven model, at whole-to-part model (Goodman, 1985 at Smith, 1994), dahil ang kahulugan o impormasyon ay nagsisimula sa mambabasa patungo sa teksto. Sa teoryang ito ay nakasalalay sa kapasidad ng pag-iisip at ang pag-unawa ng pagbasa. Ang intelehensiya ay nangangahulugang pangkalahatang

kapasidad ng pag-iisip (Spearman, 1904) at naging salik ito kung paano nalinang ng tao ang kanyang karunungan.

Paglalahad ng Suliranin

Layunin ng pananaliksik na malaman at masuri ang kahandaan, hamon at epektibong solusyon sa kasanayang pagbasa sa Filipino ng mga mag-aaral.

Ang suliranin na binigyang-tugon sa pananaliksik na ito ay ang mga sumusunod:

1. Gaano kaseryoso ang kahandaan sa kasanayang pagbasa sa Filipino ng mga mag-aaral?
2. Gaano kaseryoso ang mga hamon na kinakaharap ng mga mag-aaral sa kasanayang pagbasa sa Filipino?
3. Gaano kaepektibo ang mga solusyon sa mga hamon sa kasanayang pagbasa sa Filipino ng mga mag-aaral?

METODOLOHIYA

Disenyo ng Pag-aaral

Ginamit ng mananaliksik ang Paglalarawang Pagsisiyasat na gumamit ng talatanungan para makalikom ng mga datos. Ayon kay Calmorin (2016), ang pamamaraang palarawang pagsisiyasat ay pagbibigay kahulugan tungkol sa isang bagay o paksa sa kasalukuyan. Inilarawan ang tumpak na larawan ng kasalukuyang kalagayan ng mga bagay-bagay at ang kahusayan ng uring ito ay nakasalalay sa pagkabalido at pagkamaasahan ng mga datos.

Ang Purposive Sampling ang ginamit ng mananaliksik para sa mga tagatugon na mag-aaral. Ang Purposive Sampling ay napiling gamitin upang malimitahan ang bilang ng mga tagatugon. Sinasabing ang Purposive Sampling ay sadyang pagpili ng tagatugon dahil sa mga katangian na taglay ng mga tagatugon ayon kay (Etikan et al., 2016)

Lokasyon at Populasyon ng Pananaliksik

Ang pananaliksik na ito ay isinagawa sa paaralan ng Tocmo Integrated School, Tocmo, Loacan, Itogon, Benguet. Ang mga tagatugon ay dalawampu’t apat (24) na mag-aaral mula grade 10, Panuruang taon 2022-2023.

Instrumento sa Paglikom ng mga Datos

Nagsilbing instrumento sa pag-aaral na ito ang paggamit ng talatanungan sa pangangalap ng datos. Ang mananaliksik ay sumangguni sa mga eksperto upang malaman kung balido ang ipinamudmod na mga talatanungan. Ang mga nakalap na datos at impormasyon mula sa talatanungan ay ginamit ng mananaliksik. Ang mga sumusunod na panukat ang ginamit upang lapatan ng interpretasyon ang mga sagot sa kasanayang pagbasa sa Filipino ng mga mag-aaral. Ginamit ang check list upang sagutan ng mga mag-aaral ang mga katanungan mula sa instrumentong ginamit ng mananaliksik.

Paraan sa Paglikom ng mga Datos

Naisagawa ang pag-aaral at naipamudmod ang talatanungan sa mga mag-aaral sa paghingi ng mananaliksik ng liham ng rekomendasyon mula sa Dekano ng Paaralang Gradwado ng Baguio Central University. Nakuha ang rekomendasyon pagkatapos humingi ng pahintulot ang mananaliksik sa Punong-guro ng Tocmo Integrated School. Pagkatapos mapahintulutan, nakipag-ugnayan ang mananaliksik sa dalawang (2) tagapayo ng mga mag-aaral na tumulong sa pamimigay ng mga talatanungan.

Pagtrato ng mga Datos

Tinugon ang mga kinakailangang datos sa pananaliksik gamit ang frequency counts, weighted mean at pagranggo para sa kahandaan, mga hamon at epekto ng mga solusyon sa kasanayang pagbasa sa Filipino ng mga mag-aaral.

Etikal na Konsiderasyon

Ang mananaliksik ay humingi ng pahintulot at pagsang-ayon sa punong- guro ng paaralan at sa mga tagapayo ng mga mag-aaral na sangkot sa isinagawang pag-aaral. Nang naaprubahan na ang sulat, agad na isinagawa ng mananaliksik ang pag-aaral.

Tiniyak ng mananaliksik na naging kompidensiyal ang mga nalikom na mga sagot sa mga tagatugon at ginamit lamang sa pag-aaral. Iginalang ang resulta at buong-pusong pinasalamatan ang lahat ng mga taong naging bahagi ng pag-aaral na ito.

Siniguro rin ng mananaliksik na ang mga ginamit na sanggunian at iba pang reperensiya sa pag aaral ay kinilala at tinukoy nang tapat. Hindi rin nakaligtaan ng mananaliksik na ipahayag ang kaniyang karapatan sa pag-urong mula sa pagsagawa ng pag-aaral sa sandaling may limitaw na reklamo o kompidensiyal na problema mula sa tagatugon at ibang tao na may kaugnayan sa pag-aaral na ito. Ang mananaliksik ay walang pinanigan sa naging resulta ng pag-aaral na ito.

KINALABASAN AT PAGTATALAKAY

Kahandaan sa kasanayang pagbasa sa Filipino ng mga mag-aaral

Inilalahad ng Talahanayan 1 ang antas ng kahandaan ng mga mag-aaral sa kasanayang pagbasa sa Filipino. Mula sa Talahanayan 1 na may kabuuang bigat na 2.99 na nagpapahiwatig na Pinaghandaan ng mga mag-aaral ang kanilang kahandaan sa pagbasa sa Filipino. Ayon kay Belvez, P. (2000) ang panahon ng kahandaan sa pagbasa ay nag-iiba sa haba depende sa indibidwal, sa kapaligirang nilakhan ng bata, sa eksposyur niya sa mga aklat at iba-ibang babasahin at sa iba-iba at mayamang karanasan niya.

Mula sa Talahanayan 1 ang nangunguna sa ranggo na may kabuuang bigat na 3.25 ay Pinaghandaan ang personalidad at karanasan. Ayon pa rin kay Belvez (2000) ang mga unang karanasan ng bata sa tahanan, sa kapaligiran ay nakaaapekto sa personalidad ng mag-aaral at nakaaapekto naman sa kakayahan sa pagbasa at maging sa iba pang gawaing pagkatuto. May batang lumaki sa tahanan o kapaligirang marahas, malupit, may lumaki sa kapaligirang mabait at mabuti. May bata sa kasanggulan pa lamang ay nakalantad na sa mga aklat at mga babasahin. Ito'y mga salik na tumutukoy sa maaga o huling pagkakaroon ng kahandaan sa pagbasa.

Pumapangalawa sa ranggo na may kabuuang bigat na 3.00 na may katumbas na paliwanag na Pinaghandaan ng mga mag-aaral ang pag-unawa sa mensahe ng akda habang nagaganap ang interaksyon sa teksto. Kapag tayo ay nagbabasa, ang mga estratehiya natin sa pag-unawa ang dagliang nagbubunsod sa atin upang maiugnay ang ating kaalaman at mga karanasan sa mga impormasyon sa teksto upang makabuo tayo ng pagpapakahulugan.

Dalawa ang nasa ikatlo't kalahati (3.5) sa ranggo na may kabuuang bigat na 2.92 na may katumbas na paliwanag na Pinaghandaan ng mga mag-aaral ang pagbibigay ng kasingkahulugan ng mga salita na ginamit sa akda at kakulangan sa kaalaman sa bokabularyo.

Ang nasa ikalimang ranggo ay ang panlimang tagapagpahiwatig na may kabuuang bigat na 2.88 na nangangahulugang pinaghandaan ang pag-unawa sa malalalim na salita sa akda.

Batay sa resulta ng pag-aaral ang pala-palagay na pinaghandaan ang kahandaan sa kasanayang pagbasa sa Filipino ng mga mag-aaral ay hindi tanggap dahil ang kinalabasan ng pag-aaral ay may kabuuang bigat na 2.51 Pinaghandaan ng mga mag-aaral ang kasanayang pagbasa sa Filipino.

Gaano kaseryoso ang mga hamon na kinakaharap ng mga mag-aaral sa kasanayang pagbasa sa Filipino

Mula sa Talahanayan 2 na may kabuuang bigat na 3.08 at may katumbas na paliwanag na Seryoso ang mga hamon na kinakaharap ng mga mag-aaral sa pagbasa sa Filipino. Ayon sa pananaliksik ng Phil-IRI (2018), isinasaad na may tatlong suliranin na kasangkot sa pagbasa. Ito ay sa bahagi ng dekowding, pag-unawa sa binasa, at pananatili sa malinaw na ipinapahayag sa resulta ng Phil-IRI Oral Test. Sinasabi ng manwal ng Phil-IRI (2018), maikakategorya ang mga suliranin bilang maling pagbasa gaya ng maling bigkas, pagpapalit, hindi pagbigkas sa salita, pagsisingit, pagbabawas, at pag-uulit. Ang suliranin sa maling pagbasa ay itinuturing na nasa ilalim ng bahagi ng dekowding, isa sa pangunahing suliraning nararanasan ng mga mag-aaral sa pagbasa.

Ang una sa ranggo na may kabuuang bigat na 3.25 at may katumbas na pagpapaliwanag na seryoso ang paghahawan sa sagabal na kinakaharap ng mga mag-aaral sa kasanayang pagbasa sa Filipino. Ang Steck-Vaughn na tagapaglimbag ng mga materyales sa larangan ng edukasyon ay nagbigay ng mga elemento sa pagbasa na

makatutulong sa mga bata na maging matagumpay na mambabasa, isa na rito ang bokabularyo o talasalitaan. Ang bokabularyo o talasalitaan ay mga salitang nalalaman ng isang tao. Kailangan ng mag-aaral na magkaroon ng malawak na talasalitaan para maging mahusay na mambabasa. Mas maraming alam na salita ay mas makababuti sa kanya sapagkat malaki ang tsansa na maunawaan niya kung ano ang kanyang binabasa.

Maraming paraang magagamit sa pag-aalis ng sagabal o balakid. Isa rito ay ang pagpapabasa sa salita na nakasulat sa plaskard, ipabigay ang kahulugan at ipagamit sa sariling pangungusap. Maaari ring ipabasa ang mga pangungusap na nasa pisara na kinapapalooban ng mahirap na salita. Ito ay may salungguhit. Sa tulong ng kahulugang ibinibigay ng pangungusap ay matututuhan ng mag-aaral ang kahulugan ng salita.

Dalawa ang nasa ikalawa't kalahati (2.5) sa ranggo na may kabuuang bigat na 3.04 at may katumbas na paliwanag na seryoso ang pag-alam at pag-aaral nang mabuti sa mga kasanayan sa pagbasa; Pagsusuri sa tauhan at katangian nito. alamin at pag-aralan nang mabuti ang mga kasanayan sa pagbasa. Ayon sa lumabas na pag-aaral ng Generational White Paper (2016), ang mga tinatawag na kabilang sa Generation Z ay may pag-uugali na mas maikli ang pasensya, mabilis sa lahat ng bagay, maikli ang atensyon at may mataas na pagdepende sa teknolohiya. Kung ganito ang uri ng mga kabataan sa henerasyon ngayon, ang usapin sa literasi sa makrong kasanayan ay dapat na mapagtuunan kung talaga bang ito ay nalilinang. Pinagtibay ni Frankel et.al. (2016), na ang literasi ay dapat na patuloy na pinauunlad sa pamamagitan ng iba't ibang gawain o kaparaanan. Inilahad naman ni Imam (2016) at ng kanyang mga kasama ang mga kahinaan ng mga mag-aaral kung bakit natatamo ang mababang literasi lebel sa pagbasa ang mga mag-aaral:

- bokabularyong konteksto
- pagtatala ng mga importanteng detalye
- panghuhula
- paghihinuha patungkol sa binasa

Ibig sabihin upang matamo ang mataas na pag-unawa sa pagbabasa kinakailangang magkaroon ng iba't ibang pagsasanay, aktibidades, drills, at mga pagsusulit sa paaralan. Ang kakayahan na magbasa ay lubos na nagpapayaman at nagpapahalaga para sa panlipunan at pang-ekonomiyang pag-unlad.

Pang-apat sa ranggo na may kabuuang bigat na 2.92 na may katumbas na paliwanag na Seryoso ay ang mga hamon na kailangang linangin sa kasanayang sosyal at emosyonal. Magkakaiba-iba ang lawak at saklaw ng panlipunang pinagmulan ng mga bata. Iyong mga likas na matatalino ay malamang na galing sa masayang tahanan at maaaring makadama ng katiwasayan at kasiyahang lumahok sa mga gawaing pangklase at sa pagsasagawa ng mga payak na gawain. Sa isang kapaligirang ang mag-aaral ay hindi nagkakaroon ng mga suliranin gaya ng pagkatakot, pagkahiya, pangamba, at iba pa ay higit na magiging mabilis ang pagkakalinang ng kahandaan sa pagbasa. (Badayos)

Panghuli sa ranggo ay may kabuuang bigat na 2.88. Seryoso ang paliwanag na ang pagsasadula ng mga sipi mula sa mga akda.

Sa Talahanayan 2 batay sa pala-palagay na Hindi gaanong Seryoso ay hindi tanggap dahil ang kinalabasan ng pag-aaral na may kabuuang bigat na 2.51 ang katumbas na paliwanag ay Seryoso ang mga hamon na kinakaharap ng mga mag-aaral sa kasanayang pagbasa sa Filipino.

Gaano kaepektibo ang mga solusyon sa mga hamon sa kasanayang pagbasa sa Filipino ng mga mag-aaral

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Inilalahad ng Talahanayan 3 kung gaano kaepektibo ang mga solusyon sa mga hamon sa kasanayang pagbasa sa Filipino ng mga mag-aaral batay sa naging tugon. Mula sa Talahahanayan 3 na may kabuuang bigat na 3.26 na may katumbas na paliwanag na Napakaepektibo ang solusyon sa kasanayang pagbasa sa Filipino ng mga mag-aaral. Noong ika-25 ng Oktobre 2011, itinalaga ng Kagawaran ng Edukasyon ang Division Memorandum No. 244 na nagdedeklarang Nobyembre ang buwan ng pagbasa na gaganapin taun-taon. Ito ay para mapaunlad pa ng mga mag-aaral ang kanilang mga kasanayan sa pagbabasa na naglalayong magkaroon ng mataas na antas ng kaalaman. Kaakibat ng pagbasa ang komprehensyon ng mga mag-aaral sa interpretasyon ng kanilang binasa. Sa mga sanhi ng hindi pare-parehong progreso ng pagkalinang ng kasanyan at kakayahan sa pagbasa, pangunahin sa mga ito ay:

1. pagkakaiba-iba ng indibidwal

2. hindi epektibong paraan ng pagtuturo na ginamit na guro, walang gaanong kasanayan, kabatiran sa pagtuturo;

3. kakulangan sa magagaling na babasahing instruksyunal;

4. hindi maayos na kapaligiran na pinag-aaralan o silid-aralan

5. at kawalan ng koordinasyon sa pagsisikap ng paaralan, ng tahanan at ng pamayanan.

Ang una (1) sa ranggo na may kabuuang bigat na 3.54 at ang katumbas na paliwanag na Napakaepektibo ang Solusyon sa kasanayan sa pag-unawa sa pagkuha ng pangunahing tiyak na detalye sa pagbasa, paghinuha, kasanayan sa paglalahat, kasanayan sa pagwawakas, kasanayan sa pagkilatis sa katotohanan, pagtukoy sa teksto at kasanayan sa pagsusuri sa mga teknik. Ayon kay Saucer (mula kay Ranco, 2002). Ang kasanayan sa pagbasa ay isang batayan upang ang mga mag-aaral ay magtagumpay sa kanilang pag-aaral. Ang pagbasa bilang kasangkapan sa pagtuturo ay siyang susi at katunugan kaya dapat maging layunin na matulungan ang mga mag-aaral na magkaroon ng

kakayahang bumasa. Matutulungan silang magkaroon ng kawili-wiling pagbasa at mapatunayan na ang pagbasa ay isang paraan ng pagkatuto.

Ayon sa pag-aaral ni Nila Banton Smith (1969) may apat na antas ng kategorya sa pag-uuri ng mga kasanayan sa pag-unawa:

1. Ang pag-unawang literal na nakapokus sa mga ideya at impormasyong tuwirang nakalahad sa teksto.

2. Ang interpretasyon na nangangailangan ng mas mataas na antas ng pag-iisip, pagbibigay kahulugan sa tulong ng pahiwatig, pagkuha ng pangunahing ideya;

3. Ang kritikal o mapanuring pagbasa ay nagpapahalaga ng kaangkupan, katiyakan, at pagkamakatotohanan ng impomasyong nakalahad sa teksto.

4. Ang malikhaing pagbasa na gumagamit ang tagabasa ng kakaibang kasanayan sa pag-iisip na lagpas sa antas ng pag-unawang literal, interpretasyon at mapanuring pagbasa. Sinisikap ng tagabasa na makabuo ng bago o pamalit na solusyon sa inihain ng awtor.

Dalawa ang nasa ikalawa't kalahati (2.5) sa ranggo na may kabuuang bigat na 3.29 at may katumbas na paliwanag na Napakaepektibo ang solusyon ang tagapagpahiwatig bilang tatlo (3) kontinyum na mga pamamaraan sa pagmomodelo ng pagbasa: Tuluyang pagbasa nang tahimik, tambalang pagbasa, sabayang pagbasa, impresyong neurolohikal, inuulit na pagbasa at nakarekord na aklat at sama-samang pagbasa at pagbasa ng mga panitikan sa Filipino. Ayon kay William Gray, ang proseso ng pagbasa ay may apat na hakbang gaya ng pagkilala sa salita, pag-unawa, reaksyon at inegrasyon. At ito aniya ay nagangailangan ng matalas na pag-iisip, kakayahan sa pagtutulad, pagpapahalaga, pagpapasya at pagbuo ng reaksyon at paglutas ng suliranin. Ang kasanayan sa pagbasa ay hindi lamang kasanayan sa pagkilala ng mga salita, komprehensyon o pag-unawa, pagsusuri at paghinuha. Ang pagbasa ay isang malawak at masalimuot na gawain at gawi.

Ikaapat sa ranggo ang pagbasa ng mga panitikan sa Filipino na may kabuuang bigat na 3.08 at may katumbas na paliwanag na Epektibo ang Solusyon sa Paggamit ng mga istilong: flashback, daloy ng kamalayan, pasuliraning wakas, tour de force, pahiwatig, pangangatwiran;

Ang kasanayan sa pagpapahalaga sa binasa ang pinakahuli sa ranggo na may kabuuang bigat na 3.00 na may katumbas na paliwanag na Epektibo ang Solusyon sa kasanayang pagbasa sa Filipino ng mga mag-aaral.

Sa Talahanayan 3 batay sa pala-palagay na Hindi Epektibo ang Solusyon ay hindi tanggap dahil ang kinalabasan ng pag-aaral na may kabuuang bigat na 3.26 ang

katumbas na paliwanag ay Napakaepektibo ang Solusyon sa mga hamon na kinakaharap ng mga mag-aaral sa kasanayang pagbasa sa Filipino.

Konklusyon

Batay sa mga kinalabasan ng pag-aaral, ang mga sumusunod na konklusyon ay nabuo:

1. Pinaghandaan ng mga mag-aaral ang mga kahandaan sa kasanayang pagbasa sa Filipino.
2. Seryoso ang mga hamong hinaharap ng mga mag-aaral sa paghawan ng sagabal sa mga akda.
3. Napakaepektibo ang Solusyon sa mga mag-aaral dahil Pinaghandaan ang kahandaan sa kasanayang pagbasa sa Filipino.

Rekomendasyon

Mula sa mga konklusyong nabuo sa pag-aaral, ang mga sumusunod na rekomendasyon ay inihaharap:

1. Pag-ibayuhing panatilihin ang ginawang paghahanda ng mga mag-aaral sa kasanayang pagbasa sa Filipino sa pamamagitan ng pagtiyak muna sa kahandaan sa pagbasa bago turuan sa pormal na pagbasa. Anumang galing at pagsisikap ng guro, hindi matututong bumasa ang mag-aaral na wala pang kahandaan sa pagbasa.

2. Pagsasagawa ng team teaching ng dalawa o higit pang mga guro. Pag-iba-ibahin ang paraan, hindi lamang pamaraang pabuod at pamaraang pasaklaw, hindi lamang pamaraang pabalak, pamaraang pasuliranin at pagtuturong pangkatan, gumamit din ng pamaraang patuklas, aliwang paglalakbay, araling pagpapahalaga at pagdulog konseptwal.
3. Gawing masining at kasiya-siyang karanasan ang kasanayan sa pagbasa. Kaiga-igaya at kasiya-siya para sa pag-aarala ang bumigkas ng tula, ang makilahok sa mga sabayang bigkasan, ang makisali sa mga kwentuhan at mga dula, ang lumikha ng mumunting tugma o tula, ang kumatha ng isang akda o

kaya ay bumigkas ng isang talumpati. Lalo pang sumisigla ang mga gawaing ito, kung magdaraos ng mga patimpalak sa pagbasa.

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KINDERGARTEN TEACHERS' CLASSROOM MANAGEMENT STYLES AND LEARNERS' LEVEL OF ENGAGEMENT IN THE DIVISION OF LUCENA CITY

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ABSTRACT

This study intends to determine the classroom management styles of kindergarten teachers in the Division of Lucena City and the level of engagement of kindergarten learners across behavioral, emotional, and cognitive aspects. It utilized descriptive-correlational research design. The data were statistically analyzed using percentage formula and mean score. Moreover, the significant relationship between kindergarten teachers' classroom management style and learners' level of engagement was statistically analyzed using the Pearson Correlation Coefficient (Pearson's r). The study involved 120 public school kindergarten teachers distributed across its districts: North District (34 teachers), East District (22 teachers), West District (30 teachers), and South District (34 teachers). The findings revealed that the interactionist style was the most practiced classroom management style among public school kindergarten teachers in the Division of Lucena City. Meanwhile, learners' level of engagement across behavioral, emotional, and cognitive dimensions during the first and second quarters of School Year 2023-2024 were on the developing level (sometimes engaged). It was also found that there was a significant correlation (weak positive correlation) between interactionist classroom management style and learners' emotional engagement during the second quarter. Thus, a lesson plan model utilizing interactionist classroom management style highlighting emotional development among kindergarten learners was proposed by the researcher.

Keywords: *Behavioral Engagement, Classroom Management Style, Cognitive Engagement, Emotional Engagement, Interactionist, Interventionist, Level of Engagement, Non-Interventionist*

INTRODUCTION

Classroom management is a crucial aspect of teaching as it encompasses various elements, such as time management, behavior management, and fostering positive relationships with the learners. A safe and stimulating learning environment is essential to ensure learners are engaged in learning activities and are motivated to achieve their academic goals. Furthermore, classroom management can be viewed as a complex concept that involves a teacher's personality, professional behavior, and competencies needed to perform their roles successfully.

Martin and Baldwin's theoretical model offers a comprehensive understanding of classroom management with three broad dimensions: Personality, Teaching, and Discipline. The Personality dimension pertains to a teacher's actions contributing to learners' personal growth and emotional well-being. The Teaching dimension relates to a teacher's actions that establish and maintain learners' learning activities. In contrast, the Discipline dimension concerns a teacher's strategies and actions to maintain appropriate standards of behavior in the classroom. Based on Wolfgang and Glickman's explanation of the relationship between teachers' behavior patterns and their beliefs about learners' personalities and motivations, the Martin and Baldwin model identifies three classroom management styles: Interventionist, Non-Interventionist, and Interactionist. Each style reflects a teacher's beliefs about how much control they should have over the classroom environment. To assess their classroom management style, teachers can use a self-assessment instrument based on the Martin and Baldwin model. Although each teacher may use all three styles, one typically dominates their behavior in the classroom. By understanding their dominant style, teachers can reflect on their strengths and areas for improvement and adopt more effective classroom management strategies to enhance learners' engagement and learning.

Kindergarten learners' emotional, cognitive, and behavioral engagement refers to the level of participation and involvement of young children in the learning process, including their feelings, thoughts, and actions related to the learning activities. Emotional engagement involves the affective aspect of learning, such as the level of interest, motivation, and enjoyment that learners experience during classroom activities. Cognitive engagement refers to the degree to which learners actively participate in the learning process, such as their level of attention, comprehension, and problem-solving skills. Finally, behavioral engagement relates to learners' observable behaviors in the classroom, such as their attendance, participation, and cooperation with teachers and peers. Together, these three types of engagement play a crucial role in kindergarten learners' academic and social development, as they impact the quality and depth of learning experiences and ultimately shape their future success in school and beyond.

Moreover, the kindergarten years, typically between the ages of 4 and 6, are considered a critical period in a child's development. During this time, children undergo significant

cognitive, social, emotional, and physical growth. They are particularly receptive to learning and develop fundamental skills and abilities that will serve as building blocks for future learning and development. The quality of learning experiences during kindergarten can have lasting effects on a child's future academic and personal success. Research suggests that early educational experiences strongly influence various outcomes, such as academic achievement, cognitive abilities, social skills, and emotional well-being. A strong foundation established during kindergarten can contribute to a positive trajectory in later school years and overall life outcomes. Kindergarten sets the stage for subsequent academic progress. Children acquire essential skills like literacy, numeracy, problem-solving, and critical thinking during this period. A high-quality kindergarten experience with practical instruction and engaging learning activities can foster a love for learning, curiosity, and a solid academic foundation that supports later educational achievements. Beyond academic outcomes, the kindergarten years also play a vital role in shaping a child's personal development. Kindergarten provides opportunities for socialization, emotional growth, and the development of social skills such as cooperation, empathy, and communication. Positive experiences during this time can enhance self-esteem, self-confidence, and overall social-emotional well-being, contributing to success in personal relationships and overall life satisfaction.

This study explores the relationship between classroom management styles of kindergarten teachers and the emotional, cognitive, and behavioral engagement of their learners in the Division of Lucena City. The kindergarten years are a critical period for children's development, and the quality of their learning experiences can have a significant impact on their future academic and personal success. Therefore, it is essential to investigate the classroom management styles that are most effective in promoting engagement among young learners. Thus, this study aims to contribute to the existing literature on classroom management and enhance the understanding of how teacher behavior and classroom management practices affect learner engagement. The findings of this study may have significant implications for improving teaching and learning practices in kindergarten classrooms in the Division of Lucena City and beyond.

Research Questions

1. What extent of a particular classroom management style is practiced by kindergarten teachers among:
    - 1.1 interventionist style;
    - 1.2 interactionist style; and
    - 1.3 non-interventionist style?
2. What is the level of engagement of kindergarten learners in terms of:
    - 2.1 behavioral engagement*;*
    - 2.2 emotional engagement*;* and
    - 2.3 cognitive engagement:
        - *2.3.1 literacy;* and
        - 2.3.2 *numeracy?*

3. Is there a significant relationship between classroom management styles practiced by kindergarten teachers and the level of engagement of kindergarten learners during:
    3.1 first quarter; and
    3.2 second quarter?
4. What lesson plan model can be proposed by the researcher from the findings of the study?

METHODOLOGY

Research Design

The researcher employed a descriptive-correlational research design to determine the correlation between teachers' classroom management styles and learners' level of engagement. The study utilized a descriptive research design to assess teachers' preferences by adapting a questionnaire for coding purposes. Similarly, the research design was descriptive to assess learners' engagement levels. Furthermore, the study is descriptive-correlational, aiming to determine relationship between different variables.

Research Locale

The researcher conducted her study in the Division of Lucena City. Lucena City is composed of four districts with 45 public elementary schools respectively (North District: 14 schools, East District: 10 schools, West District: 11 schools, and South District: 10 schools).

Research Population and Sample

The researcher employed a total enumeration sampling technique, encompassing all 120 public school kindergarten teachers within the Division of Lucena City. The division comprises 120 public school kindergarten teachers distributed across its districts: North District (34 teachers), East District (22 teachers), West District (30 teachers), and South District (34 teachers).

Table 1

Public School Kindergarten Teachers in the Division of Lucena City

District	No. of Kindergarten Teachers
North	34
East	22
West	30
South	34

Total	**120**

Research Instrument

The researcher utilized adapted questionnaire in collecting data in kindergarten teachers' classroom management styles. This was interpreted as follows:

Table 2

Classroom Management Style Scale and Qualitative Description

Scale	Range	Verbal Interpretation	Qualitative Description
5	4.50- 5.00	Very Great Extent	It signifies a high frequency and consistency in implementing these practices.
4	3.50- 4.49	Great Extent	It signifies regular implementation with considerable effectiveness, though it may lack the consistency of the highest level.
3	2.50- 3.49	Moderately Extent	It signifies a moderate frequency of practice implementation, reflecting an average level of effectiveness.
2	1.50- 2.49	Low Extent	It signifies an infrequent application of practices indicating a lack of regular engagement.
1	1.00- 1.49	Very Low Extent	It signifies a complete absence of the specified practices in daily operations.

The researcher then gathered the learners' level of engagement through kindergarten quarterly assessment result during first and second quarters. This was interpreted as follows:

Table 3

Level of Engagement Qualitative Description

Level	Indicators
(B) Beginning	The learner rarely demonstrates the competency. The learner rarely participates in class activities and/or initiates independent works.

	The learner shows interest in doing tasks but needs close supervision.
(D) Developing	The learner sometimes demonstrates the competency. The learner sometimes participates, with minimal supervision. The learner progresses continuously in doing assigned tasks.
(C) Consistent	The learner always demonstrates the competency. The learner always participates in different activities, works independently. The learner always performs tasks, and is advanced in some aspects.

Data Gathering Procedure

The researcher initiated the data collection process by seeking permission from the author of the adapted questionnaire via email. Subsequently, the researcher obtained approval from relevant authorities to gather data in the chosen locale. Once the schedule was confirmed, the researcher prepared her instruments, including an endorsement letter and necessary materials for the study. The researcher then commenced data gathering by administering the adapted questionnaire to the kindergarten teachers.

Upon completion of data collection, the researcher proceeded to interpret the gathered information from the questionnaire to analyze the teachers' preferred classroom management styles. Additionally, the researcher obtained data on kindergarten learners' level of engagement from recorded quarterly assessments during the first and second quarters. Subsequently, the researcher interpreted the data to analyze the level of engagement among the kindergarten learners.

Statistical Treatment of Data

For **Part I** of the study, which focused on classroom management styles, the statistical treatment involved using the Weighted Mean Formula to calculate the average preference for each management style among the kindergarten teachers. This formula considers the varying importance or weight assigned to each response option in the questionnaire.

For **Part II**, which examined the level of engagement among kindergarten learners, the statistical treatment involved utilizing the percentage formula to determine the proportion of learners actively engaged in classroom activities. This formula calculates the percentage of engaged learners based on the total number of learners assessed during the first and second quarters.

To test the hypothesis regarding the relationship between classroom management style and learners' level of engagement, the Pearson Product-Moment Correlation Coefficient was employed. This statistical measure assesses the strength and direction of the linear relationship between two variables, in this case, styles of classroom management and the level of learners' engagement.

Scope and Delimitation

This study probed only into identifying the extent of practice of classroom management styles of kindergarten teachers and the level of engagement of learners.

The responses of kindergarten teachers served as the basis for lesson plan model.

This study is limited to 120 public school kindergarten teachers in the Division of Lucena City.

The modified and adapted survey questionnaire served as the primary instrument in collecting the data needed in the study in terms of teachers' classroom management style while the data for the learners' level of engagement were gathered from the kindergarten quarterly assessment result during first and second quarters of School Year 2023-2024.

RESULTS

Part I. Extent of a Particular Classroom Management Style Practiced by Kindergarten Teachers

Table 4

Extent of Practice of Interventionist Classroom Management Style Among Kindergarten Teachers

Interventionist	**Weighted Mean**	**Verbal Interpretation**
1. When, during the class, one of my learners' loud laughs or starts crying, I get angry because he/she disturbs the class and I scold him/her.	2.53	Moderately Extent
2. I use to reward each learner achievement with good grade and to assess every failure with a bad grade or at least I criticize it.	3.97	Great Extent
3. I try to activate learners in class by calling them on.	4.76	Very Great Extent
4. I get angry when a learner disturbs class or harasses other learners, I immediately demand him/her to stop such behavior, or I'll have to punish him/her.	2.94	Moderately Extent
5. If any of the learners does not work during the class, I announce that he/she will stay during the break to complete the task, give him/her more extensive homework or give him/her a bad mark.	3.32	Moderately Extent
6. When I notice inappropriate, rude behavior, I always reprimand learners for that.	3.39	Moderately Extent
7. I believe that during the classes, learners have to keep quiet and listen to me in order to learn something.	4.13	Great Extent
8. When learners are restless during the class, I interrupt class explicitly requiring them to behave normally.	3.59	Great Extent
9. In order to ensure that learners will work sitting at their desks, I have to control them and exhort to work.	3.48	Moderately Extent

10. I require learners to do exactly what I tell them because I know that this is the only way they could learn the material.	3.53	Great Extent
	3.56	**Great Extent**

Source: Djigic, G. (2014). *Inventory for Teachers Self-Assessment in Classroom Management Styles - Development and its Psychometric Characteristics*

Legend:
4.50-5.00 *Very Great Extent*
3.50-4.49 *Great Extent*
2.50-3.49 *Moderately Extent*
1.50-2.49 *Low Extent*
1.00-1.49 *Very Low Extent*

Table 4 illustrates the interventionist classroom management style as practiced by kindergarten teachers, with a weighted mean of **3.56**, indicating a Great Extent response overall. Among the interventionist style practices, item 3, which states, "I try to activate learners in a class by calling them on," has the highest weighted mean of **4.76**, indicating a Very Great Extent response. Basically, learners at young age have short attention spans and easily gets distracted, thus, this suggests that kindergarten teachers actively employ strategies to engage learners such as by calling on them during class activities. Learners however, who participate in class are therefore be most likely more focused, better learners, and higher thinkers. An interventionist classroom management comprises of actions taken by teachers to create a supportive environment for the cognitive, behavioral, social and emotional development of learners (Korpershoek, 2016). A teacher who cares about his/her learners transmits knowledge effectively and has a good interaction with them due to the creation of an emotional link and environment (Kabeera, 2019).

Moreover, using rewards (item 2), getting learners' attention (item 7), establishing classroom rules (item 8), and directing kindergarten learners (item 10), are practiced to a Great Extent by kindergarten teachers. Interventionist classroom management involves five types of actions to help a teacher to offer high quality classroom management; (a) teachers must be caring to learners, (b) develop supportive relationship with learners, (c) organize and implement instructions in ways that optimize learners' access to learning, (d) teachers encouraging learners' engagement in academic tasks, and (e) using of group management methods (Korpershoek, 2016).

Table 5

Extent of Practice of Interactionist Classroom Management Style Among Kindergarten Teachers

Interactionist	**Weighted Mean**	**Verbal Interpretation**
1. I believe that learners learn best when I allow them to freely express opinions, ideas, and suggestions.	4.68	Very Great Extent
2. I seek to use various types of teaching activities to encourage active participation of all my learners during the lesson.	4.65	Very Great Extent
3. While learners work on their place, I stand in the place from which I have a view of the whole classroom and access to the learners who seek help.	4.76	Very Great Extent
4. I believe that learners should know that their success is my success as well and that they have the right to make a mistake, because they can correct it with my help.	4.3	Great Extent
5. I believe that it is important for learners to understand why it is important for them personally what they are learning; they can be free to choose the way in which they would like to learn.	4.42	Great Extent
6. It is important to me how do my learners feel and what they need.	4.83	Very Great Extent
7. If a learner disturbs class or other learners, I remind him/her on rules of behavior that all of us in the class are trying to respect.	4.57	Very Great Extent
8. When one of the learners does not work during the class, I approach him/her, checking what is going on and I am trying to animate his/her activity providing him/her the needed assistance.	4.63	Very Great Extent
9. Appropriate working atmosphere is important to me, so when I perceive an undiscipline learner, I want to solve the problem together with him/her in order to proceed with further work.	4.49	Great Extent
10. In order to maintain discipline in class, I use to remind learners on rules adapted by their own participation.	4.48	Great Extent
	4.58	**Very Great Extent**

Source: Djigic, G. (2014). *Inventory for Teachers Self-Assessment in Classroom Management Styles - Development and its Psychometric Characteristics*

Legend:

4.50-5.00 *Very Great Extent*
3.50-4.49 *Great Extent*
2.50-3.49 *Moderately Extent*
1.50-2.49 *Low Extent*
1.00-1.49 *Very Low Extent*

Table 5 presents the interactionist classroom management style as practiced by kindergarten teachers to a Very Great Extent with a weighted mean of **4.58.** The table shows that item 6, “It is important to me how my learners feel and what they need” has the highest weighted mean of **4.83**, and is practiced to a Very Great Extent by kindergarten teachers, followed by item 3, “While learners work on their place, I stand in the place from which I have a view of the whole classroom and access to the learners who seek help” to a Very Great Extent with a weighted mean of **4.76**, and item 1, “I believe that learners learn best when I allow them to express opinions, ideas, and suggestions freely” to a Very Great Extent with a weighted mean of **4.68**.

It can be viewed that kindergarten teachers in the Division of Lucena City utilized the interactionist style as classroom management to merely a Very Great Extent and Great

Extent. Teachers who practice the interactionist style encourage interaction and cooperation in the classroom, respect learner's personalities, and appreciate the initiatives, interests, and needs of learners (Ghazi, 2017). Hence, teachers share the responsibility inside the classroom with learners.

Table 6

Extent of Practice of Non-Interventionist Classroom Management Style Among Kindergarten Teachers

Non-Interventionist	**Weighted Mean**	**Verbal Interpretation**
1. While learners are working sitting at their desks, I do something else.	3.53	Great Extent
2. My reference to the rules of behavior in class could not greatly contribute to the regulation of learners' behavior.	3.28	Moderately Extent
3. When I assign the task to learners for work in the classroom, I think it is best for them to deal with it themselves without any help or control.	3.9	Great Extent
4. My duty is to assess learners, not to explain them my views regarding their efforts.	2.68	Moderately Extent
5. It is not up to me to bring up my learners during the classes.	2.56	Moderately Extent
6. My attention during the class is focused on teaching the appropriate unit, and it is only up to the learners whether or not they will participate in the work group.	3.03	Moderately Extent
7. I do not react to inappropriate behavior of some learners, but occasionally point out that each learner is responsible for his/her own behavior and learning.	3.54	Great Extent
8. I think that the learners themselves should assess whether and how the learning content is important to them personally.	3.63	Great Extent
9. It's not my job to deal with the feelings and needs of the learners.	1.48	Very Low Extent
10. While teaching a lesson, I do not deal with the reactions of learners.	1.6	Low Extent
	2.92	**Moderately Extent**

Source: Djigic, G. (2014). *Inventory for Teachers Self-Assessment in Classroom Management Styles - Development and its Psychometric Characteristics*

Legend:

4.50-5.00 *Very Great Extent*
3.50-4.49 *Great Extent*
2.50-3.49 *Moderately Extent*
1.50-2.49 *Low Extent*
1.00-1.49 *Very Low Extent*

Table 6 presents the non-interventionist classroom management style as practiced by kindergarten teachers with a weighted mean of **2.92** and verbally interpreted as Moderately Extent. Hence, non-interventionist style is moderately utilized by public school kindergarten teachers in Lucena City. As it could be gleaned from the table, item 9, stating that "It is not my job to deal with the feelings and needs of the learners" has the lowest weighted mean of **1.48** indicating a Very Low Extent, thus, kindergarten teachers in Lucena City really takes into consideration learners' feelings and needs in classroom

settings. The non-interventionist approach is based on the belief that a person has his own needs that tend to express and accomplish them, so the teacher has minimal control. On the other hand, teaching in kindergarten requires teachers an “extending hand” for learners. Although, they agree with item 3 to a Great Extent, “When I assign the task to learners for work in the classroom, I think it is best for them to deal with it themselves without any help or control”, with a weighted mean of **3.9**. It is also vital that as learners progress, minimal supervision or working independently may be implemented. Meanwhile, item 10, stating “While teaching a lesson, I do not deal with the reactions of learners”, has a low weighted mean of **1.6** indicating a Low Extent. Kindergarten teachers disagree with this practice, as learners’ reactions when teaching are an indication of how they are engaged in classroom teaching.

The non-interventionist classroom management style which is more constructive than the interfering strategy, should lead to constructive behavior and the growth of self-discipline, thus, the learners’ moral behavior can be high (Ghazi, 2017).

Table 7

Summary of Results of Extent of Practice of Classroom Management Styles Among Kindergarten Teachers

Classroom Management Styles	**Weighted Mean**	**Interpretation**	**Rank**
Interventionist	3.56	Great Extent	**2**
Interactionist	4.58	Very Great Extent	**1**
Non-Interventionist	2.92	Moderately Extent	**3**

Legend:
4.50-5.00 *Very Great Extent*
3.50-4.49 *Great Extent*
2.50-3.49 *Moderately Extent*
1.50-2.49 *Low Extent*
1.00-1.49 *Very Low Extent*

Table 7 reveals the ranking of classroom management styles as practiced by kindergarten teachers in the Division of Lucena City. It shows that kindergarten teachers integrate interactionist style in teaching to a Very Great Extent with a weighted mean of **4.58**, followed by interventionist style to a Great Extent with a weighted mean of **3.56**, and non-interventionist to a Moderately Extent with a weighted mean of **2.92**. Although each teacher may use all these three styles, one typically dominates their behavior in the classroom. By understanding their dominant style, teachers can reflect on their strengths and areas for improvement and adapt more effective classroom management strategies to enhance learners' engagement and learning. The results shows that interactionist style is dominant in kindergarten teachers as compared to interventionist and non-interventionist styles.

In addition, Kaur (2020) revealed that teachers who used an interactionist classroom management style had the highest level of learner engagement compared to teachers who used interventionist and non-interventionist styles.

Likewise, on a study by Sulistiyani (2018) on the correlation between classroom management styles and learner engagement in kindergarten. The results revealed that teachers who used an interactionist classroom management style had the highest level of learner engagement compared to teachers who used interventionist and non-interventionist styles.

Part II. Level of Engagement of Kindergarten Learners

Table 8

Kindergarten Learners' Level of Behavioral Engagement

Quarter (SY 2023-2024)	**Number of Learners**	***Health, Well Being, and Motor Development***					
		(C) *Consistent*		**(D)** *Developing*		**(B)** *Beginning*	
1st	5494	373	**6.79 %**	3637	**66.20 %**	1484	**27.01 %**
2nd	5440	1201	**22.08 %**	3465	**63.69 %**	774	**14.23 %**

Legend:
C-Consistent (*The learner always demonstrates the competency.*)
D-Developing (*The learner sometimes demonstrates the competency.*)
B-Beginning (*The learner rarely demonstrates the competency.*)

Table 8 reveals the result of kindergarten learners' level of behavioral engagement in terms of health, well-being, and motor development. During the first quarter, majority of the learners, or **66.20 %** (3637 learners), belongs to the developing level (sometimes engaged), while **27.01 %** (1484 learners), belongs to the beginning level (rarely engaged). Meanwhile, the remaining **6.79 %** (373 learners), belongs to the consistent level (always engaged).

Kindergarten learners' behavioral engagement during the first quarter falls under the developing level. Behavioral development in kindergarten describes how learners actively participate, comply with the rules and expectations of the classroom, and exhibit positive behaviors in the learning environment. As shown in the result, during the beginning quarter, these traits are not yet observed and most kindergarten learners belong to the developing and beginning level. Meanwhile, during the second quarter majority of the learners, or **63.69 %** (3465 learners), belongs to the developing level (sometimes engaged), while **22.08 %** (1201 learners), belongs to the consistent level (always engaged), meanwhile the remaining **14.23%** (774 learners), belongs to the beginning level (rarely engaged). Most of the learners still falls under the developing level during the second quarter, yet an increase in the consistent level was revealed. Learners become

more familiar with the classroom setting. Recognition, familiarization, and exposure to extended periods in an environment display higher levels of behavioral engagement.

Teachers' role is very important in the development of learners' behavior. Learners spend a majority of their time within the educational institution, where they not only acquire academic knowledge but also keenly observe and learn from their teachers. When learners believe that their teacher genuinely cares about their success and evaluates both their strengths and weaknesses, they are more driven to succeed in both school and in life in general. When learners receive constructive criticism and help to strengthen their areas of weakness, it is easier to maintain their motivation.

Furthermore, Chang and Chen (2019) discovered that kindergarten learners in classrooms with authoritative teachers demonstrated higher levels of behavioral engagement and academic achievement, while learners in classrooms with authoritarian or permissive management styles showed lower levels of engagement and achievement.

Table 9
Kindergarten Learners' Level of Emotional Engagement

Quarter (SY 2023-2024)	**Number of Learners**	***Socio-Emotional Development***					
		(C) *Consistent*		**(D)** *Developing*		**(B)** *Beginning*	
1st	5494	485	**8.83 %**	3561	**64.82 %**	1448	**26.36 %**
2nd	5440	1131	**20.79 %**	3482	**64.01 %**	827	**15.20 %**

Legend:
C-Consistent (*The learner always demonstrates the competency.*)
D-Developing (*The learner sometimes demonstrates the competency.*)
B-Beginning (*The learner rarely demonstrates the competency.*)

Table 9 shows the result of kindergarten learners' level of emotional engagement. During the first quarter, majority of the learners, or **64.82 %** (3561 learners), belongs to the developing level (sometimes engaged), while **26.36 %** (1448 learners), belongs to the beginning level (rarely engaged). Meanwhile, the remaining **8.83 %** (485 learners) belongs to the consistent level (always engaged). Emotional engagement of kindergarten learners falls under the developing level during the first quarter. Transitioning from a home environment to a school classroom can create a variety of emotional challenges for young children. Thus, teachers and learners must have supportive and nurturing interactions. A sense of trust and emotional connection is fostered by teachers who demonstrate empathy, understanding, and responsiveness to the emotional needs of the learners, which in turn encourages learning engagement. Learners tend to be more emotionally engaged in kindergarten settings that offer a healthy emotional climate that is defined by warmth, acceptance, and support. Learners are more likely to actively participate in learning when they feel secure, appreciated, and supported emotionally. Moreover, during the second quarter majority of the learners or **64.01 %** (3637 learners), belongs to

the developing level (sometimes engaged), while **20.79 %** (1131 learners), belongs to the consistent level (always engaged). Meanwhile the remaining **15.20%** (827 learners), belongs to the beginning level (rarely engaged). An increase of consistent learners was revealed during the second quarter. Emotional engagement in kindergarten is influenced by play-based activities and interactions with classmates. Learners can explore their emotions through play, learn social skills, and form emotional ties with others. Emotional involvement and social-emotional development are enhanced by cooperative play and favorable peer interactions. Emotional engagement in kindergarten is often facilitated when learning experiences are personally relevant and exciting to learners. When activities align with their interests, experiences, and developmental needs, learners are more likely to be emotionally engaged and motivated to participate.

Emotional engagement in kindergarten is often facilitated when learning experiences are personally relevant and exciting to learners. When activities align with their interests, experiences, and developmental needs, learners are more likely to be emotionally engaged and motivated to participate. Similarly, learners have the chance to express and control their emotions in kindergarten. Learners' emotional engagement can be increased by teachers who foster an environment that is welcoming and supportive of emotional expression while simultaneously teaching techniques for emotional control.

Thompson and Smith (2016) also found that kindergarten learners in classrooms with authoritative teachers demonstrated higher levels of academic achievement and positive social development compared to those in classrooms with authoritarian or permissive management styles.

Moreover, in the study by Farran (2015), findings indicate that both instructional support and emotional support, when combined, were significant predictors of the intensity of children's learning engagement. Moreover, the impact of instructional practices on learning engagement was contingent upon the emotional atmosphere within the classroom. Specifically, instructional practices had a more significant effect on the overall level of engagement in classrooms characterized by a more positive emotional tone. The study suggests that a supportive emotional environment enhances the effectiveness of instructional practices in promoting learner engagement. Therefore, fostering instructional and emotional support is essential for creating an optimal learning environment that maximizes learner engagement and learning outcomes.

Table 10

Kindergarten Learners' Level of Cognitive Engagement-Literacy

Quarter (SY 2023-2024)	**Number of Learners**	***Literacy***					
		(C) *Consistent*		**(D)** *Developing*		**(B)** *Beginning*	
1st	5494	367	**6.68 %**	2612	**47.54 %**	2515	**45.78 %**
2nd	5440	948	**17.43 %**	2954	**54.30 %**	1538	**28.27 %**

Legend:
C-Consistent (*The learner always demonstrates the competency.*)
D-Developing (*The learner sometimes demonstrates the competency.*)
B-Beginning (*The learner rarely demonstrates the competency.*)

Table 10 presents the result of kindergarten learners' level of cognitive engagement in literacy. During the first quarter, majority of the learners, or **47.54 %** (2612 learners), belongs to the developing level (sometimes engaged), while **45.78 %** (2515 learners), belongs to the beginning level (rarely engaged), meanwhile the remaining **6.68 %** (367 learners), belongs to the consistent level (always engaged). A high number of learners falls under the developing and beginning level was revealed during the first quarter. Initially, kindergarten is the start of formal schooling, thus learners arrive to school mostly illiterate. Cognitive engagement is more likely to be cultivated in kindergarten programs that use inquiry-based methods, where kids are encouraged to explore, investigate, and ask questions. Higher-order thinking, problem-solving abilities, and curiosity are all encouraged by inquiry-based learning. Meanwhile, during the second quarter majority of the learners, or **54.30 %** (2954 learners), belongs to the developing level (sometimes engaged), while **28.27 %** (1538 learners), belongs to the beginning level (rarely engaged), meanwhile the remaining **17.43%** (948 learners), belongs to consistent level (always engaged). A decrease in the number of beginning learners was revealed during the second quarter. Kindergartens' cognitive engagement is increased when they participate in experiential, hands-on learning activities. Children's cognitive growth is boosted by manipulating items, performing experiments, and working on real-world projects because they are actively creating new knowledge and making connections.

A study by Agbayani and Fajardo (2018) investigated the impact of teacher classroom management styles on the language development of kindergarten learners in the Philippines. The study found that teachers who used a positive and supportive classroom management style had a significant positive impact on the language development of kindergarten learners.

Furthermore, Rodriguez and Garcia (2018) observed that kindergarten learners exposed to an authoritative classroom management style exhibited more significant gains in literacy skills, including reading readiness, phonological awareness, and vocabulary development than learners in classrooms with authoritarian or permissive styles.

Table 11
Kindergarten Learners' Level of Cognitive Engagement-Numeracy

Quarter (SY 2023-2024)	**Number of Learners**	***Numeracy***					
		(C) *Consistent*		**(D)** *Developing*		**(B)** *Beginning*	
1st	5494	819	**14.90 %**	2766	**50.35 %**	1909	**34.75 %**
2nd	5440	1632	**30 %**	2650	**48.71 %**	1158	**21.29 %**

Legend:
C-Consistent (*The learner always demonstrates the competency.*)
D-Developing (*The learner sometimes demonstrates the competency.*)
B-Beginning (*The learner rarely demonstrates the competency.*)

Table 11 shows the result of kindergarten learners' level of cognitive engagement in numeracy. During the first quarter, majority of the learners, or **50.35 %** (2766 learners), belongs to the developing level (sometimes engaged), while **34.75 %** (1909 learners), belongs to the beginning level (rarely engaged), meanwhile the remaining **14.90 %** (819 learners), belongs to the consistent level (always engaged). As shown, half of the percentage of kindergarten learners falls under the developing level during the first quarter. A good start in the cognitive development of learners in numeracy. When kindergarten learners actively participate in their learning, such as through questioning, problem-solving, and critical thinking, they tend to exhibit higher levels of cognitive engagement. Deeper learning, knowledge retention, and cognitive growth are all facilitated by active participation. Moreover, cognitive engagement can be improved by giving children personalized education and learning experiences that match to their needs and interests. Active cognitive engagement is encouraged by recognizing and fostering each child's distinct cognitive abilities and posing suitable tasks. Meanwhile, during the second quarter majority of the learners or **48.71 %** (2650 learners), belongs to developing level (sometimes engaged), while **30 %** (1632 learners), belongs to consistent level (always engaged), meanwhile the remaining **21.29 %** (1158 learners), belongs to the beginning level (rarely engaged). An increase of the number of consistent learners was shown during the second quarter. Children's cognitive engagement is boosted by kindergarten tasks and activities relevant to and meaningful to them in real life. Enhancing intrinsic motivation and cognitive engagement is achieved through connecting learning to real-world, realistic circumstances and children's lives. Kindergarten play-based learning strategies promote cognitive engagement. As they participate in imaginative and symbolic play scenarios, children can actively explore, experiment, and build their problem-solving abilities through play.

Lee and Park (2021) indicated that kindergarten learners taught by authoritative teachers showed higher levels of mathematics achievement compared to learners in classrooms with authoritarian or permissive management styles. The study emphasized the importance of supportive and organized classroom environments for fostering mathematical skills development in young learners.

Part III. Significant Relationship between Classroom Management Styles Practiced by Kindergarten Teachers and the Level of Engagement of Kindergarten Learners

Table 12

Relationship between Kindergarten Teachers' Classroom Management Style and Learners' Level of Engagement for the First Quarter

Kindergarten Teachers' Classroom Management Style	Learners' Level of Engagement for the First Quarter	Correlation Coefficient	Degree of Relationship	p-value	Conclusion
Interventionist	Behavioral Engagement	0.083	Weak Positive	0.370	Not Significantly Correlated
	Emotional Engagement	0.049	Weak Positive	0.593	Not Significantly Correlated
	Cognitive Engagement-Literacy	0.005	Weak Positive	0.958	Not Significantly Correlated
	Cognitive Engagement-Numeracy	-0.098	Weak Negative	0.286	Not Significantly Correlated
Interactionist	Behavioral Engagement	0.145	Weak Positive	0.114	Not Significantly Correlated
	Emotional Engagement	0.064	Weak Positive	0.491	Not Significantly Correlated
	Cognitive Engagement-Literacy	0.033	Weak Positive	0.724	Not Significantly Correlated
	Cognitive Engagement-Numeracy	-0.106	Weak Negative	0.250	Not Significantly Correlated
Non-Interactionist	Behavioral Engagement	0.098	Weak Positive	0.287	Not Significantly Correlated
	Emotional Engagement	0.163	Weak Positive	0.074	Not Significantly Correlated
	Cognitive Engagement-Literacy	0.076	Weak Positive	0.409	Not Significantly Correlated
	Cognitive Engagement-Numeracy	-0.040	Weak Negative	0.663	Not Significantly Correlated

**Significant at $\alpha = 0.05$*

Table 12 shows the correlation between kindergarten teachers' classroom management styles and the level of engagement demonstrated by kindergarten learners during the first quarter of instruction. Effective classroom management is essential for creating a conducive learning environment, while learner engagement indicates the effectiveness of teaching practices. Understanding the relationship between these variables sheds light on the dynamics of classroom interaction and instructional efficacy in kindergarten settings. As shown, the results revealed that there were weak and non-significant correlations between kindergarten teachers' classroom management styles and learners' levels of engagement across various dimensions during the first quarter. Regardless of whether teachers adapt an interventionist, interactionist, or non-interactionist classroom management style, correlations with behavioral engagement, emotional engagement, cognitive engagement in literacy, and cognitive engagement in numeracy are consistently weak and statistically insignificant. These results suggested that variations in classroom management styles do not significantly influence the level of engagement observed

among learners during the initial quarter of instruction. Generally, kindergarten is the start of formal schooling and during early stages of instruction, learners are adjusting to a new environment that differs from their previous experiences. While many learners attend preschool or other “school-like” setting prior to kindergarten, research indicates that only about 60% of learners experience a center-based care setting as their primary care arrangement in the year before kindergarten (Rathbun, Zhang, & Snyder, 2016). For the other 40% of learners, transitioning to the kindergarten context may be challenging. Moreover, even learners who attend center-based settings prior to kindergarten experience dramatic shifts as they enter kindergarten, in both environmental experiences and expectations. Additionally, learners are also held to different expectations in the kindergarten setting. These include academic expectations, which are demonstrated by the greater emphasis on skill development and the amount of time spent in learning-focused activities, and behavioral expectations, which include staying on task and following stricter routines.

Lack of significant correlations between classroom management styles and learner engagement could also mean an indication that other factors, such as instructional practices, individual learner characteristics, and classroom dynamics, play a more influential role in shaping engagement levels during the early stages of instruction. As such, educators may need to focus on implementing a diverse range of instructional strategies and differentiation techniques to foster engagement among a heterogeneous group of learners. Similarly, researchers should consider exploring additional variables and factors contributing to learner engagement in kindergarten settings, including teacher-learner interactions, curriculum design, and socio-emotional factors. By gaining a deeper understanding of the multifaceted nature of learner engagement, educators and researchers can collaborate to refine teaching practices and optimize learning experiences for young children in kindergarten classrooms.

Table 13

Kindergarten Teachers' Classroom Management Style	Learners' Level of Engagement for the Second Quarter	Correlation Coefficient	Degree of Relationship	p-value	Conclusion
Interventionist	Behavioral Engagement	-0.004	Weak Negative	0.963	Not Significantly Correlated
	Emotional Engagement	0.055	Weak Positive	0.551	Not Significantly Correlated
	Cognitive Engagement-Literacy	0.033	Weak Positive	0.722	Not Significantly Correlated
	Cognitive Engagement-Numeracy	-0.110	Weak Negative	0.231	Not Significantly Correlated
Interactionist	Behavioral Engagement	0.162	Weak Positive	0.078	Not Significantly Correlated
	Emotional Engagement	0.189*	Weak Positive	0.038	Significantly Correlated
	Cognitive Engagement-Literacy	0.045	Weak Positive	0.624	Not Significantly Correlated

	Cognitive Engagement-Numeracy	-0.019	Weak Negative	0.837	Not Significantly Correlated
Non-Interactionist	Behavioral Engagement	0.071	Weak Positive	0.442	Not Significantly Correlated
	Emotional Engagement	0.083	Weak Positive	0.370	Not Significantly Correlated
	Cognitive Engagement-Literacy	0.044	Weak Positive	0.633	Not Significantly Correlated
	Cognitive Engagement-Numeracy	0.023	Weak Positive	0.799	Not Significantly Correlated

Relationship between Kindergarten Teachers' Classroom Management Style and Learners' Level of Engagement for the Second Quarter

**Significant at* $\alpha = 0.05$

Table 13 presents the relationship between kindergarten teachers' classroom management styles and the level of engagement exhibited by kindergarten learners during the second quarter of instruction. About the correlation analysis done for the first quarter, effective classroom management is pivotal in creating an environment conducive to learning accounting for learners' journey in the classroom as continuous learners' engagement serves a crucial role for instructional effectiveness. As presented, the results revealed weak and mostly non-significant correlations between kindergarten teachers' classroom management styles and learners' levels of engagement across various dimensions during the second quarter. For teachers employing interventionist, interactionist, or non-interactionist classroom management style, correlations with behavioral engagement, emotional engagement, cognitive engagement in literacy, and cognitive engagement in numeracy generally demonstrate weak and statistically insignificant relationships. However, there was an exception, such as a weak positive correlation between the interactionist classroom management style and emotional engagement, which is statistically significant, suggesting a potential influence of this management style on learners' emotional engagement during the second quarter. Beyond academic outcomes, the kindergarten years play a vital role in shaping a child's personal development. Kindergarten provides opportunities for socialization, emotional growth, and the development of social skills such as cooperation, empathy, and communication. Hence, qualitative ratings are also preferred on summarizing learners' overall performance, as they are more suitable for the age and developmental stage of kindergarten learners, as opposed to numerical grades. Positive experiences during this time can enhance self-esteem, self-confidence, and overall social-emotional well-being, contributing to success in personal relationships and overall life satisfaction.

On the other hand, findings also suggested that the lack of significant correlations between classroom management styles and learner engagement during the second quarter may indicate that other factors, such as instructional strategies, learner characteristics, and classroom dynamics, may play a more influential role in shaping engagement levels as instruction progresses. This underscores the importance of employing a diverse range of instructional approaches and differentiation techniques to foster engagement among learners.

Additionally, the identification of a significant correlation between the interactionist classroom management style and emotional engagement suggests a potential avenue for further investigation into the specific mechanisms through which classroom management styles influence emotional engagement among learners. Researchers should explore additional variables and factors that may contribute to learner engagement over time, including teacher-learner interactions, curriculum adaptations, and socio-emotional dynamics, to gain a comprehensive understanding of instructional effectiveness in kindergarten classrooms.

Part IV. Proposed Lesson Plan Model Based on the Study's Findings

Findings revealed that public school kindergarten teachers in the Division of Lucena City highly integrate interactionist classroom management style to a Very Great Extent in teaching. In was also revealed on the study a significant correlation (weak positive correlation) between interactionist classroom management style and emotional engagement among kindergarten learners. Hence, a lesson plan model utilizing interactionist classroom management style highlighting emotional development among kindergarten learners was proposed by the researcher. The proposed lesson plan model includes the Most Essential Learning Competencies (MELCs) for the first quarter in the kindergarten level. The proposed lesson plan is a modified model of lesson plan that is currently used by kindergarten teachers in the division. Its key feature is integrating interactionist style on emotional development of learners. However, it also covers behavioral development, cognitive development in literacy and numeracy among kindergarten learners. It follows the blocks of times in kindergarten and incorporates *"I do, we do, you do"* approach in work periods which promotes interactions between the teacher and the learners.

DISCUSSION

The significant findings of the study are summarized below:

1. Extent of a Particular Classroom Management Style Practiced by Kindergarten Teachers
    1.1. Interventionist classroom management style is practiced to a Great Extent by kindergarten teachers.
    1.2. Interactionist classroom management style is practiced to a Very Great Extent by kindergarten teachers.
    1.3. Non-interventionist classroom management style is practiced to a Moderately Extent by kindergarten teachers.
2. Level of Engagement of Kindergarten Learners
    2.1. On the level of behavioral engagement, during the first quarter majority of the learners belongs to the developing level (sometimes engaged), while during the second quarter majority of the learners belongs to the developing level (sometimes engaged).

2.2. On the level of emotional engagement, during the first quarter majority of the learners belongs to the developing level (sometimes engaged), whereas, during the second quarter majority of the learners belongs to the developing level (sometimes engaged).

2.3 On the level of cognitive engagement:

2.3.1. across literacy domain, during the first quarter majority of the learners belongs to the developing level (sometimes engaged, whereas, during the second quarter majority of the learners belongs to the developing level (sometimes engaged).

2.3.2. across numeracy domain, during the first quarter majority of the learners belongs to the developing level (sometimes engaged), while during the second quarter majority of the learners belongs to the developing level (sometimes engaged).

3. Significant Relationship between Classroom Management Styles Practiced by Kindergarten Teachers and the Level of Engagement of Kindergarten Learners

3.1. The results revealed weak and non-significant correlations between kindergarten teachers' classroom management styles and learners' levels of engagement across various dimensions during the first quarter.

3.2. The results revealed weak and mostly non-significant correlations between kindergarten teachers' classroom management styles and learners' levels of engagement across various dimensions during the second quarter. However, there was a weak positive correlation between interactionist classroom management style and emotional engagement, which was statistically significant.

4. A lesson plan model utilizing interactionist classroom management style highlighting emotional development among kindergarten learners was proposed by the researcher.

Conclusions

Based on the findings, the following conclusions are drawn:

1. Interactionist style was practiced to a Very Great Extent, by public school kindergarten teachers in the Division of Lucena City, followed by interventionist style to a Great Extent, and non-interventionist style to a Moderately Extent.

2. Based on the result, learners' level of engagement across behavioral, emotional, and cognitive (literacy and numeracy) dimensions during first and second quarters (initial and transitional stages) were on the developing level (sometimes engaged).

3. The result revealed that during the first quarter, classroom management styles and learners' engagement were not significantly correlated. Meanwhile, during the second quarter, there is a significant correlation (weak positive correlation) between interactionist classroom management style and learners' emotional engagement. Thus, the study rejects the research hypothesis that there is no significant relationship between teachers' classroom management style and learners' level of engagement.

4. A lesson plan model utilizing interactionist classroom management style highlighting emotional development among kindergarten learners was proposed by the researcher.

Recommendations

Given the preceding conclusions, the following recommendations are hereby offered:

1. Since the result showed that interactionist style was highly practiced classroom management style among public school kindergarten teachers in the Division of Lucena City, other teachers may also integrate an interactionist management style in their classroom setting that would foster engagement among learners.

2. Due to the findings that kindergarten learners' level of engagement during first and second quarters were on the developing level, teacher may use this study as reference for further development of their classroom management styles that would enhance result in the quarterly assessment of kindergarten learners.

4. Since the findings revealed that there is a significant correlation between interactionist classroom management style and learners' emotional engagement, teachers may adapt the proposed lesson plan model utilizing interactionist classroom management style that would enhance emotional engagement among kindergarten learners.

4. Since the result of the study only encompasses level of engagement of learners in the kindergarten level, future researchers may also look into other developmental stages. This study may also serve as their reference into further studying classroom management styles and factors affecting learners' engagement.

Compliance with Ethical Standards

The study ensured that informed consent was given to the following respondents. Freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondent's well-being as safeguarded, no conflict of interests exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

Acknowledgments

The researcher owes deepest gratitude to those who made this thesis a reality.

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Above all else, to Almighty God.

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KNOWKALINGA: A KNOWLEDGE MANAGEMENT SYSTEM OF CULTURAL HERITAGE RESEARCH CENTER (CHRC)

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ABSTRACT

The research paper 'KnowKalinga: A Knowledge Management System for Cultural Heritage Research Center (CHRC)' describes the design, development, and deployment of an online system that is dedicated to the preservation and promotion of Kalinga Heritage Culture. The paper addresses the challenges CHRC has faced during its attempts to achieve its vision and mission. The developed innovative online system is based on the WordPress platform and is client-centered. The clients include Kalinga Culture students, educators, researchers, and enthusiasts, as the platform serves as a centralized database and a sharing platform. The defined components consist of a cultural heritage research database, a learning center, interactive components, and collaboration tools that support client-to-client interaction. The paper proves the importance of the KnowKalinga system as a cultural awareness and preservation tool that stimulates collaboration and contributes to sustainable preservation. The paper as innovation describes significant meaning for the knowledge management and technology-enabled cultural preservation fields.

Keywords: *KnowKalinga, Cultural Preservation, CHRC, Digitalization, Indigenous Culture*

INTRODUCTION

"A people without knowledge of their history, origin, and culture is like a tree without roots" is a famous word from Marcus Garvey, inspires every one of us to have an important goal to preserve our cultural heritage to protect our unique traditions, practices and cultural knowledge for the future generations. According to Loriene Roy (2015) preservation of our cultural heritage is concerned with safeguarding the tangible representations of the culture including cultural clothing, pottery, and beadworks, as well as the non-tangible aspects of our culture such as language, oral stories, customs, and beliefs. We learn and understand our culture more from the stories and songs that our elders and forefathers shared, McQueen, J. (2019), thus, technology integration can help share and preserve this slowly vanishing cultural heritage, especially in this age of digital innovation. According to Hershey, R. (2010), many people believe that the Internet can be a tool to protect, maintain, and promote cultural diversity. As emphasized by Shiri, A. et al. (2021) in their study that across the world, Indigenous communities are increasingly interested in exploring digital technologies for different uses ranging from education, social engagement, cultural heritage preservation, and even initiatives aimed at stimulating distressingly grim prospects for language revitalization. Modern technology has the power to take digital storytelling possibilities to the next level, and the above is just one example of how it can help contemporary Indigenous groups. However as stated by Mdhluli, T.D., et al. (2021), the use of technology especially digitalization in preserving Indigenous knowledge (IK) has some challenges such as fears of issues related to copyright, intellectual property rights, and exploitation by external entities. There are also concerns about misinformation or misrepresentation of Indigenous knowledge which can potentially harm the authenticity and integrity of the Indigenous information. Regardless of the challenges and concerns digital libraries provide a solution, however, proper caution has to be exercised to avoid the pitfalls of ethics thereby guaranteeing successful preservation, management, and sharing of Indigenous Knowledge to future generations. Furthermore, cultural and natural heritages are referred to as treasures, and they are unique tourist destinations for every country. But turning this legacy - and this liability - into sustainable tourism development that will also safeguard the cultural heritage value for the future is much less straightforward, Pandey, R. et al. (2020). Defined and rooted in the preservation of cultural heritage, sustainable development means that we meet the needs of the current society without hindering the capacity of future generations to develop. Both community participation and public education, along with technological development are important in ensuring the durable preservation and display of cultural heritage in the light of environmental and societal change, Hoang, K. (2021).

As reported by Liew, C. et al (2021) With technology changing and how back in the day you necessarily be physically present in the place to understand better the Indigenous culture of a place but now that it's all been documented and moved to an online platform where it can be stored and accessed at all times, that's the part that makes these

digitalized collections most useful and the youth of today which very much inhabits this technological and digital world better resonates with digitalized information. For example, the Lha'hutit'en Digital Storytelling by Freeman, S. (2020) workshops with Elders and youth are just one example of bringing together people to restore what Indigenous elders hold collectively, ie: knowledge and insight into the culture. Sharing and learning from each other can create the long-term Intergenerational relationships that are so important in safeguarding cultural heritage. Co-convened by community and academic partners, this Learning Centre case illustrates the implications of intergenerational memory for protecting Indigenous legacies in the digital age. Hence, this research paper will explore the development and implementation of “KnowKalinga.com” a collaborative online system devised to promote cultural engagement.

Kalinga is one of the provinces with a rich cultural legacy that includes many traditions, rituals, arts folklore, and indigenous practices. However, as time goes on, it becomes evident that it runs the risk of losing this priceless cultural legacy. Oral traditions and cultures of our ancestors are at risk of being lost, so mobilizing the power of technology and putting it in the hands of young people is one way that policymakers are taking into consideration. Hence, efforts are being made by different organizations to promote and preserve cultural heritage, because of that, the integration of cultural heritage into students' curriculum is one of the measures that CHED-CAR has done. However, the availability of learning resources and materials is limited and some are subject to information checking. As a creative response to this issue, "KnowKalinga" is being developed, fusing technology and teamwork to provide a dynamic platform for promoting cultural preservation, education, and engagement among teachers, students, researchers, and Indigenous culture enthusiasts. Based on Suaib, N. et al. (2020) study found from the literature, most of the preservation efforts (including usage of computer graphics and media) reported were mostly centered around tangible cultural heritage. Since computer graphics and media technology has so much to offer, there are endless possibilities for cultural preservation efforts digitally both for tangible and intangible cultural heritage preservation.

Specifically, the overall goal of KnowKalinga is to develop an all-inclusive digital ecosystem for CHRC that integrates all the stakeholders in the endeavor to salvage and disseminate the cultural heritage of Kalinga province. KnowKalinga is envisaged as a single-stop shop where relevant information can be accessed regarding the rich cultural heritage of the people of Kalinga. The platform provides learning materials to educational institutions that can be embedded in the respective syllabi as content to be used in teaching to ensure it is a perfect source of information for all the activities that take place in schools. The system also avails relevant information to students to facilitate a comprehensive understanding of the content while ensuring they have the right information to access the learning model that promotes an in-depth understanding of the rich culture and tradition of the natives. Apart from school use, the platform also provides researchers with a prestigious forum to disseminate and publish their findings in the area

without fears of contradiction since it is supervised by CHRC. They can also access other academic materials on the platform to support their research projects. Tourists and cultural enthusiasts also access the platform to gain insight into the culture, tradition, and practice of the Kalinga people and beyond to achieve a complete understanding of the rich culture of the province as the information also helps boost safe tourism. The internet age when one needs to browse many websites to obtain information that may be inaccurate and lack authenticity is gone; with the supervision of CHRC, the system acts as a source of the truth and trusted information about Kalinga Province. Moreover, the Kalinga Province is divided into several tribes and sub-tribes all with unique practices and traditions within their culture. Therefore, the information-sharing capability of the platform where the users can contribute their experiences with each cultural practice to support each tale in the platform is the rock-bottom focus of the platform. The sharing triggers debates, generates useful information, and elicits sober views that may be used for research projects. The platform design promotes usage that allows users to upload their views about Kalinga culture and their research results.

Research Questions

The research paper entitled, "KnowKalinga: A Knowledge Management System for CHRC", primarily addresses the design, implementation, and evaluation of KnowKalinga as a knowledge management system for CHRC. The focus includes its development, implementation, and evaluation as a comprehensive solution for protecting, promoting, and sharing Kalinga's cultural heritage through learning materials, consolidated research repositories, user engagement features for cultural mapping as well as local crafter and artist promotion; it also investigates its usability through System Usability Scale (SUS), to measure the system's user-friendliness. The system celebrates the diversity of viewpoints and experiences, enhancing collective understanding of Kalinga's cultural heritage and its development and implementation is better discussed by answering the following research questions:

1. What are the challenges the Cultural Heritage Research Center of SLCB experienced in realizing its mission of preserving and promoting Kalinga’s cultural heritage?
2. What innovative technological solutions will help support the Cultural Heritage Research Center of SLCB in preserving, promoting, and sharing Kalinga's cultural heritage in this digital age?
3. What are the features of the system that can be integrated to answer the challenges the Cultural Heritage Research Center of SLCB experienced?
4. What is the level of user acceptability of the developed system, what challenges do users encounter, and recommendations for the proposed IT solutions improvement and sustainability?

However, it is also essential to recognize certain limitations within this research. The research's primary focus is the design and creation of KnowKalinga for CHRC

exclusively and excludes actual content generation such as research papers, learning materials, and cultural mapping. The research also focused on the promotion of local arts and crafts of the Kalinga people but online shops are not included in the system. Nevertheless, the research provides invaluable insights into the hands-on establishment of a knowledge management system dedicated to cultural heritage preservation.

METHODOLOGY

Agile scrum methodology is the combination of the agile philosophy and the scrum framework. Agile means “incremental, allowing teams to develop projects in small increments. Scrum is one of the many types of agile methodology, known for breaking projects down into sizable chunks called “sprints.” Agile scrum methodology is good for businesses that must finish specific projects quickly [5]. The Scrum methodology helps the researchers emphasize iterative development, collaboration, and flexibility for designing and implementing the proposed IT solution, hence the steps that the researchers undertake are listed below:

- Product Backlog Creation: Researchers collaborated with stakeholders to generate a list of all features, functionalities and requirements necessary for the KnowKalinga system to be complete. This list, known as Product Backlog serves as a comprehensive outline of its goals.
- Sprint Planning: Researchers in this phase selected items from their product backlog that they plan to work on during an upcoming sprint (a time-boxed development cycle, usually lasting 2-4 weeks). As part of this planning session, the team decided on the scope, goals, and tasks that must be achieved within that sprint.
- Sprint Execution: Researchers began implementing tasks specified in their sprint plan. Daily stand-up meetings were held to review progress and challenges, and plan the next steps. Working as part of a collaborative environment, various roles such as frontend development, content gathering, testing, and design were filled by researchers.
- Daily Stand-Up Meetings: Researchers convened briefly every week for short updates. They reviewed what had been accomplished over the previous week, discussed any plans they had for that particular week, and whether any impediments or challenges required addressing.
- Sprint Review: After each sprint, researchers presented their work to stakeholders - including CHRC Office staff - for feedback and validation of any features created during it. The CHRC Head, Sir. Danao evaluated the versions of the project and gave constructive criticism and recommendations for the enhancement of the project. Based on the feedback received, adjustments were then implemented

based on user comments. The project conducted a total of three sprints before the product was accepted by the CHRC Head and recommended for implementation.

- Sprint Retrospective: Following each sprint review meeting, the researchers held a retrospective meeting to analyze what went well and where improvements can be made in their development process. This enabled them to continually optimize and enhance their work methods.

In all of these steps, the researchers exercised collaboration, adaptability, and responsiveness. They had been communicating regularly with their stakeholders and soliciting their input at all times to approve that KnowKalinga was wholly created out of their specifications and anticipation. Agile Scrum gave the researchers the power to immediately and intelligently respond, make adjustments, mitigate any possible challenges, and develop a system that shall adequately educate others about the promotion and conservation of Kalinga. The tools chosen by KnowKalinga researchers to build the system are a selected set that gives them more control and the ability to customize. Consequently, their preferred Relational Database Management System is MariaDB. This RDBMS is the repository of all the user accounts, learning materials, and everyone's data, the research and the findings, the interactions on the forums, and other website-related data – ensures the integrity of the data and the data organization as well as a swift and efficient retrieval. They also selected the web Host service, Hostinger, which has been very secure and reliable for hosting the infrastructure of the KnowKalinga system. The robust system of deployment, scaling, and performance has left the researchers with only one thing to focus on, the experience to provide to the users. This is an important choice the researchers made when developing the Knowledge Management System based on the fact that the system's security and reliability in terms of content management depended on the platform. The choice was in two folds; utility which is more secure given its popularity and implications, and simplicity for easy utilization by information content creators and managers at CHRC.

RESULTS

To evaluate usability, the researchers employed the System Usability Scale (SUS), a validated tool containing 10 questions with response options ranging from "strongly agree" to "strongly disagree." Table 1 below displays this data that offers insight into user-friendliness and the effectiveness of systems.

KnowKalinga SUS Survey Results							
Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Odd Sum	Even Sum
1	13	8	0	0	0	21	8
2	0	7	7	11	5	14	16
3	12	7	1	2	1	21	8
4	0	2	3	12	2	5	14
5	10	7	1	0	0	18	8
6	0	7	4	11	2	11	13
7	10	7	1	0	0	18	8
8	0	2	3	10	3	5	13
9	10	7	2	0	0	19	9
10	0	6	3	4	9	9	13

Table 1. SUS survey results

The SUS survey was conducted by asking a number of respondents about how they feel when using the system. Each participant should choose between “Strongly Disagree” and “Strongly Agree” at 10 statements/questions. The researcher counted how many are the answers for the odd-numbered question and how many for evens. For example, the results show that the score is 49 from odd ones and 72 from even, on the score sheet the odd score will be subtracted from the even score (72-49= 23) and that would be 23. The total SUS Score was found by multiplying each persons' score by 2.5 and placing it all together. In this case, the result was about 57.5. The explanation value of these results was implemented according to guidelines and lies between “Good” and “Excellent”. It means that the majority of people would easily use the system, but opportunities for improvement still exists. Generally, the survey explains that people like to use the KnowKalinga: Knowledge Management System. At the same time, it allows the researchers to get some valuable feedback from target audiences to improve the current system and fix all the issues respondents could have experienced during their interaction with this system.

DISCUSSION

This section provides the main findings of the research which address the impediments faced by the Cultural Heritage Research Center in preserving and promoting Kalinga’s heritage. Moreover, this section will also provide the technology innovation solutions in the KnowKalinga: Knowledge Management system implemented to improve the identified features and their usability rating for recommendations to improve and sustain the system.

The following research determined some of the problems that the SLCB's Cultural Heritage Research Center had, making missions to protect as well as foster the cultural heritage of Kalinga difficult. Among other issues was the manual consolidation of researchers' works, which made the management of knowledge inefficient and slow. Secondly, the shared access to cultural resources was the biggest problem that CHRC faced. Since CHRC was not able to share its collection of the overall research, and educational materials on the diverse cultural aspects of Kalinga culture such as traditional arts, rituals, local cultures, and locale knowledge, the institution was not able to be a Kalinga cultural heritage repository and hub; lastly, both teachers and student were facing difficulty in finding correct and relevant cultural heritage information on the website. Hence, the available information contained inaccurate and incomplete information from unreliable websites.

In addition to this, the CHRC faced challenges in engaging all stakeholders including putting their ideas together in an inclusive manner. If there was a provided platform to facilitate knowledge sharing and cultural preservation amongst students, educators, researchers, indigenous culture enthusiasts, tourists, and a community; collaboration research would be highly effective and enhance learning from the activities.

To address the challenges presented by CHRC, this study proposed innovative technological solutions that promote the preservation, promotion, and sharing of Kalinga's cultural heritage in digital form. The researchers proposed a Knowledge Management System for CHRC "KnowKalinga", which is an online system that serves as the Kalinga Cultural Heritage research and knowledge repository utilizing WordPress as a Content Management Tool which includes the following architecture and features:

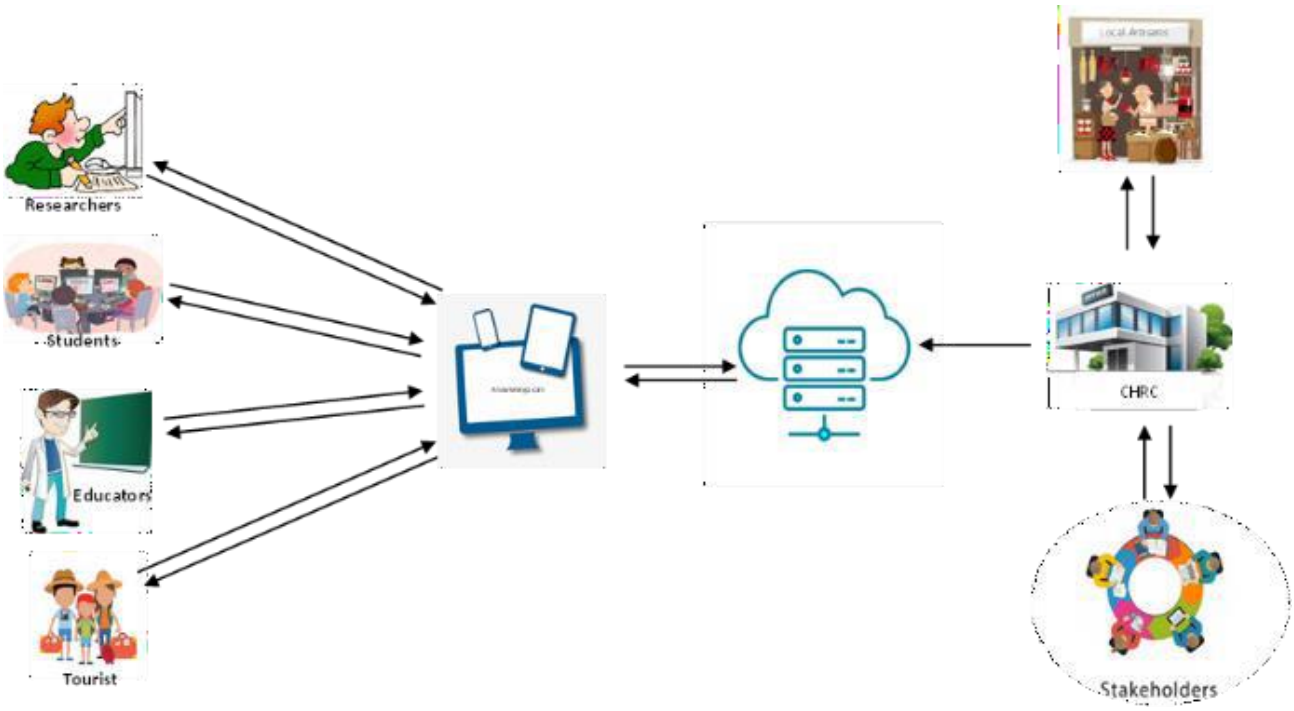
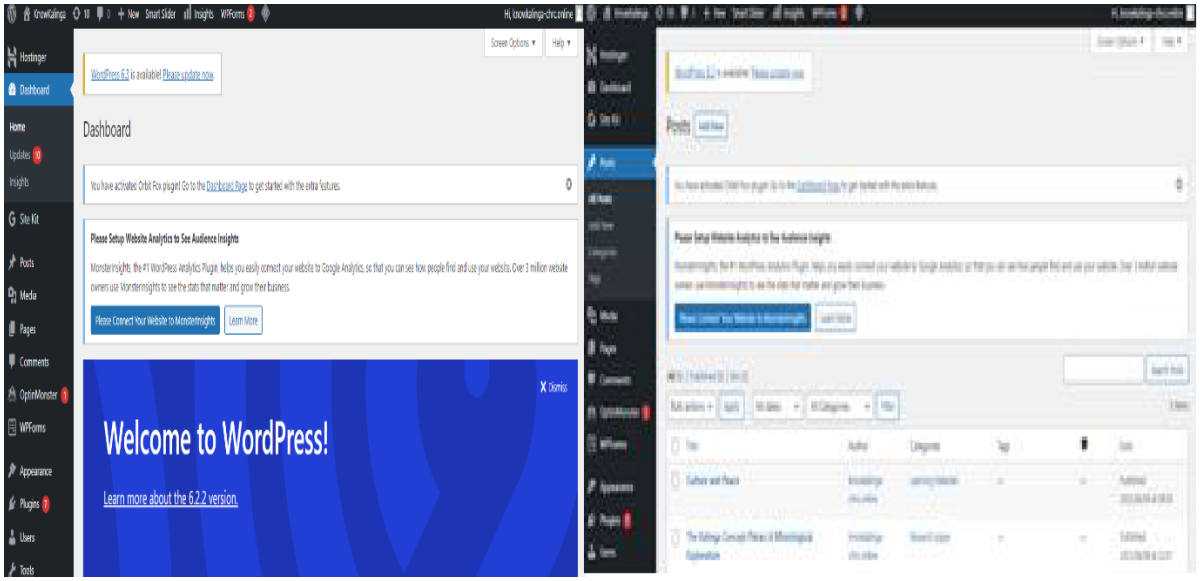


Figure 2. System Architectural Diagram

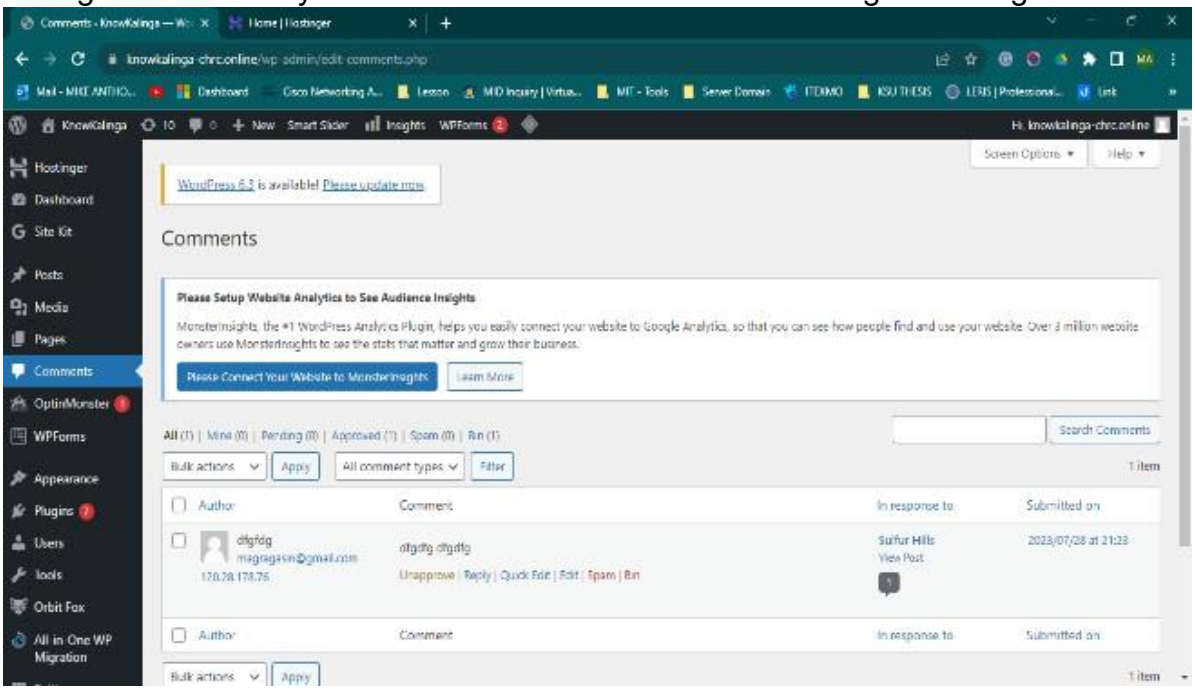
KnowKalinga system This reengineered system, based on an enhanced client-server architecture and a responsive and adaptable web application interface that can be accessed across laptops, desktops, smartphones, and tablets via any web browser, is easily accessible online for enhanced user convenience. The Cultural Heritage Research Center is at the heart of this system, acting as its central cloud infrastructure provider and administrator. CHRC plays an essential role in reviewing and approving research, learning materials, and content submitted and/or approved by stakeholders ensuring authenticity and quality before uploading to the system.

The CHRC Office retains its role as server manager, rationalizing the tracking of official records and the reviewing of data and content flow while also managing the advertisements local artisans upload onto the system. The client-server architecture promoted a smooth user experience in terms of viewing and providing feedback to other users and maintaining high-quality content through the CHRC Office's extensive checks



Screenshot 1 & 2. Administrator Dashboard and Post Management Board

The Admin Dashboard is the central control hub, an interface that empowers the admin to create, curate, and manage content for the cultural heritage project in Kalinga. This is an intuitive interface to make the work of uploading materials faster and easier, enabling them to readily access relevant resources about Kalinga's heritage.



Screenshot 3. Administrator Comment Management Board

Further, Administrators play a vital role in maintaining Kalinga's cultural heritage while providing users with genuine insights and authentic feedback in the Admin Dashboard. By fact-checking and filtering feedback and comments submitted by users,

administrators ensure accurate and reliable information dissemination throughout the system.



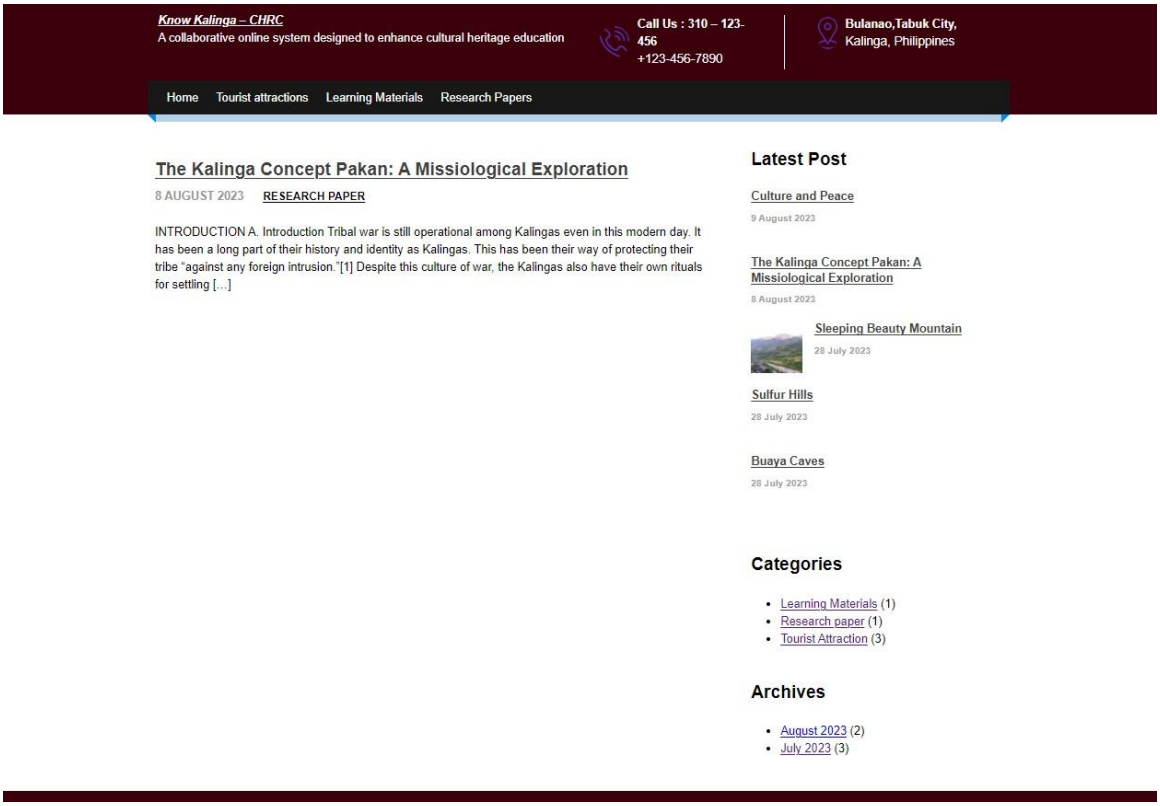
Screenshot 4. System Visitors Board

Meanwhile, Visitors Dashboard provides a vibrant slide show picture illustrating landscapes of different parts of Kalinga Province and exposes the interests and/or attractions of the 8 municipalities composing Kalinga on the lower portion of its page. In its screen front view, this lay-out welcomes visitors and informs them about the cultural richness and historical landmarks of the vibrant province.

The Learning Materials Dashboard is an extensive library of educational resources on Kalinga Cultural Heritage. To make these learning materials easily available to students, educators, researchers, and enthusiasts each item has been thoroughly cataloged with titles and authors. Users can engage with a range of subjects to deepen their understanding of Kalinga's vibrant legacy from traditional arts, rituals, indigenous practices, and more.



Screenshot 5. Learning Materials Dashboard



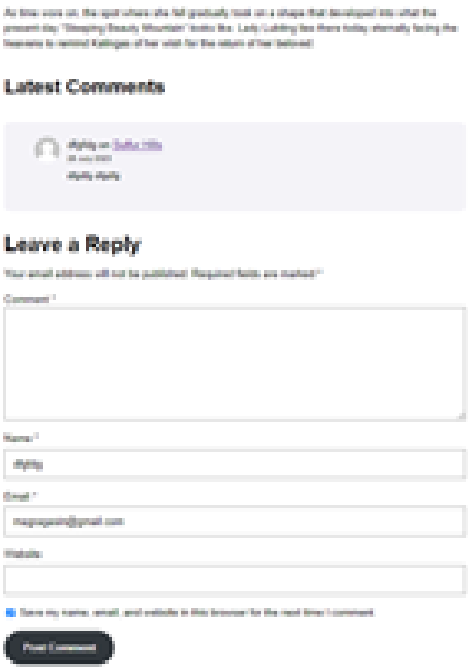
Screenshot 6. Research Papers Dashboards

The preceding page contains a comprehensive list of research compiled by the CHRC office. It reveals much information about the valuable cultural heritage of Kalinga. As a repository and sharing platform, the research papers not only keep much-needed records but also shows various perspectives: this way, the system creates an environment wherein other researchers might be inspired or learn from one another and be able to write a more comprehensive work on the same topic in the future. Hence it serves its primary purpose for which the CHRC office intended, and it also fosters exchange and innovation of knowledge within academic communities.



Screenshot 7. Tourist Spots Dashboard

The last section is a complete list of every tourist destination found in Kalinga Province. When the user clicks on a particular destination, he or she is connected to a more accessible summary explaining the importance, history, fascinating stories, and sub-specifics such as drop-off points, tour guide costs if one wants to use one, and more. Furthermore, the researchers have placed coordinates that can be clicked, and locations are quickly accessible by any user as it can quickly use Google Maps for each direction that goes directly to the tourist's point they are interested.



Screenshot 8. Visitors Comment Section

Being a land of different tribes and sub-tribes, it is clear that different interpretations of traditions practices and customs exist. Through the Visitors Comment Section provided in each uploaded content in the system, site users are enabled to post meaningful comments, encouraging users to share their thoughts, ideas, and opinions to create an ongoing debate around the cultural heritage of Kalinga. This feature becomes particularly vital as a virtual space for knowledge-sharing among community members; by providing this forum for the collaborative exchange of insights among them all it fosters a greater appreciation of Kalinga's rich cultural tapestry.

Conclusions

The research goal is to create a KnowKalinga Knowledge Management System as an attempt to protect, promote, and share Kalinga Cultural Heritage. The main challenge of Cultural Heritage Research Center (CHRC) is not having a centralized repository and sharing platform for the consolidation of the data and research they have accumulated in the office. Hence, to answer this the researchers develop a system that is integrated with features such as a centralized repository of well-curated learning materials and research of Cultural Heritage Research Center (CHRC), interactive culture-mapping for its users, and promotion of local artists and crafts. The use of WordPress in the development of the system has allowed easy editing and customization of the content and its client-server design assured smooth interactions and distribution of materials. Testing using the System Usability Scale user study reveals that the system excelled in its usability where services can be easily accessed and used by the various segments of users.

The KnowKalinga Knowledge Management System not only fills the knowledge gap for educators, students, researchers, tourists, and culture enthusiasts but also helps CHRC to achieve its mission of recognizing the cultural heritage of Kalinga and passing it on to the next generations. Positive responses to the survey suggest that this system has the potential to be used for educational purposes, appreciating cultures, and collaborations. KnowKalinga is an example of integrating technology and culture by assisting the understanding and promotion of Kalinga's diverse history for the next generations and users' participation and content improvement. It is expected to be beneficial through the participation of users and the improvement of content.

Recommendations

Considering the findings of the study, the researchers proposed the following recommendations: a.) Preserve the cultural artifacts, documents, and oral tradition in a digital format using modern technology. This will allow the artifacts to be properly archived and accessed long-term by both the current and the future generations. b.) Future researchers need to conduct more extensive and inclusive testing of the proposed method. Having a higher confidence level in the results will ensure that the usability of the proposed method tested is accurate. c.) Future research must focus on the better protection of the data records and optimize the process.

Compliance with Ethical Standards

Considering the findings of the study, the researchers proposed the following recommendations: a.) Preserve the cultural artifacts, documents, and oral tradition in a digital format using modern technology. This will allow the artifacts to be properly archived and accessed long-term by both the current and the future generations. b.) Future researchers need to conduct more extensive and inclusive testing of the proposed method. Having a higher confidence level in the results will ensure that the usability of the proposed method tested is accurate. c.) Future research must focus on the better protection of the data records and optimize the process.

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LEVEL OF EFFECTIVENESS OF THE COAST GUARD DAMAGE CONTROLMAN RATING COURSE AND TRAINEE ONBOARD PERFORMANCE TOWARD PROGRAM ENHANCEMENT

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ABSTRACT

The study employed a quantitative descriptive approach to evaluate the effectiveness of the Damage Controlman Rating Course (DCRC) and its impact on trainee onboard Performance. A sample size of 150 trainees was chosen to ensure statistical power and precision, to detect meaningful differences or trends in the data. The methodology included surveys and performance assessments to gather comprehensive data on trainees' experiences and outcomes. The analysis process involved statistical techniques to identify significant patterns and relationships. Findings revealed a pressing need for improvements in hands-on experience with firefighting equipment and room simulations for practical exercises. Respondents expressed dissatisfaction with outdated technology and poorly maintained equipment in training facilities, underscoring the necessity for significant upgrades. The study also identified a significant positive relationship between the course's effectiveness and trainees' Performance in managing shipboard emergencies, highlighting the critical importance of clear course objectives, comprehensive content, proficient instructors, and high-quality materials and facilities. In conclusion, while the Damage Controlman Rating Course demonstrates effectiveness in several key areas, there is considerable room for improvement, particularly in upgrading training facilities and equipment. Recommendations include prioritizing comprehensive course enhancements, tailoring training to address variations in effectiveness, implementing continuous evaluation and feedback mechanisms, and fostering a culture of constant learning and improvement within the Coast Guard community. These recommendations aim to enhance the course's effectiveness further and ensure participants are well-prepared to handle shipboard emergencies effectively.

Keywords: *Damage Controlman Rating Course (DCRC), Trainee onboard performance, Course objectives, Course Contents, Instructor Capabilities, and Training Materials and Facilities.*

INTRODUCTION

The training and preparedness of Coast Guard personnel are critical for ensuring maritime safety and operational efficiency. Among the various training programs, the Coast Guard Damage Controlman Rating Course (DCRC) stands out as a vital component. This course is designed to equip Coast Guard members with the necessary skills and knowledge to perform damage control duties effectively. Its impact is directly observable in trainees' performance once onboard and undertaking real-world missions. The course's effectiveness not only influences individual Performance but also contributes significantly to the overall operational efficiency and safety of Coast Guard missions.

The Damage Controlman Rating Course encompasses a comprehensive curriculum that includes both theoretical and practical elements. Trainees are prepared to handle emergencies such as fire outbreaks and structural damages in harsh maritime environments. The evolving nature of marine threats and operational challenges necessitates continuously assessing and enhancing this course. Safety concerns are prevalent in damage control procedures on Coast Guard vessels, necessitating an examination of current practices to identify potential hazards and propose improvements to enhance overall crew and ship safety.

The importance of the DCR Course in Coast Guard personnel training is well-documented. Jackson (2018), Fernandes and Ribeiro (2017), Guard (2019), and Carmassi et al. (2020) have all highlighted their critical role. The course focuses on leadership, communication, teamwork, equipment maintenance, ship stability, chemical, biological, and radiological defence, and hazardous material management. It enhances situational awareness among sailors, enabling them to identify hazards, assess damage severity, and make informed decisions during crises. The course also emphasizes CBR defence and hazardous material management, ensuring trainees are proficient in these critical areas. Overall, the DCR Course is crucial for Coast Guard personnel to handle emergencies effectively and safeguard vessels and crew members.

Evaluating the training effectiveness of the Damage Controlman Rating Course is essential. It involves assessing whether the course adequately prepares individuals for real-world damage control situations and identifying areas for refinement better to meet the needs of trainees and operational demands. Additionally, the operational efficiency of damage control measures is vital, as streamlining and optimizing procedures ensures that the response to damage incidents is swift, well-coordinated, and minimally disruptive to overall Coast Guard operations.

Several studies have highlighted the importance of effective training programs in maritime and military contexts. For example, Alberto (2019) emphasized the necessity of experienced leadership in maintaining high operational standards. Similarly,

Cucharo (2022) found a correlation between age, experience, and professional advancement, underscoring the importance of continuous training and experience in maintaining operational readiness. These findings highlight the significance of experience and constant training in high-stakes environments like the Coast Guard.

Damage factors in Coast Guard vessels provide crucial insights into the multifaceted nature of challenges faced in the maritime industry and the pivotal role of the Coast Guard Damage Controlman Rating Course in addressing them. Romulo et al. (2019) explore damage factors such as wear and tear and corrosion, highlighting the importance of proactive measures taught in the course. Tolentino (2019) emphasizes the critical role of safety protocol adherence and ongoing training, while Silo (2019) underscores the financial implications of damage and the importance of preventive maintenance strategies. Basas (2019) highlights the impact of extreme weather conditions, advocating for proactive measures and emergency response plans. Garcia (2019) stresses the importance of advanced maritime technologies and strict regulations to enhance situational awareness and safety. Dimayacyac (2017) underscores the significance of regular equipment inspections and timely repairs to prevent damage.

David (2018) emphasizes the necessity of effective training programs for cargo handling, while Guttierez (2019) explores the influence of vessel age and condition on potential damage. Noble et al. (2019) highlight challenges related to insufficient maintenance budgets and limited resources, suggesting the need for innovative solutions. Mendoza et al. (2017) and Igliane et al. (2018) offer insights into preventive measures such as effective coatings and operational conditions, respectively. Alberto (2019) discusses the implications of fatigue and stress on structural integrity, advocating for predictive models and regular inspections. Natividad et al. (2016) and Sumulong et al. (2017) focus on human factors and technological advancements, respectively, while Agudo et al. (2018) address environmental impact and response measures. Together, these studies emphasize the interconnectedness between real-world challenges and the course’s effectiveness, advocating for ongoing enhancements to ensure optimal trainee onboard performance and safeguard the integrity and safety of Coast Guard vessels.

However, there needs to be more literature regarding specific evaluations of the Damage Controlman Rating Course within the Coast Guard. Most existing research focuses on broader training and preparedness aspects but needs more detailed assessments of individual courses and their direct impact on operational Performance. This gap highlights the need for studies that provide a comprehensive evaluation of specialized training programs like the Damage Controlman Rating Course.

The present study aims to determine the effectiveness of the Coast Guard Damage Controlman Rating Course and its direct impact on trainees' onboard Performance. This analysis seeks to identify strategies for course enhancement, ensuring that the Coast Guard continues to excel in its vital role in maritime safety and security. By examining practical competencies in active-duty scenarios, the study will explore how the skills and knowledge imparted during training translate into real-world Performance. Additionally, it will assess the course's focus on critical thinking and problem-solving abilities, which are essential for handling unpredictable and high-pressure situations at sea.

This ongoing evaluation and improvement process is crucial in maintaining high training and operational readiness standards within the Coast Guard. The feedback and Performance of trainees onboard play a pivotal role in this enhancement process, providing real-world insights into the applicability and sufficiency of the training provided. The study will also emphasize the importance of constructive feedback from trainees and instructors, coupled with a systematic evaluation of onboard performance metrics, to identify areas for improvement in the course structure and content.

Thus, the effectiveness of the Coast Guard Damage Controlman Rating Course is critical for ensuring that Coast Guard personnel are well-prepared to handle emergencies and maintain operational efficiency. This study's findings provide valuable insights into the course's impact on trainees' Performance and highlight areas for improvement, ultimately contributing to enhanced maritime safety and security.

Research Questions

This study evaluated the level of effectiveness of the Coast Guard Damage Controlman Rating Course. It assessed the Performance of trainees onboard in applying the knowledge and skills learned during their training, leading to a proposed Enhancement Program. Specifically, this study sought to answer the following questions:

1. What is the level of effectiveness of the Damage Controlman Rating Course in terms of?
    - 1.1 Course Objectives
    - 1.2 Course Contents
    - 1.3 Instructor Capabilities
    - 1.4 Materials and Facilities
2. How do the Trainees perform in controlling the damage arising from shipboard emergencies?
3. Is there a significant relationship between the level of effectiveness of the Damage Controlman Rating Course and the trainees' Performance in controlling damage arising from shipboard emergencies?
4. Based on the findings, what Enhancement Program can be proposed to ensure that trainees are well-prepared and competent in carrying out damage control duties?

METHODOLOGY

The study evaluated the effectiveness of the Damage Controlman Rating Course (DCRC) and its impact on trainee onboard Performance within the Philippine Coast Guard (PCG). A total of 150 graduates were selected using stratified random sampling, dividing the population into subgroups based on their assigned vessels. The research used a test questionnaire and a survey questionnaire to assess the course's effectiveness and trainees' Performance in handling emergencies. The survey questionnaire assessed Course Objectives, Course Content, Instructor Capabilities, and Materials and Facilities, while the test questionnaire evaluated trainees' knowledge, skills, and abilities in handling emergencies. The results were presented to propose a Course Enhancement Program. A 5-point Likert scale was used to

determine the course's effectiveness across various aspects, and Pearson-r Correlation and Coefficient were used to test the significant relationship between the course's effectiveness and trainees' Performance in controlling damage. However, the study's scope was limited to evaluating the course's effectiveness and its impact on trainee onboard Performance, with limitations including self-reported data and the specific context of the Philippine Coast Guard.

RESULTS

Table 1

Level of Effectiveness of the Damage Controlman Rating Course in terms of Course

Indicators	WAM	VI
1. The course effectively provided me with the skills to identify different leadership qualities and identify cases of hazing and bullying within the Coast Guard community.	4.68	*EE*
2. The Damage Controlman Rating Course effectively emphasized the significance of adhering to shipboard regulations to uphold discipline and order within the Coast Guard vessel.	4.76	*EE*
3. The Damage Controlman Rating Course provides an understanding of authority and responsibility to enhance my decision-making capabilities.	4.59	*EE*
4. Identify various methods used in ship compartmentation and entering closed compartments, including a comprehensive understanding of Material Condition of Readiness symbols and markings.	4.18	*EE*
5. The course provided in-depth knowledge of the ship's piping system, including markings and colour coding, ensuring proficiency in system identification.	4.59	*EE*
6. Identify different types of valves and filters, along with their purposes, maintenance, and emergency repair procedures.	4.50	*EE*
7. The symbols used for valves and piping systems help in interpreting and acting upon relevant information.	4.76	*EE*
8. The course provided instructions on how to identify various kinds of damage on the ship and implement methods to fix different types of damage.	4.76	*EE*
9. Identify various methods used in ship compartmentation and entering closed compartments, including a comprehensive understanding of Material Condition of Readiness symbols and markings.	4.76	*EE*
10. Ways to preserve and ensure watertight integrity to address challenges related to ship integrity.	4.76	*EE*
Composite Mean	4.63	*EE*

Objectives

Legend: *4.21-5.00 Extremely Effective (EE), 3.41-4.20 Very Effective (VE), 2.61-3.40 Moderately Effective (ME), 1.81-2.60 Slightly Effective (SE), 1.00.1.80 Not Effective at All (NEA)*

Table 1 shows the Level of Effectiveness of the Damage Controlman Rating Course in terms of Course Indicator. Key findings reveal that indicator 2 achieved the highest mean score of 4.76, rated as Extremely Effective (EE). These objectives include emphasizing the significance of adhering to shipboard regulations to uphold discipline and order within the Coast Guard vessel, using symbols for valves and piping systems to help interpret and act upon relevant information, providing instructions on how to identify and fix various kinds of ship damage, understanding ship compartmentation

and entering closed compartments including Material Condition of Readiness symbols and markings, and ways to preserve and ensure watertight integrity to address challenges related to ship integrity.

The objective with the lowest mean score of 4.18, while still rated as Extremely Effective (EE), is identifying various methods used in ship compartmentation and entering closed compartments, including a comprehensive understanding of Material Condition of Readiness symbols and markings.

The overall composite mean for the course objectives is 4.63, indicating that the Damage Controlman Rating Course is rated as Extremely Effective (EE) in achieving its goals.

The Damage Controlman Rating Course has been evaluated to be highly effective in meeting its objectives, with all indicators falling within the highest category of effectiveness. The highest-rated objectives, each with a mean score of 4.76, reflect the course's strong emphasis on practical and critical aspects of shipboard operations and damage control. Specifically, the course excels in emphasizing the importance of shipboard regulations for maintaining discipline and order, providing a robust understanding of the symbols used for valves and piping systems, offering comprehensive instructions on identifying and fixing various kinds of ship damage, ensuring that participants understand ship compartmentation and Material Condition of Readiness symbols, and teaching methods to preserve watertight integrity, crucial for maintaining the ship's structural integrity and safety.

The objective with the lowest mean score of 4.18, while still rated as highly effective, suggests that there is slight room for improvement in teaching the methods used in ship compartmentation and entering closed compartments. This could involve enhancing the practical components or providing more detailed examples and scenarios to reinforce this knowledge.

Overall, the high composite mean of 4.63 demonstrates that the Damage Controlman Rating Course effectively equips Coast Guard personnel with the necessary skills and knowledge to perform their duties, particularly in areas critical to ship safety and operational efficiency. The diverse and comprehensive curriculum ensures that all relevant aspects of damage control and shipboard operations are covered, leading to well-rounded and capable personnel.

Hence, the composite mean of 4.63 indicates that the Damage Controlman Rating Course is highly effective in achieving its indicator, as evidenced by the consistently high mean scores across most indicators. The course covers a wide range of topics relevant to Coast Guard operations, ensuring that participants gain essential skills and knowledge for their roles. However, there may be slight variations in effectiveness based on the perceived relevance and complexity of individual indicators.

Tolentino (2019) conducted a study to evaluate the effectiveness of leadership training programs in improving participants' awareness and capability to address critical issues such as hazing and bullying within maritime organizations, with a specific focus on the Coast Guard community. The findings revealed that programs concentrating on the identification of leadership qualities and the management of issues like hazing and

bullying were well-received by participants. This positive reception translated into increased awareness and confidence in handling these challenges.

Hence, Tolentino's study provides empirical evidence supporting the effectiveness of leadership training programs in maritime organizations, highlighting their role in fostering an environment where issues like hazing and bullying can be effectively addressed through improved leadership awareness and skills.

Table 2
Level of Effectiveness of the Damage Controlman Rating Course in terms of Course Contents

Indicators	WAM	VI
1. The course provides comprehensive training on damage control techniques and procedures.	4.62	*EE*
2. It offers hands-on experience with firefighting equipment and damage control systems.	4.74	*EE*
3. The course covers emergency response protocols for various types of damage scenarios.	4.62	*EE*
4. It includes simulations and practical exercises to enhance skill development.	4.24	*EE*
5. The course adequately addresses the use of communication systems during emergencies.	4.62	*EE*
6. It provides thorough instructions on damage assessment and reporting procedures.	4.40	*EE*
7. The course content emphasizes the importance of teamwork and coordination in damage control efforts.	4.70	*EE*
8. It offers sufficient guidance on the maintenance and operation of damage control equipment.	4.70	*EE*
9. The course adequately prepares individuals to handle hazardous material incidents.	4.42	*EE*
10. It provides clear guidance on the procedures for containing and controlling flooding on a vessel.	4.62	*EE*
Composite Mean	**4.56**	***EE***

Legend: *4.21-5.00 Extremely Effective (EE), 3.41-4.20 Very Effective (VE), 2.61-3.40 Moderately Effective (ME), 1.81-2.60 Slightly Effective (SE), 1.00.1.80 Not Effective at All (NEA)*

Table 2 shows the Level of Effectiveness of the Damage Controlman Rating Course in terms of Course Contents. The findings revealed that indicator 2 has the highest mean score of 4.74, rated as Extremely Effective (EE), which was achieved by the indicator: "The course offers hands-on experience with firefighting equipment and damage control systems." This highlights the course's strength in providing practical, hands-on experience, ensuring trainees can handle real-life firefighting and damage control scenarios. While indicator 4 has the lowest mean score of 4.24, although still rated as Extremely Effective (EE), it was observed in the indicator: "The course includes simulations and practical exercises to enhance skill development." This suggests a slight need for enhancement in the frequency or complexity of simulations and practical exercises to improve skill development further.

The composite mean for the course contents is 4.56, indicating that the Damage Controlman Rating Course is rated as Extremely Effective (EE) in achieving its course content objectives. The course is highly effective in delivering comprehensive training that covers essential aspects of damage control and emergency response. High-scoring indicators, each with a mean score of 4.70, emphasize the importance of teamwork and coordination in damage control efforts and provide sufficient guidance on the maintenance and operation of damage control equipment. These aspects are crucial as they prepare individuals to work effectively in teams, ensuring coordinated and efficient responses to emergencies while maintaining the readiness and functionality of critical equipment.

The course effectively balances theoretical knowledge with hands-on practice, ensuring that Coast Guard personnel are well-prepared to handle a wide range of emergency scenarios. This comprehensive approach enhances the safety and operational efficiency of their vessels, demonstrating the overall effectiveness of the Damage Controlman Rating Course in delivering a well-rounded and practical education in damage control.

In support, Garcia (2019) supported the findings by finding that participants who received hands-on training demonstrated significantly higher proficiency in damage control techniques compared to those who received only classroom instruction. This was particularly evident in practical assessments related to firefighting, damage assessment, and emergency response protocols. Hence, the findings support the conclusion that the Damage Controlman Rating Course effectively delivers its content, particularly in areas emphasizing practical experience and skill development.

Table 3 shows the Level of Effectiveness of the Damage Controlman Rating Course in terms of Instructor Capabilities. Indicator 1: "The instructor in the Damage Controlman Rating Course exhibited a deep understanding of the subject matter, which contributed to a high level of confidence in their ability to impart crucial knowledge" received the highest mean score of 4.87. This highlights that the instructors' comprehensive knowledge and command over the subject matter are seen as the most valuable aspect of the course, fostering confidence among participants. This deep understanding likely plays a pivotal role in ensuring that trainees are well-prepared and informed, which is critical in high-stakes situations such as damage control.

Indicators 3 and 4: Both indicators, "The instructor demonstrated proficiency in cultivating leadership skills while sensitively addressing issues of hazing and bullying, contributing to a respectful and supportive course atmosphere" and "The instructor's ability to clarify the distinctions between authority and responsibility provides valuable insights into the organizational dynamics within a ship," received the lowest mean scores of 4.55. Despite being rated as "Extremely Effective," these scores suggest that there might be room for further enhancement in these areas, perhaps through more focused training or additional emphasis during the course.

Table 3
Level of Effectiveness of the Damage Controlman Rating Course in terms of Instructor Capabilities

Indicators	WAM	VI
1. The instructor in the Damage Controlman Rating Course exhibited a deep understanding of the subject matter, which contributed to a high level of confidence in their ability to impart crucial knowledge.	4.87	*EE*
2. Instructors effectively created a positive and inclusive learning environment, fostering participant engagement and collaboration.	4.75	*EE*
3. The instructor demonstrated proficiency in cultivating leadership skills while sensitively addressing issues of hazing and bullying, contributing to a respectful and supportive course atmosphere.	4.55	*EE*
4. The instructor's ability to clarify the distinctions between authority and responsibility provides valuable insights into the organizational dynamics within a ship.	4.55	*EE*
5. The instructor shared insights into customs and traditions observed in the Philippine Coast Guard, enriching the course content with cultural relevance.	4.56	*EE*
6. The instructors' explanation of the DC Status Board was clear and facilitated understanding in real-world scenarios.	4.75	*EE*
7. The instructor showcased practical expertise in identifying suitable materials for repair, ensuring a hands-on and applicable learning experience for all participants.	4.75	*EE*
8. The instructor effectively communicated the intricacies of external and internal forces affecting ship stability, enhancing our analytical skills in responding to dynamic situations.	4.75	*EE*
9. The instructor is adept at emphasizing the importance of preserving and ensuring watertight integrity, which is crucial for successful damage control efforts.	4.75	*EE*
10. The instructor's proficiency in explaining ship compartmentation, closed compartment entry, and Material Condition of Readiness symbols provided a solid foundation for participants to navigate these critical aspects confidently.	4.66	*EE*
Composite Mean	***4.69***	***EE***

Legend: *4.21-5.00 Extremely Effective, 3.41-4.20 Very Effective, 2.61-3.40 Moderately Effective, 1.81-2.60 Slightly Effective, 1.00.1.80 Not Effective at All*

The composite mean for the instructor capabilities is 4.69, indicating that overall, the instructors are perceived as highly effective in delivering the course content and fostering a conducive learning environment. This high composite means it reflects the overall satisfaction and approval of the participants with the instructors' Performance across various dimensions of teaching and interaction.

The exemplary aspects of the instructor's capabilities, as well as areas for potential improvement, despite their high ratings. The highest-rated indicator, with a mean score of 4.87, emphasizes the crucial role of instructors' subject matter expertise. This suggests that the depth of knowledge and the ability to convey this knowledge effectively is a cornerstone of the course's success. Participants felt confident in the instructors' ability to provide essential and accurate information, which is vital in damage control, where precise knowledge can significantly impact outcomes.
On the other hand, the lowest-rated indicators, each with a mean score of 4.55, while still rated as "Extremely Effective," indicate that there are areas where instructor capabilities could be further enhanced. These areas include the cultivation of leadership skills and the clarification of organizational dynamics within a ship. The slightly lower scores in these areas suggest that while the instructors are effective,

there may be opportunities to integrate more practical leadership exercises or in-depth discussions on authority and responsibility dynamics.

The Damage Controlman Rating Course is rated as highly effective overall in terms of instructor capabilities, as reflected by the composite mean of 4.69. The findings suggest that the instructors excel in their subject matter expertise and practical teaching methods. However, despite these areas already being rated highly effective, there remains a slight opportunity for improvement in leadership training and the explanation of organizational dynamics. Enhancing these aspects further elevates the course's overall effectiveness, ensuring that trainees are comprehensively prepared for all aspects of damage control.

The findings are supported by literature on the impact of instructor expertise on learning outcomes. Jackson's (2018) study found a strong positive correlation between instructor expertise and learning outcomes in technical training programs. Instructors with a deep understanding of the subject matter led to higher participant engagement, confidence, and knowledge retention. This aligns with the high rating of Indicator 1 in the Damage Controlman Rating Course. The study also highlighted the importance of creating a positive and inclusive learning environment, which contributes to a positive overall experience. The Damage Controlman Rating Course is highly effective overall, with a composite mean of 4.69. However, there is room for improvement in leadership training and understanding of organizational dynamics. Enhancing these aspects could improve the course's effectiveness.

Table 4 shows the Effectiveness of the Damage Controlman Rating Course in terms of Materials and Facilities. Indicator 7: "The course included real-world shipboard materials, which allowed participants to familiarize themselves with the equipment and tools used in their future roles as Damage Controlmen" received the highest mean score of 3.36, categorized as "Moderately Effective" (ME). This indicates that participants found the inclusion of real-world materials particularly beneficial in preparing them for their roles. Familiarity with actual shipboard equipment and tools is crucial for practical skill development and ensuring trainees are ready for real-world applications. Indicator 3: "Training manuals and visual aids are well organized to enhance the overall learning experience of the Damage Controlman Rating Course" had the second-highest mean score of 3.32, also rated as "Moderately Effective" (ME). This suggests that organizing instructional materials facilitates a better learning experience, helping participants understand and retain the course content more effectively.

Indicators 4 and 6: Both indicators, "The facilities used for practical exercises and simulations were equipped with up-to-date technology, ensuring participants had access to realistic scenarios resembling shipboard environments, thus enhancing their learning experience" and "The facilities used for hands-on training in repair and damage control exercises were well-maintained and equipped with the necessary tools," received the lowest mean scores of 1.79, categorized as "Not Effective at All" (NEA). These scores highlight significant concerns regarding the adequacy and condition of the facilities and equipment used for practical training. The need for up-to-date technology and well-maintained facilities suggests a critical area for improvement to enhance the training experience.

Table 4
Level of Effectiveness of the Damage Controlman Rating Course in terms of Materials and Facilities

Indicators	WAM	VI
1. The materials provided during the Damage Controlman Rating Course significantly contributed to a thorough understanding of shipboard damage control principles.	*2.65*	*ME*
2. The Firefighting Training Ground is a specialized facility utilized for hands-on training in firefighting techniques.	*2.65*	*ME*
3. Training manuals and visual aids are well organized to enhance the overall learning experience of the Damage Controlman Rating Course.	*3.32*	*ME*
4. The facilities used for practical exercises and simulations were equipped with up-to-date technology, ensuring participants had access to realistic scenarios resembling shipboard environments, thus enhancing their learning experience.	*1.79*	*NEA*
5. The variety of materials, ranging from instructional guides to interactive multimedia presentations, met the diverse learning styles of participants in the Damage Controlman Rating Course.	*2.70*	*ME*
6. The facilities used for hands-on training in repair and damage control exercises were well-maintained and equipped with the necessary tools.	*1.79*	*NEA*
7. The course included real-world shipboard materials, which allowed participants to familiarize themselves with the equipment and tools used in their future roles as Damage Control.	*3.36*	*ME*
8. The facilities for practical demonstrations, such as firefighting and welding exercises, were appropriately designed to ensure safety.	*2.66*	*ME*
9. The availability of a dedicated DC Status Board and related materials offered practical insights into ship status monitoring.	*2.90*	*ME*
10. The course materials and facilities integrated theoretical knowledge with practical skills.	*3.24*	*ME*
Composite Mean	***2.58***	***SE***

Legend: *4.21-5.00 Extremely Effective, 3.41-4.20 Very Effective, 2.61-3.40 Moderately Effective, 1.81-2.60 Slightly Effective, 1.00.1.80 Not Effective at All*

The composite mean for the materials and facilities is 2.58, indicating that overall, the materials and facilities used in the Damage Controlman Rating Course are perceived as "Slightly Effective" (SE). This relatively low composite mean reflects the participants' dissatisfaction with certain aspects of the course infrastructure, particularly the practical training environments.

The highest-rated indicator, with a mean score of 3.36, emphasizes the importance of including real-world shipboard materials in the course. Familiarity with actual equipment and tools is crucial for participants as it enhances their practical skills and

readiness for real-life scenarios. Additionally, well-organized training manuals and visual aids (mean score 3.32) are also valued by participants, suggesting that clear and structured instructional materials contribute significantly to the learning experience.

On the other hand, the lowest-rated indicators, each with a mean score of 1.79, point to significant issues with the practical training facilities. The outdated technology and poorly maintained facilities for practical exercises are substantial drawbacks that hinder the effectiveness of the training. These deficiencies in the training environment can detract from the overall learning experience, as they need to provide realistic and engaging simulations necessary for practical skill development.

Furthermore, the emphasis on practical, hands-on training in damage control and emergency response within the PCG's training curriculum may place additional demands on materials and facilities. Inadequacies in these areas could be more pronounced due to the intensive nature of practical exercises and simulations, leading to lower effectiveness ratings from participants.

Addressing these challenges may require a review of resource allocation priorities within the PCG's training programs and a concerted effort to invest in upgrading materials and facilities. While collaboration with MHEIs/MTIs can provide valuable supplementary training opportunities, internal resources must also be sufficient to ensure a high standard of training across all aspects of the curriculum. By addressing these weaknesses, the PCG can enhance the overall effectiveness of its training programs and better prepare personnel for their roles in damage control and emergency response situations.

The composite mean score of 2.58 suggests that, while the materials and facilities provided contain some practical elements, there is considerable room for improvement. The "Slightly Effective" rating indicates that the participants feel that the course infrastructure does not fully meet their needs for a comprehensive and practical training experience. Enhancing the facilities and ensuring they are equipped with up-to-date technology could significantly improve the effectiveness of the course.

These findings align with Guttierez (2019), emphasizing the critical role of comprehensive and well-organized learning materials in enhancing training effectiveness. The positive reception of course materials underscores their importance in participant satisfaction and preparedness. However, improvements in training facilities are essential to maximizing the overall effectiveness of the course, as highlighted by White's theory on effective learning, which emphasizes the importance of practical experiences in the learning process.

In conclusion, addressing the identified weaknesses in materials and facilities is crucial to enhancing the overall effectiveness of the Damage Controlman Rating Course. By investing in upgraded facilities and technology, the Philippine Coast Guard can ensure a higher standard of training and prepare personnel for their roles in damage control and emergency response situations.

Table 5

Performance of in Controlling the Damage Arising from Shipboard Emergency

Performance of in Controlling the Damage Arising from Shipboard Emergency	Course Objectives		Course Contents		Instructor Capabilities		Materials and Facilities	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Excellent (95% - 100%)	13	8.67	14	9.33	16	10.67	6	4.00
Very Good (90% - 94)	38	25.33	20	13.33	39	26.00	34	22.67
Good (85% - 89%)	43	28.67	64	42.67	56	37.33	55	36.67
Satisfactory (80% - 84%)	56	37.33	52	34.67	39	26.00	54	36.00
Basic (75%-79%)	0	0.00	0	0.00	0	0.00	1	0.66
Total	**150**	**100**	**150**	**100**	**150**	**100**	**150**	**100**
Mean	**87%**		**92%**		**91%**		**86%**	
Descriptive Interpretation	***Good***		***Very Good***		***Very Good***		***Good***	

Table 5 shows the Performance of Controlling the Damage Arising from Shipboard Emergencies. In Excellent (95% - 94%), Trainees demonstrate excellent to very good performance levels across all aspects of their training program, including course objectives, course contents, instructor capabilities, and materials and facilities. The frequencies and percentages within these categories indicate a strong proficiency among trainees in understanding and managing damage during shipboard emergencies.

While in Good Performance (85%—89 %), a significant portion of trainees achieved a good performance level across all aspects, with frequencies and percentages indicating solid understanding and capability. This suggests that the majority of trainees exhibit competency in controlling damage and responding effectively to emergencies.

On the other hand, in Satisfactory Performance (80% - 84%), some trainees attained a satisfactory performance level, albeit to a lesser extent than the higher categories. While their Performance is acceptable, there may be areas for improvement or refinement in their training to enhance proficiency further.

Moreover, in Basic Performance (75% - 79%), Trainees in this category represent a minimal proportion, indicating rare instances of basic Performance. However, even one instance suggests a need for additional support or remedial training to address any deficiencies in understanding and managing damage during shipboard emergencies.

The overall mean percentage score for trainees' Performance across all aspects is calculated to be 89%, falling within the "Good" performance category. This indicates a solid overall performance level among trainees in controlling damage arising from shipboard emergencies.

Hence, the table presents a detailed assessment of trainees' performance levels across various aspects of their training program, highlighting areas of strength and areas that may require further attention or improvement. This information can be utilized to refine training programs and interventions to meet trainees' needs better and enhance their proficiency in managing shipboard emergencies.

Situational Test Scenarios

Course Objectives

Regarding Course Objectives, this scenario assesses the trainee's ability to manage damage control efforts during a shipboard emergency, specifically a fire outbreak on a neighbouring vessel.

The objectives align with demonstrating proficiency in managing damage control efforts and applying learned techniques and procedures to control damage resulting from emergencies. It also highlights the importance of utilizing available materials and facilities onboard for prompt response.

Furthermore, the scenario evaluates the trainee's understanding of hull inspection and damage assessment procedures following a collision. It aligns with understanding the importance of immediate assessment, containment, and reporting of damage to ensure the vessel's and its occupants' safety. It also emphasizes the application of learned techniques and procedures in assessing and addressing damage resulting from emergencies.

Furthermore, the scenario tests the trainee's leadership abilities during simulated emergency drills. It aligns to exhibit leadership skills in coordinating damage control efforts among the crew during emergency drills. It emphasizes the importance of effective coordination and communication among crew members to ensure a prompt and efficient emergency response.

Meanwhile, in the aftermath of a significant storm, damage was evident to the ship's infrastructure. This scenario assesses the trainee's ability to evaluate and address damage from a significant storm. It aligns with the objectives of demonstrating proficiency in managing damage control efforts during shipboard emergencies and applying learned techniques and procedures to control damage resulting from various emergency scenarios. It emphasizes the importance of immediate assessment, containment, and reporting of damage to ensure the vessel's and its occupants' safety.

On the other hand, during a simulated firefighting exercise, a trainee Damage Controlman notices a shortage of functional fire extinguishers. This scenario evaluates the trainee's ability to adapt and respond effectively without adequate firefighting equipment. It aligns to utilize available materials and facilities onboard to address emergencies promptly and effectively. It emphasizes the importance of resourcefulness and quick thinking in managing emergencies, even when faced with limitations in equipment or resources.

These scenarios provide practical situations where trainees can apply their knowledge and skills to manage shipboard emergencies effectively, aligning with the course objectives of demonstrating proficiency, applying learned techniques, exhibiting leadership skills, understanding the importance of immediate assessment, containment, and reporting, and utilizing available materials and facilities onboard.

Course Contents

The situational tests for the Damage Controlman course are designed to evaluate trainees' ability to apply their knowledge and skills in various emergency scenarios, covering multiple areas of the course content to ensure comprehensive assessment and preparedness for real-world emergencies. One scenario involves a fire outbreak on a neighbouring vessel where trainees must utilize firefighting equipment such as extinguishers and hoses, demonstrate effective communication with the neighbouring boat and their crew, engage in search and rescue operations, and ensure the safety and security of both the vessel and crew during the firefighting operation. This scenario focuses on applying firefighting techniques, use of emergency communication protocols, engagement in search and rescue, and security maintenance during emergencies.

Another scenario involves assessing hull damage after a collision, requiring trainees to inspect the hull for damage, document and report their findings accurately, manage flooding if it occurs, and use specialized tools and equipment for repairs. This scenario tests knowledge of hull inspection, damage assessment, reporting skills, flood containment capabilities, and maintenance tool use. A third scenario assesses leadership skills during emergency drills, requiring trainees to demonstrate effective leadership and coordination, maintain clear communication, and ensure vessel safety during the drill. This scenario evaluates leadership and coordination skills, effective communication during drills, and overall safety assurance.

In a post-storm damage control scenario, trainees must assess and report storm damage, manage flooding, perform repairs on damaged infrastructure, and handle hazardous materials safely. This scenario evaluates the ability to assess and report storm damage, manage floods, perform repairs, and handle hazardous materials. Lastly, a scenario involving a shortage of functional fire extinguishers during a simulated firefighting exercise requires trainees to adapt firefighting techniques using alternative methods, assess and repair non-functional extinguishers, inform the crew and higher-ranking personnel about the equipment shortage, and lead the crew in managing the situation despite the resource shortage. This scenario tests adaptability in firefighting techniques, technical skills in equipment maintenance, effective communication in emergencies, and leadership and coordination under pressure.

These scenarios collectively assess a trainee's technical proficiency in firefighting, hull inspection, flood containment, and equipment use; communication skills for coordinating efforts and reporting during emergencies; leadership and coordination during emergency drills and real-life scenarios; and adaptability in responding to equipment shortages and challenging situations. By covering these diverse and critical aspects, the situational tests ensure that trainees are well-prepared for the multifaceted challenges of damage control on a ship.

Instructor Capabilities

Interpreting the situational test in the context of the instructor's capabilities involves understanding how the instructor's skills and knowledge are applied to create and assess realistic and practical training scenarios for the trainees. The instructor's ability to simulate realistic emergency scenarios is paramount, as they must accurately replicate situations like fire outbreaks, collisions, or storms to provide trainees with

practical experience. Leveraging their extensive knowledge of damage control procedures, the instructor designs scenarios that test specific skills, ensuring trainees can apply correct techniques in various emergencies. Additionally, the instructor's experience in leadership training allows them to evaluate trainees' ability to lead and coordinate teams during drills, fostering effective communication and teamwork under stress. Their familiarity with onboard facilities ensures scenarios are practical, utilizing actual equipment and materials found on vessels.

In interpreting the situational test scenarios, each scenario reflects the instructor's capabilities in action. For instance, in a simulated fire outbreak on a neighbouring vessel, the instructor designs a realistic fire simulation for evaluating trainees' firefighting skills and search and rescue operations. Similarly, during a hull damage assessment post-collision scenario, the instructor simulates damage and flooding, testing the trainee's ability to assess and manage the situation. Emergency drill leadership scenarios allow the instructor to observe trainees' leadership and teamwork, while post-storm damage control scenarios evaluate their ability to handle complex situations and hazardous materials. In scenarios like firefighting equipment shortages, the instructor creates challenges that require trainees to adapt their strategies and demonstrate leadership. The instructor's capabilities are crucial in creating realistic and practical situational tests that comprehensively evaluate trainees' proficiency in damage control efforts, leadership, and emergency response.

Materials and Facilities

The materials and facilities provided for the situational tests are critical for simulating realistic shipboard emergency scenarios and assessing the trainees' abilities to handle them effectively. Each item plays a specific role in preparing trainees for various aspects of damage control. Firefighting equipment, such as extinguishers and hoses, are essential for training in firefighting techniques and procedures. Trainees will use these tools to practice extinguishing different types of fires, a vital skill for managing onboard fire emergencies. Tools for hull inspection and repair are necessary for hull inspection and damage assessment training. Trainees will use these tools to inspect the hull for damages, assess the extent of damage, and perform necessary repairs, ensuring the vessel's structural integrity.

Simulation facilities for emergency drills provide a controlled environment for conducting realistic emergency drills. Trainees will engage in various simulated emergency scenarios, such as fires or hull breaches, to practice and refine their emergency response and coordination skills. Communication systems are vital for training in emergency communication protocols. Trainees will use communication systems to coordinate efforts within their crew and with external parties during emergencies, ensuring effective information dissemination and command. Medical facilities and equipment are crucial for training in medical emergency response. Trainees will learn to provide first aid and manage medical emergencies, ensuring the health and safety of all onboard during crises.

Specialized tools for maintenance are essential for training in the maintenance and repair of onboard systems. Trainees will use these tools to perform maintenance and repairs, ensuring all systems and equipment are operational and reliable during emergencies. Emergency backup systems ensure the vessel remains functional during power failures. Trainees will learn to manage and operate emergency backup

systems, maintaining critical functions such as navigation and communication during power outages. Safety gear and protective equipment are essential for ensuring personal safety during emergency response. Trainees will use safety gear and protective equipment during drills and real-life scenarios to protect themselves from harm while performing their duties.

Navigation equipment is crucial for ensuring safe vessel operation, especially during emergencies. Trainees will learn to use navigation equipment to maintain course and avoid hazards during emergencies, ensuring the vessel's safe operation. Containment materials for hazardous spills are necessary for handling hazardous materials and spills. Trainees will use containment materials to manage and mitigate hazardous spills, protecting the environment and ensuring the safety of the crew and vessel.

The materials and facilities provided are integral to the comprehensive training in damage control. They enable the simulation of realistic emergency scenarios, allowing trainees to develop and demonstrate their proficiency in firefighting, hull inspection, emergency communication, medical response, maintenance, power management, personal safety, navigation, and hazardous material containment. This holistic approach ensures that trainees are well-prepared to handle the diverse challenges they may face in real-world shipboard emergencies.

Table 6

Overall Trainees' Performance in Controlling the Damage Arising from Shipboard Emergency

Level of Performance	Frequency	Percentage	Mean Percentage Score (Target)
Excellent (95% - 100%)	22	14.67	75%
Very Good (90% - 94)	54	36.00	
Good (85% - 89%)	61	40.67	
Satisfactory (80% - 84%)	12	8.00	
Basic (75%-79%)	1	0.66	
Total	150	100	
Mean	**89 % (Good)**		

Legend: *95-100 -Excellent, 90-94-Very Good, 85-89-Good, 80-84-Satisfactory 75-79-Basic*

Table 6 shows the Overall Trainees' Performance in Controlling the Damage Arising from Shipboard Emergency. In Excellent Performance (95% - 100%), Trainees achieving an excellent performance level constitute 14.67% of the total, with a frequency of 22. This indicates a high level of proficiency in controlling damage, with responses falling within the 95% to 100% accuracy range. While in Very Good

Performance (90% - 94%). Most trainees, comprising 36.00% of the total, fall into the very good performance category. These trainees demonstrated strong competence, with responses ranging between 90% and 94% accuracy.

On the other hand, in Good Performance (85%—89 %), a significant portion of trainees, representing 40.67% of the total, achieved a good performance level. This indicates a solid understanding and capability in controlling damage, with responses falling within the 85% to 89% accuracy range.

Furthermore, for Satisfactory Performance (80% - 84%), a smaller proportion of trainees, comprising 8.00% of the total, attained a satisfactory performance level. While their Performance is acceptable, there is room for improvement, with responses falling within the 80% to 84% accuracy range.

Meanwhile, for the Basic Performance (75% - 79%), only one trainee, accounting for 0.66% of the total, achieved a basic performance level. This suggests a need for additional support or remedial training to enhance their proficiency in controlling damage.

The overall mean percentage score is 89%, falling within the "Good" category. This mean score indicates that, on average, trainees performed well in controlling damage arising from shipboard emergencies. Most trainees achieved "Good" or "Very Good" performance levels, demonstrating a solid understanding and proficiency in managing damage during emergencies. The mean score in the "Good" category suggests that the training program effectively prepared trainees to handle shipboard emergencies and control damage.

The findings supported by Fernandes and Ribeiro (2017) analyzed trainee performance in simulated emergency scenarios using performance metrics such as response time, decision-making effectiveness, problem-solving abilities, teamwork, and adherence to emergency protocols. Relevant to the present study, the study found that trainees who scored in the "Excellent" category demonstrated exceptional proficiency in controlling damage from shipboard emergencies. They exhibited quick decision-making abilities, practical problem-solving skills, leadership, and teamwork capabilities. In this study, trainees in the "Very Good" and "Good" categories also demonstrated strong Performance in controlling damage during emergencies. The study also highlighted the importance of providing training and support for trainees in the "Satisfactory" or "Basic" categories. The study underscores the importance of effective emergency response training programs in preparing maritime personnel to handle emergencies effectively and mitigate damage onboard vessels.

Table 7 presents the results of testing the significant relationship between the level of effectiveness of the Damage Controlman Rating Course and the trainees' Performance in controlling damage arising from shipboard emergencies. The relationship is examined across four key components: Course Objectives, Course Contents, Instructor Capabilities, and Materials and Facilities. In Course Objectives, the p-value of 0.003 suggests a significant relationship between the effectiveness of the course objectives and trainees' Performance in controlling damage. The r-value of .654 indicates a moderate to high positive correlation, suggesting that as the

effectiveness of the course objectives increases, trainees' Performance in controlling damage also tends to improve.

Table 7

Testing of Significant Relationship between the Level of Effectiveness of the Damage Controlman Rating Course and the Trainees' Performance in Controlling Damage Arising from Shipboard Emergencies

	Level of Effectiveness of the Damage Controlman Rating Course							
	Course Objectives		**Course Contents**		**Instructor Capabilities**		**Materials and Facilities**	
	p-value	*r-value*	*p-value*	*r-value*	*p-value*	*r-value*	*p-value*	*r-value*
Trainees' Performance in controlling damage arising from shipboard emergencies	0.003	.654	0.005	.720	0.005	.708	0.003	.630

Legend: *± 1.00 Perfect Correlation ±.80 - ±.99 Very High Correlation, ±.60 - ±79High Correlation, ±.40 - ±.59 Moderate Correlation, ±.20 - ±.39 Low Correlation, ±0.1 - ±.19 Negligible Correlation*

Course content: A significant relationship is observed between the effectiveness of course content and trainees' performance, with a p-value of 0.005 and an r-value of .720. This indicates a high positive correlation, suggesting that practical course content contributes to better Performance in controlling damage.

Moreover, in Instructor Capabilities, the p-value of 0.005 indicates a significant relationship between the effectiveness of instructor capabilities and trainees' Performance. The r-value of .708 suggests a high positive correlation, indicating that well-equipped and skilled instructors positively impact trainees' ability to control damage.

In terms of Materials and Facilities, a significant relationship is observed between the effectiveness of materials and facilities and trainees' Performance, with a p-value of 0.003 and an r-value of .630. This indicates a moderate positive correlation, suggesting that adequate materials and facilities contribute to improved performance in damage control.

Hence, the results suggest that the effectiveness of various components of the Damage Controlman Rating Course, including objectives, contents, instructor capabilities, and materials and facilities, significantly influences trainees' Performance in controlling damage arising from shipboard emergencies. Ensuring the effectiveness of these components is crucial for optimizing training outcomes and enhancing shipboard emergency response capabilities.

In support, Jackson (2018) analyzed data from various training programs, including those focused on damage control and emergency response in maritime settings. The

researchers found strong positive correlations between the effectiveness of training components and trainees' Performance in emergencies.

Relevant to the findings, it is clearly defined that course objectives were associated with improved Performance in emergency response scenarios. Comprehensive and well-structured course content positively influenced trainees' Performance in emergencies. Instructor capabilities significantly impacted trainees' emergency response performance. Well-organized materials and modern facilities conducive to practical exercises were associated with improved emergency outcomes. The study underscores the importance of investing in training programs prioritizing clear objectives, comprehensive content, proficient instructors, and quality materials and facilities, particularly in maritime operations where effective emergency response is critical for safety and security.

Program Enhancement for the Damage Controlman Rating Course

The Program Enhancement for the Damage Controlman Rating Course aims to elevate the effectiveness and relevance of Coast Guard personnel training in shipboard emergency management. Through a comprehensive analysis, strengths and areas for improvement have been identified, emphasizing the importance of tailored enhancements to materials, facilities, and safety protocols. The program focuses on upgrading equipment and facilities to modern standards, conducting regular safety inspections, and soliciting stakeholder input for continuous improvement. Prioritizing safety, innovation, and collaboration, the program seeks to ensure that Coast Guard personnel are equipped with the knowledge, skills, and resources necessary to excel in their roles as Damage Control, thereby enhancing maritime safety and security.

Conclusions

1. The evaluation of the Damage Controlman Rating Course reveals its overall effectiveness across course objectives, contents, instructor capabilities, and materials and facilities. While the course excels in imparting critical shipboard operation skills, there are areas for improvement identified, particularly in teaching specific compartmentation methods and enhancing practical training through simulations and exercises. Despite these areas needing refinement, the course is perceived as highly effective in achieving its objectives, instilling participant confidence, and preparing Coast Guard personnel for their roles in ship safety and operational efficiency. Addressing the identified areas for enhancement, particularly in materials and facilities and technology updates, is crucial to optimize the course's effectiveness further and ensure comprehensive and practical training experiences for all participants.

2. The evaluation of trainees' Performance in controlling damage during shipboard emergencies reveals a range of proficiency levels across the cohort. While a significant portion achieved Excellent and Very Good Performance levels, indicating strong competence, there are opportunities for improvement, particularly among those with Satisfactory and Basic Performance ratings. These findings underscore the importance of ongoing training and support mechanisms to ensure all trainees are

adequately prepared to manage shipboard emergencies effectively, thereby enhancing maritime safety and security.

3. The findings highlight a significant positive relationship between the effectiveness of the Damage Controlman Rating Course and trainees' Performance in controlling damage during shipboard emergencies. Specifically, course objectives, contents, instructor capabilities, and materials/facilities all demonstrated notable correlations with trainees' proficiency levels, emphasizing the importance of these components in enhancing training outcomes. These results underscore the need for continuous improvement efforts targeting course design, instructional quality, and resource provision to maximize the effectiveness of training programs and bolster shipboard emergency response capabilities. Addressing the identified correlations can lead to more tailored and impactful training initiatives, ultimately contributing to enhanced maritime safety and security.

4. In light of the findings, the proposed Enhancement Program for the Damage Controlman Rating Course is designed to optimize Coast Guard personnel training in shipboard emergency management. By identifying strengths and areas for improvement, the program aims to tailor enhancements to materials, facilities, and safety protocols, ensuring they meet modern standards and are conducive to practical training. Through a collaborative approach that involves stakeholder input, the program prioritizes safety, innovation, and continuous improvement, ultimately equipping personnel with the necessary skills and resources to excel in their roles and enhance maritime safety and security.

Recommendations

1. The proposed program enhancement should be implemented to address the identified areas for improvement and optimize training outcomes. This includes upgrading materials and facilities to modern standards, conducting regular safety inspections, and soliciting stakeholder input for continuous improvement. By prioritizing safety, innovation, and collaboration, the program aims to enhance the overall effectiveness of the Damage Controlman Rating Course and ensure Coast Guard personnel are well-prepared and competent in carrying out damage control duties.

2. Given the identified areas for improvement in specific compartmentation methods and practical training through simulations and exercises, it is recommended to revise course content to include more comprehensive instruction on these topics. Additionally, increasing the frequency and quality of practical exercises can enhance trainees' hands-on experience and readiness for shipboard emergencies. This approach will ensure that trainees receive in-depth knowledge and practical skills essential for effective damage control operations.

3. Recognizing the varying proficiency levels among trainees, it is recommended to implement tailored support mechanisms for those with Satisfactory and Basic Performance ratings. This may include additional training sessions, mentorship programs, or individualized coaching to address specific skill gaps and improve overall

Performance. Such targeted interventions will help to bring all trainees up to a higher standard of competence and confidence in handling damage control situations.

4. To ensure the effectiveness of the Damage Controlman Rating Course, it is recommended that continuous improvement practices be integrated into course evaluation and development processes. Regular feedback mechanisms from trainees and instructors can inform iterative improvements to course content, instructional methods, and resource allocation. By systematically collecting and analyzing feedback, the course can be continuously refined to meet evolving needs and challenges, enhancing training outcomes over time.

5. Future research should include more extensive, diverse samples to validate findings and enhance generalizability. Longitudinal studies can track the long-term impact of the Damage Controlman Rating Course on trainees' Performance and career progression. Exploring unexpected findings through qualitative approaches can provide deeper insights. Comparative studies between maritime training programs can identify best practices and innovative techniques, providing evidence-based recommendations for enhancing course content and delivery.

Compliance with Ethical Standards

This study adhered to ethical standards, obtaining informed consent from all participants and ensuring their right to withdraw at any time. Anonymity and confidentiality were maintained to protect privacy, and personal identifiers were removed or coded. The respondents' well-being was a primary concern, and procedures were conducted with respect for their rights and dignity. No conflict of interest existed, and plagiarism was avoided by properly citing sources and acknowledging previous research contributions. Bias in the interpretation of findings was meticulously avoided. Objective data analysis techniques and rigorous methodological standards were employed to ensure the validity and reliability of the results. The findings and conclusions were used for academic and research purposes, contributing to maritime training and safety knowledge.

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LEVEL OF TEACHER'S MOTIVATION TOWARDS PROFESSIONAL DEVELOPMENT ACROSS GENERATIONS

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ABSTRACT

This study aimed to determine the level of a teacher's motivation towards professional development across generations. It sought to answer the following questions the profile of the respondents as to generations, the motivational level of teachers towards professional development across generations (Generation Z or iGen, Generation Y (millennials), Generation X and Baby Boomers) in terms of the following factors: Content Focused; Active Learning; Task Collaboration; Effective Practices; Learning Support; Reflective Outlook and Sustainable Plan. The significant difference in the level of motivation towards professional development of the generations (Generation Z or Gen Z, (millennials) Generation Y, Generation X, and Baby Boomers) in terms of the following factors: Content Focused and Active Learning; Task Collaboration and Effective Practices; Learning Support and Reflective Outlook and Sustainable Plan. The program intervention could be proposed to motivate teachers to upgrade themselves toward professional development. Based on the findings as summarized, the following conclusions were drawn: Teachers were from Generation X 1965-1980 and Generation Y (millennials). The level of teachers' motivation across generations in Content-Focus, Active Learning, Task Collaboration, Effective Practices, Learning Support, Reflective Outlook, and Sustainable Plan were all well-motivated. There is a significant difference in the level of motivation towards professional development of the generations with Generation Z vs. Baby Boomers and Generation Y vs. Baby Boomers therefore the hypothesis is rejected. The researcher proposed a program intervention to motivate teachers to upgrade themselves toward professional development.

Keywords: *Teacher's motivation, professional, development, across generations*

INTRODUCTION

The most valuable resource in the educational system is the teacher. Professional development for educators is becoming more and more important as a means of assisting pupils in acquiring the increasingly sophisticated abilities necessary for success in the twenty-first century. Effective professional development (PD) is therefore necessary to assist educators in acquiring and honing the teaching techniques necessary to impart these skills.

Professional growth is necessary to promote and maintain progress in any field of professional activity. In order for students to develop more complex skills, they must thrive in the twenty-first century, at the same time that professional development for instructors is gaining popularity. Sophisticated teaching techniques are needed to develop student competencies like critical thinking, in-depth comprehension of challenging subject, complex problem solving, effective communication and teamwork, and self-direction. Consequently, in order to impart these talents, teachers need to acquire and refine the teaching strategies, which necessitates efficient professional development (PD). However, research indicates that a large number of professional development programs do not appear to be assisting in the modification of teaching practices or student learning. In light of this, the goal was to pinpoint the traits of effective professional development.

A number of increasingly complicated tasks, duties, and competencies in the teaching profession have become necessary in the twenty-first century due to the rise in educational expectations. One of the key factors in the performance of the institutions is the motivation level and generational disparities of teachers, who are the most strategic factor in educational efficacy (Akar, 2020).

Professional development is very important nowadays. Teachers are not only teachers. In lieu, the researcher believes that through this study, it would provide more awareness and deeper understanding of different challenges and perspectives of teachers from different generations. This study would help people understand their views on their current perspective on professional development. This study is seen to be beneficial not only for the teachers, learners, school heads, but as well as for the development of learning and quality education.

Research Questions

This study aimed to determine the level of a teacher's motivation towards professional development across generations. It sought to answer the following questions;

1. What is the profile of the respondents as to generations?
2. What is the motivational level of teachers towards professional development across generations (Generation Z or iGen, Generation Y (millennials), Generation X and Baby Boomers) in terms of the following factors:

2.1 Content Focused;
2.2 Active Learning;
2.3 Task Collaboration;
2.4 Effective Practices;
2.5 Learning Support;
2.6 Reflective Outlook;
2.7 Sustainable Plan?

3. Is there a significant difference in the level of motivation towards professional development of the generations (Generation Z or Gen Z, (millennials) Generation Y, Generation X, and Baby Boomers) in terms of the following factors:
   3.1 Content Focused and Active Learning;
   3.2 Task Collaboration and Effective Practices;
   3.3 Learning Support and Reflective Outlook;
   3.4 Sustainable Plan?
4. What program intervention could be proposed to motivate teachers to upgrade themselves toward professional development?

METHODOLOGY

Research Design

This study employed quantitative descriptive research design. This is suited to this type of research since it aims to measure and determine teachers' motivation toward professional development and its relationship to other variables. The goal of quantitative research is to quantify the process of gathering and analyzing data. It originated from a deductive method influenced by positivism and empiricist ideologies, which prioritized testing theories (Wikipedia). This research technique, which is related to the social, formal, applied, and natural sciences, encourages the objective empirical investigation of observable phenomena in order to test and comprehend correlations. This is accomplished by using a variety of quantification strategies and approaches, as well as observations on their widespread application as a research approach in several academic fields.

Research Locale

Quezon province is in the Southern tip of CALABARZON region in Luzon. Its capital is the city of Lucena. The province was named after Manuel L. Quezon.

This study was conducted in the Third Congressional District of Quezon Province, comprised of 12 municipalities, 213 elementary schools, and 50 secondary schools. The researcher chose this locale primarily to address the needs of the teachers for development, and to determine which generation of teachers are well motivated to develop professionally.

Research Population and Sample

In choosing the population and sample, the researcher would apply purposive sampling, where the researcher relies on judgment when choosing members of the population. The population was the selected teachers from different schools in the Third Congressional District of Quezon. The respondents of this research comprised of 204 teachers, wherein 17 teachers were selected from different generations from the 12 towns.

Research Instrument

The researcher employed a self-made survey questionnaire in this study to determine the profile of the respondents as to generations (generation z, generation y, generation x, and baby boomers; the data on the motivational level of respondents per generation were gathered from the areas of content focus, active learning, collaboration, models and modelling, coaching and expert support, feedback and reflection and sustained duration. for the validity of the instrument, the researcher conducted a pilot testing among 30 teachers classified according to the generations they belong to, wherein six (6) teacher respondents were coming from generation z, nine (9) teacher respondents from the millennial generation, nine (9) teacher respondents from generation x, and lastly, six (6) teacher respondents from the baby boomers generation.

Data Gathering Procedure

In conducting the data gathering, the researcher wrote a letter of request for the Schools Division Superintendent for the approval of the distribution of survey questionnaires to ensure utmost cooperation from the target respondents. The distribution was personally conducted by the researcher, as well as the retrieval. After the retrieval, the questionnaires were generated. The statistician would help the researcher in the statistical treatment and data analysis.

Statistical Treatment of Data

The data gathered through the questionnaire were classified, tabulated, and analyzed. These were treated with the frequency distribution, weighted mean, and rank order. The data that answered the specific problems were as follows:

The assessment for the respondent's profile was determined through Percentage and Frequency Distribution.

To determine the level of motivation of teachers for different tasks as bases for professional development, the scale below was used for the analysis of the data to be collected.

Scope and Delimitations of the Study

The study confined to the level of teacher's motivation towards professional development. It is delimited with teachers who are belong to millennials, X, Y, and Baby Boomers' generation. The population of the study was the selected teachers from different schools in the Third Congressional District of Quezon. The respondents of this research comprised of 204 teachers wherein 17 teachers were selected from different generations of the 12 towns. The collected data were the profile of the respondents as to generations: Generation Z or iGen (1997- 2010); Generation Y (Millennials) (1981- 1996); Generation X (1965- 1980); Baby Boomers (1946- 1964). The motivational level of teachers towards professional development across generations (Generation Z or iGen, Generation Y (millennials), Generation X and Baby Boomers) in terms of: Content Focused; Active Learning; Task Collaboration; Effective Practices; Learning Support; Reflective Outlook and Sustainable Plan. It also determined if there is a significant difference in the level of motivation towards professional development of the generations (Generation Z or Gen Z, (millennials) Generation Y, Generation X, and Baby Boomers) and created a program intervention that could be proposed to motivate teachers to upgrade themselves toward professional development.

RESULTS

Part I. Profile of the Respondents

Table 2.
Distribution of the Respondents According to Generations

Generations	Frequency	Percentage (%)
Generation Z (Gen Z) 1997-2010	36	17.65
Generation Y (Millennials) 1981 – 1996	60	29.41
Generation X 1965-1980	60	29.41
Baby Boomers 1946-1964	48	23.53
Total	204	100.00

Part II. Level of Teachers' Motivation Towards Professional Development Across Generations

Table 3.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Content Focus

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Teachers applied different strategies in teaching.	4.06	WM	4.12	WM	4.02	WM	3.77	WM	4.00	Well-Motivated
The teacher assures to associate teaching strategies to curriculum.	4.11	WM	4.18	WM	4.00	WM	3.81	WM	4.03	Well-Motivated
Teachers include the application of ICT	3.94	WM	4.17	WM	3.85	WM	3.17	WM	3.80	Well-Motivated
Teachers develops materials for different instructional	4.25	WM	4.15	WM	4.02	WM	3.73	WM	4.03	Well-Motivated
Teachers applied varied assessment tools	4.19	WM	4.08	WM	3.97	WM	3.83	WM	4.01	Well-Motivated
Grand Mean	4.11	WM	4.14	WM	3.97	WM	3.66	WM	3.97	Well-Motivated

Table 4.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Active Learning

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Hands-on experience in designing new teaching strategies.	4.17	WM	4.13	WM	4.03	WM	3.90	WM	4.05	Well-Motivated
New teaching style in enhancing the active participation of learners.	4.22	WM	4.13	WM	4.03	WM	3.94	WM	4.07	Well-Motivated
Apply real-life situations in the teaching and learning process.	4.25	WM	4.28	WM	4.10	WM	4.06	WM	4.17	Well-Motivated
Texts to identify potential literacy challenges to learners	4.11	WM	4.12	WM	4.08	WM	3.94	WM	4.06	Well-Motivated
Classroom routines regularly.	4.08	WM	4.32	WM	4.12	WM	3.98	WM	4.14	Well-Motivated
Grand Mean:	4.17	WM	4.20	WM	4.07	WM	3.96	WM	4.10	Well-Motivated

Table 5.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Task Collaboration

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overal l Mean	Verbal Description
Shares and collaborates	4.17	WM	4.18	WM	4.08	WM	3.90	WM	4.08	Well-Motivated
Environment that is positively cooperative.	4.14	WM	4.33	WM	4.10	WM	3.98	WM	4.15	Well-Motivated
Promotes an inquiry-based approach to teaching.	4.08	WM	4.22	WM	3.95	WM	3.85	WM	4.03	Well-Motivated
Workshops and enjoys working with others.	4.17	WM	4.20	WM	4.12	WM	3.85	WM	4.09	Well-Motivated
Collaboration among colleagues within school and with other institutions.	4.11	WM	4.28	WM	4.05	WM	3.83	WM	4.08	Well-Motivated
Grand Mean	4.13	WM	4.24	WM	4.06	WM	3.88	WM	4.09	Well-Motivated

Table 6.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Effective Practices

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Models on lesson plans, unit plans, and sample student work.	4.00	WM	4.25	WM	3.97	WM	3.77	WM	4.01	Well-Motivated
Peer teaching observations.	4.03	WM	4.08	WM	4.05	WM	3.85	WM	4.01	Well-Motivated
Accomplished teaching.	3.94	WM	4.08	WM	3.92	WM	3.77	WM	3.94	Well-Motivated
Demonstration teaching based on educational principles and practices.	4.00	WM	4.23	WM	4.02	WM	3.88	WM	4.04	Well-Motivated
Uses and provides curriculum materials for teaching.	4.03	WM	4.15	WM	4.02	WM	3.85	WM	4.02	Well-Motivated
Grand Mean	4.00	WM	4.16	WM	3.99	WM	3.83	WM	4.00	Well-Motivated

Table 7.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Learning Support

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Monitors learners' progress.	4.08	WM	4.30	WM	4.02	WM	3.83	WM	4.07	Well-Motivated
A culture of high expectations in support of the learners.	4.14	WM	4.13	WM	4.10	WM	3.75	WM	4.03	Well-Motivated
Address learners' learning needs.	4.25	WM	4.17	WM	4.10	WM	3.85	WM	4.09	Well-Motivated
Localize learning materials for effective teaching and learning process.	4.14	WM	4.17	WM	3.98	WM	3.81	WM	4.02	Well-Motivated
Use of school resources to meet the priorities outlined toward learners' progress.	4.00	WM	4.10	WM	3.90	WM	3.77	WM	3.95	Well-Motivated
Grand Mean:	4.12	WM	4.17	WM	4.02	WM	3.80	WM	4.03	Well-Motivated

Table 8.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Reflective Outlook

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Daily Experiences	4.08	WM	4.20	WM	4.05	WM	3.73	WM	4.02	Well-Motivated
Issues and problems and teaches in a reflective way	4.11	WM	4.15	WM	4.03	WM	3.77	WM	4.02	Well-Motivated
Utilizes good values, beliefs and attitudes while on duty	4.03	WM	4.19	WM	3.98	WM	3.79	WM	4.00	Well-Motivated
Community activities voluntarily	3.92	WM	4.12	WM	3.90	WM	3.77	WM	3.94	Well-Motivated
Professional discretion to avoid scandal, gossip, and any preferential treatment for the learner	4.08	WM	4.25	WM	3.92	WM	3.88	WM	4.03	Well-Motivated
Grand Mean:	4.04	WM	4.18	WM	3.98	WM	3.79	WM	4.00	Well-Motivated

Table 9.

Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Sustainable Plan

Factors	Gen Z	VD	Gen Y	VD	Gen X	VD	Baby Boomers	VD	Overall Mean	Verbal Description
Advanced educational degree to gain a fresh prospective	4.03	WM	3.97	WM	3.87	WM	3.71	WM	3.89	Well-Motivated
Accepts advice, criticism, and evaluation from administrators	4.00	WM	4.08	WM	3.77	WM	3.63	WM	3.87	Well-Motivated
Attends professional workshops, trainings, and seminars	3.92	WM	4.10	WM	3.87	WM	3.56	WM	3.87	Well-Motivated
Engages in social media as best practices among teachers.	3.89	WM	4.02	WM	3.58	WM	3.27	WM	3.69	Well-Motivated
Action research that will give sustainable solution to the problems encountered in teaching and learning process	3.61	WM	3.80	WM	3.42	WM	3.21	WM	3.51	Well-Motivated
Grand Mean	3.89	WM	3.99	WM	3.70	WM	3.48	WM	3.77	Well-Motivated

PART III. Test for Significant Difference on the Level of Motivation Towards Professional Development of the Generations (Generation Z, Generation Y, Generation X, And Baby Boomers)

Table 10.

Kruskal Wallis H-Test: Comparison of the Level of Motivation Towards Professional Development of the Generations (Generation Z, Generation Y, Generation X, Baby Boomers)

Indicators	Generation	Mean Rank	K-statistic	p-value	Decision	Remarks
Content Focus	Generation Z	118.79	27.226	0.000	Reject Ho	Significant
	Generation Y	120.11				
	Generation X	104.07				
	Baby Boomers	66.31				
Active Learning	Generation Z	108.08	7.900	0.048	Reject Ho	Significant
	Generation Y	115.62				
	Generation X	99.38				
	Baby Boomers	85.81				
Task Collaboration	Generation Z	106.54	11.493	0.009	Reject Ho	Significant
	Generation Y	119.01				
	Generation X	99.79				
	Baby Boomers	82.22				
Effective Practices	Generation Z	99.90	11.500	0.009	Reject Ho	Significant
	Generation Y	120.84				
	Generation X	100.78				

	Baby Boomers	83.67				
Learning Support	Generation Z	108.90	12.676	0.005	Reject Ho	Significant
	Generation Y	118.08				
	Generation X	101.70				
	Baby Boomers	79.22				
Reflective Outlook	Generation Z	109.33	15.387	0.002	Reject Ho	Significant
	Generation Y	121.07				
	Generation X	98.86				
	Baby Boomers	78.72				
Sustainable Plan	Generation Z	113.82	23.063	0.000	Reject Ho	Significant
	Generation Y	125.28				
	Generation X	96.26				
	Baby Boomers	73.34				

Note: "If the p- value is less than or equal to the level of significance (0.05), reject Ho, otherwise failed to reject Ho."

Table 11.

Dunn Post Ad Hoc Test in Determining Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Generations	Content Focus		Active Learning	
	p-value	Remarks	p-value	Remarks
Generation Z vs. Generation Y	0.914	Not Significant	0.529	Not Significant
Generation Z vs. Generation X	0.227	Not Significant	0.467	Not Significant
Generation Z vs. Baby Boomers	0.000	Significant	0.075	Not Significant
Generation Y vs. Generation X	0.129	Not Significant	0.117	Not Significant
Generation Y vs. Baby Boomers	0.000	Significant	0.007	Significant
Generation X vs. Baby Boomers	0.001	Significant	0.216	Not Significant

Note: "If the p -value is less than or equal to the Bonferroni Correction (0.05/6 =0.0083), reject Ho, otherwise failed to reject Ho."

Table 12.

Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Generations	Task Collaboration		Effective Practices	
	p-value	Remarks	p-value	Remarks
Generation Z vs. Generation Y	0.298	Not Significant	0.083	Not Significant
Generation Z vs. Generation X	0.573	Not Significant	0.942	Not Significant
Generation Z vs. Baby Boomers	0.052	Not Significant	0.198	Not Significant
Generation Y vs. Generation X	0.064	Not Significant	0.055	Not Significant
Generation Y vs. Baby Boomers	0.001	Significant	0.001	Significant
Generation X vs. Baby Boomers	0.110	Not Significant	0.122	Not Significant

Note: "If the p- value is less than or equal to the Bonferroni Correction (0.05/6 =0.0083), reject Ho, otherwise failed to reject Ho."

Table 13.

Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Generations	Learning Support		Reflective Outlook	
	p-value	Remarks	p-value	Remarks
Generation Z vs. Generation Y	0.450	Not Significant	0.330	Not Significant
Generation Z vs. Generation X	0.553	Not Significant	0.385	Not Significant
Generation Z vs. Baby Boomers	0.019	Not Significant	0.015	Not Significant
Generation Y vs. Generation X	0.119	Not Significant	0.033	Not Significant
Generation Y vs. Baby Boomers	0.000	Significant	0.000	Significant
Generation X vs. Baby Boomers	0.044	Not Significant	0.069	Not Significant

Note: "If the p- value is less than or equal to the Bonferroni Correction (0.05/6 =0.0083), reject Ho, otherwise failed to reject Ho."

Table 14.

Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Generations	Sustainable Plan	
	p-value	Remarks
Generation Z vs. Generation Y	0.353	Not Significant
Generation Z vs. Generation X	0.154	Not Significant
Generation Z vs. Baby Boomers	0.002	Significant
Generation Y vs. Generation X	0.007	Significant
Generation Y vs. Baby Boomers	0.000	Significant
Generation X vs. Baby Boomers	0.043	Not Significant

Note: "If the p- value is less than or equal to the Bonferroni Correction (0.05/6 =0.0083), reject Ho, otherwise failed to reject Ho."

Table 15.

Test of Normality using Shapiro Wilk W-Test

Variable	Sample Size	p-value	Remarks
Level of Teachers' Motivation towards Professional Development across Generations	204	0.001	Not Normal

Note: "If the p- value is greater than or equal to the significance level (0.05) NORMAL, otherwise NOT NORMAL."

PART IV. Program Intervention to Motivate Teachers to Upgrade Toward Professional Development

Continuous professional development (CPD) helps teachers improve their understanding of how to deliver effective education, and ensures they ca adapt to the changing needs of students.

However, at a time when many teachers are under pressure, and when the development needs of each teacher can vary substantially, it can be hard to understand how best to provide a professional development service for teachers. This intervention program can help create development plans for teachers.

DISCUSSION

Profile of the Respondents

Table 2 presents the distribution of the respondents according to generations. As can be seen from the table, most of the respondents were from Generation X 1965-1980 and Generation Y (Millennials) 1981-1996 with 29.41 % or, with a frequency of 60. It implies that most of the respondents are experienced educators. They have in-depth knowledge and more expertise in their fields.

This finding aligns with (Polat et al.,2019) that teachers in this generation are more dedicated to teaching as a profession, a civic responsibility, and a reflection of their ideals. They may have a greater love for working long hours because of their level of devotion to both their personal and professional lives.

However, only 23.53% were from baby boomers, and the lowest among the ranks comes from the new generation, Generation Z, with 17.65% because the present generation has just began their service while the baby boomers are declining the numbers.

Part II. Level of Teachers' Motivation Towards Professional Development Across Generations

Table 3.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Content Focus

Table 3 presents the level of teachers' motivation towards content focus. Based on the data shown, the level of teachers' motivation was high, with a 3.97 grand mean. It implies that teachers identified the most needed for learners that focus on learning, such as strategies, training, and techniques.

Among all the statements, the statements "teachers apply teaching strategies associated with teaching strategies curricula" and "develop different materials for instructions varied for the teaching and learning process" with 4.03 mean respectively, which signify that they teachers are Well Motivated in these indicators. It is followed by the use of assessment tools with a 4.01 mean, while the applied strategies in teaching that has a 4.0 mean, which also means they are well motivated. Though the indicator

pertaining to teachers' application of ICT has the lowest mean of 3.80, it is still interpreted that they are well motivated.

The move to a 21st-century education is demanded among the teachers, however there is a divide between those who look at 21st-century education and preparing children for the digital world and educators who cling to the conventional image of schools (Yarrington, as cited by (Henebery, 2015).

Aligned with that and considering the present technology and the digital world than previous generations, experts emphasize that members of Generation Z are capable of thriving in both virtual and real environments. They see these two worlds as complementary to one other, thus they can move between them with ease (Chomątowska, Żarczyńska-Dobiesz, 2014).

Table 4.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Active Learning

Table 4 reveals the mean scores of the level of teachers' motivation towards professional development across generations in terms of active learning. As can be seen from the table, the level of teachers' motivation in active learning has a 4.10 mean which implies that teachers are well motivated. It suggests that in terms of active learning, teachers consistently practice eagerness in exploring different pedagogical tasks.

The respondents believed that using real-life situations in the teaching and learning process with 4.17 mean, practicing classroom routines regularly with a mean of 4.14, creates a new teaching style in enhancing the active participation of learners (4.07), analyzes texts to identify potential literacy challenges to learners (4.06), and get hands-on experience in designing new teaching strategies (4.05) which makes them well motivated in these indicators.

Generally, the teachers, no matter what generation they are from, are all active in participating, especially in learning different processes, classroom routines, and teaching styles in the classroom. According to (Cox,2023), using real-world examples and tackling real-world problems in the classroom can make learning more meaningful to students. Moreover, it can help spark excitement in gaining knowledge about important issues.

Table 5.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Task Collaboration

Table 5 shows the mean scores of the level of teachers' motivation towards professional development across generations in terms of task collaboration. As can be seen from the table, the level of teachers' motivation in active learning garnered an overall mean of 4.09 which also means that they are well-motivated in this component of professional development. It implies that in terms of collaboration, teachers are eager to

participate in tasks that involve cooperation with fellow teachers. Moreover, the respondents are found to be well motivated in creating an environment that is positively cooperative as evidenced by the mean of 4.15, participates in collaborative workshops and enjoys working with others with 4.09 mean, shares ideas and collaborates with colleagues, and promotes collaboration among colleagues within school and with other institutions with 4.07 mean, respectively.

Based on the results, teachers are well-motivated in assuring that they are part of a collaborative environment. It is a positive response that teachers create a collaborative environment for the quality education of the learners.

This finding is supported by (Ahmed,2019) who emphasized that collaborative learning is a method of education in which a group of students (two or more) attempts to learn something together using group projects, assignments, etc. In this type of learning, students learn from others' skills and resources. Collaborative learning is an educational approach to teaching and learning in which groups of students participate in solving issues, completing tasks, or creating products together.

Table 6.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Effective Practices

Table 6 presents the mean scores of the level of teachers' motivation towards professional development across generations in terms of effective practices. As can be seen from the table, the respondents claimed that in terms of effective practices, they are well motivated to ensure effective practices for teaching and learning as evidenced by a grand mean of 4.0. Specifically, they claimed that they primarily practice demonstration teaching based on educational principles and practices (4.04), and they also use and provide curriculum (4.02).

Further, they also claim that view models include lesson plans, unit plans, sample student work, and Practice peer teaching observations (4.01). It only implies that teachers effectively practice by following the principles of teaching.

(Ahmed,2019) stated that designing and developing instruction that is effective, consistent, and meaningful can be achieved by following principles for good practice.

Table 7
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Learning Support

Table 7 shows the mean scores of the level of teachers' motivation towards professional development across generations in terms of learning support. As viewed in the table, it reveals that teachers are well-motivated in terms of learning support, with a 4.03 grand mean. It only implies that different generations claimed that they are well-motivated in giving learning support.

The respondents claimed that they are mostly focused on addressing learners' learning needs (4.09), that they are systematically monitoring learners' progress (4.07), and they are establishing and sustaining a culture of high expectations in support of the learners (4.03).

As learning support teachers engage students in the use of technology, explore, and participate in collaborative groups, interact with others, and make connections to real world experiences. They are also encouraged to use technology as instructional method in teaching (Lisenbee, 2016).

Further, according to (Hodges.2016), educators are transforming the workplace from an environment as learning support managers utilized force and control to manage staff to one that is more collaborative and team-oriented, with coaches assisting staff members in reaching their objectives. In order to bring about change, this new generation requires mentors to bounce ideas off of and to be regarded as valuable partners.

Table 8.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Reflective Outlook

Table 8 presents the mean scores of the level of teachers' motivation towards professional development across generations in terms of reflective outlook. Overall, as can be seen from the table, the respondents claimed that they are well-motivated in reflective outlook across different generations as evidenced by a grand mean of 4.0.

Based on the responses, the teachers are well motivated when they exercise utmost professional discretion to avoid scandal, gossip, and any preferential treatment for the learner (4.03); building a reflective bridge between students and the book's content to whatever they are experiencing daily, and they address issues and problems and teaches reflectively both obtained a mean of 4.02.

These findings find support in Corwin press, who stated that one of the best methods for professionals of all generations to collaborate is to build a pleasant workplace, as stated in the book by (Abram & Von Frank,2013). Knowing exactly what has to be done and who is in charge of each task, no matter how big or small, is a necessary step on the road to success.

It only implies that a reflective outlook was highly practiced among teachers. They avoid improper actions and maintain reflection, as they also address different issues and problems.

According to the Code of Ethics of the Philippines, Section 1. A teacher is, above all, a human being endowed with life for which it is the highest obligation to always live with dignity, whether in school, in the home, or elsewhere section 2. A teacher should place a premium upon self-discipline as the primary principle of personal behavior in all relationships with others and in all situations section 3. A teacher shall continuously

maintain a dignified personality that could serve as a model worthy of emulation by learners, peers, and all others.

Table 9.
Level of Teachers' Motivation Towards Professional Development Across Generations in terms of Sustainable Plan

Table 9 shows the mean scores of the level of teachers' motivation towards professional development across generations in terms of sustainable plans. Overall, the respondents' responses claimed they are well motivated in sustainable plans. It implies that along with different generations, they all have the same response, as well as motivation in their assuring to have a sustainable plan for the school's development.

Most respondents agreed to take up an advanced educational degree to gain a fresh perspective, with a 3.89 mean. Then, followed by the statement, accept advice, criticism, and evaluation from administrators and attend professional workshops, training, and seminars, having a 3.87 mean.

According to (Washington,2019), professional development (PD) in the 21st century is vital to the growth and development of contemporary educators. Today's educational realm contains multiple perspectives, technologies, and opportunities for students and educational leaders. The goal of professional development for educators is to go beyond maintenance and to create sustainability and professional longevity.

PART III. Test for Significant Difference on the Level of Motivation Towards Professional Development of the Generations (Generation Z, Generation Y, Generation X, And Baby Boomers)

Table 10.
Kruskal Wallis H-Test: Comparison of the Level of Motivation Towards Professional Development of the Generations (Generation Z, Generation Y, Generation X, Baby Boomers)

The table above shows the Kruskal Wallis H-Test for the comparison of the level of motivation towards professional development of the generations (Generation Z, Generation Y, Generation X, Baby Boomers) as revealed by the respondents. It shows that in terms of content focus with 0.000 p-values, active learning with 0.048, task collaboration with 0.009 p-values, effective practices with 0.009, learning support with 0.005, reflective outlook 0.002, and sustainable plan with 0.000 all obtained significant. It only implies a significant difference in the Level of Motivation Towards Professional Development. They conclude that they have different perceptions of professional development since some are aging, new, and eager for development and promotion.

These findings find support in (Yaakob et al.,2020) said that the school organization consists of a multi-generation teacher community, which would mean professional development programs of one-size-fits-all should change towards fulfilling

the needs of all teachers to strengthen the quality of education. It is because each generation has different ways of accepting changes since teachers from different generations have various acceptance of professional development.

Table 11.
Dunn Post Ad Hoc Test in Determining Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Table 11 shows the Dunn Post Ad Hoc Test to determine the significant difference in the level of motivation towards professional development of the generations (Generation Z, Generation Y, Generation X, and Baby Boomers). As shown in the table, in terms of content focus, there is only a significant difference between Generation Z vs. Baby Boomers (p value=0.000), Generation Y vs. Baby Boomers (p value= 0.000), and Generation X vs. Baby Boomers (p value=0.001). It may imply that Baby boomers have different perceptions in terms of professional development when compared to other generations of teachers which may be due to their attitude towards work since they are mainly at the age nearing retirement.

However, in terms of active learning, it is remarkably shown that in all generations, there is no significant difference in the active learning practices. As shown, Generation Z vs. Generation Y (p value=0.529), Generation Z vs. Generation X (p value=0.467), Generation Z vs. Baby Boomers (p value=0.075), Generation Y vs. Generation X (0.117), Generation Y vs. Baby Boomers (0.007) and Generation X vs. Baby Boomers (0.216). They dive deeper into the material with their teachers and peers before internalizing it and relating it to real-world experiences. Active learners participate in interactive discussions and activities related to the material and engage in quality study time – often using various study styles to absorb the information.

Table 12.
Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Table 12 presents the Dunn Post Ad Hoc Test to determine the significant difference in the level of motivation towards professional development of the generations (Generation Z, Generation Y, Generation X, and Baby Boomers). As revealed by the data above, it shows a significant difference in task collaboration and effective practices among Generation Y vs Baby Boomers, with 0.001 for task collaboration and 0.001 for effective practices. It can be inferred that only the two early generations have differences in practicing their task collaboration and effective practices.

Meanwhile, the statement that millennials are sometimes stereotyped and overly dependent may be due to a misunderstanding of this generation of professionals. Many who have worked with them know there is another side to their story. Many young people are highly achieving, tenacious, confident, and progressive educators. They are often high-energy multi-taskers who are deeply tech-savvy and globally minded (Abrams, 2018). Millennial teachers can bring enthusiasm, tech readiness, competence, and

collaboration into the workplace. Many of them are accustomed to working in teams and enjoy having support and structure.

Table 13.
Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Table 13 presents the Dunn Post Ad Hoc Test in determining the significant difference in the level of motivation towards professional development of the generations (Generation Z, Generation Y, Generation X, and Baby Boomers). As viewed from the data in the table, it can be inferred that in terms of learning support, Generation Y and Baby Boomers have significant differences, with the reflective to outlook with both 0.000 p values, respectively.

The data above implies that Generation Y and Z differ in how they handle their learning support to their learners and how they effectively look at their work. (Eulberg,2019) said that millennials, who have been taught the importance of balancing their careers with their personal lives- find this mindset less appreciated and practiced in education and struggle to reconcile their beliefs about self-care with the demands of being a teacher. Millennial teachers may face challenges today, but these professionals are the future of education (Eulberg, 2019).

In addition, they expect a comprehensive induction system that includes extensive training, sources, and supplies. Like many generations in the past, millennials can be quick to analyze their elders' shortcomings (Barker, 2015).

Table 14.
Dunn Post Ad Hoc Test in Determining the Significant Difference in the Level of Motivation Towards Professional Development of the Generations

Table 14 reveals the Dunn Post Ad Hoc Test in determining the significant difference in the level of motivation towards professional development of the generations (Generation Z, Generation Y, Generation X, and Baby Boomers). As revealed by the data above, it shows that in terms of the motivation towards professional development in maintaining sustainable development. It shows that Generation Z vs. Baby Boomers (0.002), Generation Y vs. Generation X (0.007), and Generation Y vs. Baby Boomers (0.000).

These findings imply that the motivation of teachers in making sustainable plans do not differ except when Gen Y and Gen Z are being compared because prospecting plans and the outlook of the younger teachers towards changes and development might differ from the perspective of seasoned teachers.

Sustainable development is becoming more and more implemented with each generation. Finally, in-house living in everyday situations can make a change towards sustainability happen with students and learners, but the other way is possible. Considering this, learning in a group in an everyday situation might be a new approach

for teacher training in Education for Sustainable Development. Teachers from different generations might have different perspectives (Hepper, 2018).

Table 15.
Test of Normality using Shapiro Wilk W-Test

Table 15 shows the test of normality using the Shapiro-Wilk W-Test conducted on the level of teachers' motivation towards professional development across generations. As can be seen from the table, the p-value of the variable obtained 0.001, which is not usual. It may imply that the level of motivation among the different generations shows different levels variances. It may mean that since they were in different generations, they might have different perspectives towards their work, especially on their motivation towards their professional development.

These findings may be related to the findings of (Galloway,2013) that many millennials are eager and ready for new learning and opportunities sooner rather than later. In education, however, states and districts often require teachers to have at least three, if not five or seven years in the profession before taking on formal leadership roles. The process may be even slower in individual schools. These restrictions may not sit well with younger teachers who want to take on leadership responsibilities or explore new roles, especially if they see their peers in other professions being promoted sooner and more often.

However, as stated in the book of (Abram Von Frank and Corwin,2013), the best ways for professionals of all generations to work together to create a harmonious workplace. Part of the path to success knows exactly what needs to be done and who is responsible for each task- small or big.

PART IV. Program Intervention to Motivate Teachers to Upgrade Toward Professional Development

Continuous professional development (CPD) helps teachers improve their understanding of how to deliver effective education, and ensures they ca adapt to the changing needs of students.

However, at a time when many teachers are under pressure, and when the development needs of each teacher can very substantially, it can be hard to understand how best to provide a professional development service for teachers. This intervention program can help create development plans for teachers.

Summary of Findings

This part presents the summary of findings to provide a gist of the significant results of the study.

1. Profile of the Respondents

In terms of the Profile of the Respondents, most of the respondents were from Generation X 1965-1980 and Generation Y (millennials) 1981-1996.

2. Motivational Level of Teachers Towards Professional Development Across Generations (Generation Z or iGen, Generation Y (millennials), Generation X and Baby Boomers).
   - 2.1 In terms of teacher's motivation across generations as to Content Focus, a "well motivated" level is observed.
   - 2.2 In terms of teacher's motivation across generations as to Active Learning, a "well motivated" level is observed.
   - 2.3 In terms of teacher's motivation across generations as to Task Collaboration, a "well motivated" level is observed.
   - 2.4 In terms of teacher's motivation across generations as to Effective Practice, a "well motivated" level is observed.
   - 2.5 In terms of teacher's motivation across generations as to Learning Support, a "well motivated" level is observed.
   - 2.6 In terms of teacher's motivation across generations as to Reflective Outlook, a "well motivated" level is observed.
   - 2.7 In terms of teacher's motivation across generations as to Sustainable Plan, a "well motivated" level is observed.

3. Significant Difference in the Level of Motivation towards Professional Development of the Generations (Generation Z or Gen Z (millennials), Generation Y, and Generation X, and Baby Boomers)

   - 3.1 There is no significant difference between Generation Z and Y, Generation Z and X and Generation Y and X while there is significant difference between Generation Z and Baby Boomers, Generation Y and Baby Boomers, and Generation X and Baby Boomers in terms of Content Focused and Active Learning.

   - 3.2 There is no significant difference between Generation Z and Y, Generation Z and X, and Generation Z and X, Generation Z and Baby Boomers, Generation Y and X, and Generation X and Baby Boomers while there is significant difference between Generation Y and Baby Boomers in terms of Task Collaboration and Effective Practices.
   - 3.3 There is no significant difference between Generation Z and Y, Generation Z and X, Generation Z and Baby Boomers, Generation Y and X and Generation Y and Baby Boomers while there is significant difference between Generation Y and Baby Boomers in terms of Learning Support and Reflective Outlook.

   - 3.4 There is no significant difference between Generation Z and Y, Generation Z and X, and Generation X and Baby Boomers while there is significant difference between Generation Z and Baby Boomers, Generation Y and X, and Generation Y and Baby Boomers in terms of Sustainable Plan.

4. A program intervention was proposed to motivate teachers to upgrade themselves toward professional development.

Conclusions

Based on the findings as summarized, the following conclusions were drawn:

1. Teachers were from Generation X 1965-1980 and Generation Y (millennials).
2. The level of teachers' motivation across generations in Content-Focus, Active Learning, Task Collaboration, Effective Practices, Learning Support, Reflective Outlook, and Sustainable Plan were all well-motivated.

3. There is a significant difference in the level of motivation towards professional development of the generations with Generation Z vs. Baby Boomers and Generation Y vs. Baby Boomers therefore the hypothesis is rejected.

4. The researcher proposed a program intervention to motivate teachers to upgrade themselves toward professional development.

Recommendations

The researcher recommends the following:

1. Since most of the respondents are middle-aged, teachers may continue to further improve their skills through different trainings and activities for the school such as Trend on new technology applications and workshop on materials and teaching tools.

2. Due to the findings that teachers are well-motivated across generations, teachers may intensify their level of motivation to be very well-motivated through continuous growth by means of engaging in different workshop. They may also consider helping the school for the development and improvement of the learners through providing them monitoring, encouragement, and continuing professional development.

3. Since that generation, older and younger generations have contrasting views on professional development in some areas. School heads may consider to host events where various generations are grouped together to discuss differing viewpoints. School heads may also continue to provide technical assistance to assist older generations.

4. The crafted intervention program may be utilized to reach the highest level of teachers' motivation toward professional development and contribute to their productivity for the learners and the schools.

5. Future researchers may conduct similar studies in other schools and consider the areas not covered and discussed in the study.

Compliance with Ethical Standards

In this study, ethical considerations were considered by the researcher. The participants remained anonymous throughout the study even to the researchers themselves. There will be no identifying information about the participants. Further, all the data were kept confidential. Participants were assured that identifying information will not be made available to anyone who is not directly involved in the study. Ethical considerations are form a major element in research.

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LIVED EXPERIENCES OF FORMER PERSONS DEPRIVED OF LIBERTY ON THE WELFARE AND DEVELOPMENT PROGRAM: SOCIAL REINTEGRATION CONTEXT

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ABSTRACT

This study aimed to explore the experiences of former persons deprived of liberty (PDLs) with the Welfare and Development Programs (WDP) administered by the Bureau of Jail Management and Penology (BJMP), focusing on their social reintegration. Using a phenomenological approach, it addressed how BJMP's WDP facilitated reintegration, the application of training in various life domains by former PDLs, and their recommendations for BJMP. Ten former PDLs from Burauen District Jail participated as co-researchers, achieving data saturation by the fifth interview. Data were collected through narrative accounts and responses, validated via verbatim transcription and member checking. Aged 40-50, the co-researchers provided insights into themes such as Effective Program Provision, Self-Reflection, Easier Job Placement, and Program Continuation, with sub-themes highlighting positive outcomes, interpersonal skills, life skills, and application of learned skills. Participants stressed the role of BJMP's programs in attitude change, skill development, and societal reintegration, benefiting their employability, relationships, and overall rehabilitation. The study concluded that BJMP's WDP significantly supports successful social reintegration, recommending program continuity, enhancement, collaboration with agencies like TESDA, and strengthened partnerships with governmental and non-governmental organizations to ensure effective implementation. It highlighted the necessity of comprehensive rehabilitation efforts for former PDLs, crucial for their societal reentry and the reduction of recidivism.

Keywords: *Lived Experiences, Welfare and Development, Social Reintegration, Former Persons Deprived of Liberty*

INTRODUCTION

One of the critical factors in the success of rehabilitation programs is the offender's adherence to the program's guidelines and their willingness to make meaningful changes in their lives. Most offenders tend to believe that rules do not apply to them, which contributes to their imprisonment (Delong and Reichert, 2019). This phenomenon in the contemporary period aligns with the principle of consequentialism, which focuses on managing and treating prisoners to prepare them for a productive life post-imprisonment (Bulow, ,2014).

Globally, government and security agencies have institutionalized programs aimed at reforming the psycho-behavioral aspects of offenders (Larsen, 2019). Manka et al. (2021) proposed several interventions representing a small sample of the many initiatives supported by the court system, often in partnership with local agencies and organizations. Some programs specifically target particular offender groups, such as former PDLs and high-risk young former PDLs. Despite the varying criminological semantics, individuals under penal facilities undergo personal reformation.

Solely, rehabilitation programs have continued in some areas with modifications. In Estonia, one-on-one sessions have persisted; in Thailand, preventive measures such as allowing trained detainees and prison officials to lead basic vocational training and ensuring adequate training materials have enabled the continuation of work programs. Online solutions were implemented where digital technology was available, facilitating the adaptation or introduction of new programs. For instance, in Ireland's Mountjoy Jail, online access to university courses was provided, and universities in the United States continued or initiated new courses for incarcerated individuals via online platforms (Global Prison Trends, 2021).

In addition, various jails and prisons offer diverse rehabilitation programs, including educational initiatives, recreational activities, and livelihood programs. One key area of focus is life skill training, which inmates frequently access. These programs, often referred to as counseling interventions, operate on the premise that many offenders may lack the basic understanding necessary to function effectively in society upon their release. Consequently, these courses cover a range of essential skills such as job application and interview techniques, financial and household management, healthy living practices, and parenting skills.

More so, rehabilitation programs, encompassing educational, vocational, and counseling initiatives, are critical in assisting former persons deprived of liberty (PDLs) in abandoning criminal lifestyles (Reamico, 2022). In Ghana, the prison system emphasizes the importance of providing inmates with basic and vocational education, aiming to reduce unemployment and facilitate social integration post-release (Baffour, 2021).

Hence, the Philippine Corrections System, comprised of government-run facilities, community volunteers, and private enterprises, is responsible for the incarceration, punishment, and rehabilitation of convicted individuals. The Bureau of Jail Management and Penology (BJMP) was established to address challenges in jail

management and criminology. Under R.A. 6975, the BJMP holds operational and administrative responsibility over all municipal, district, and city jails.

As part of its mandate, the BJMP envisions itself as a dynamic institution dedicated to the humane safekeeping and development of inmates (Section 2, BJMP Manual 2015). In 2010, the BJMP released a policy regarding the implementation of the Therapeutic Community and Modality Program (TCMP), which serves as a model for the PDLs Welfare and Development Program. The Therapeutic Community, as defined by the Philippine Department of Justice, is an environment that facilitates mutual help among inmates.

Despite receiving rehabilitation and learning skills through BJMP's livelihood programs, many released PDLs struggle to apply these skills outside prison due to societal mistrust and lack of opportunities. Djoana and Aoas (2020) noted that these livelihood programs aim to instill hope in prisoners rather than reinforce the perception that they have no future.

This study examines the socio-economic impact of BJMP's livelihood programs and the social lives of former PDLs. By engaging directly with former offenders and understanding their daily experiences, the researcher aims to uncover their urgent needs, the socio-economic effects of the BJMP programs, and the challenges they face in reintegration. This approach will enable the formulation of practical recommendations benefiting both former PDLs and society at large.

Lastly, the study aspires to significantly impact the lives of former PDLs by guiding them toward a positive future. By providing insights into the outcomes of welfare and development programs, this research will be invaluable to BJMP staff and other concerned organizations, offering crucial information to enhance the support provided to former PDLs.

Research Questions

The study focused on the assessment of the Former Persons Deprived of Liberty towards the Welfare and Development Program of the Bureau of Jail Management and Penology in the Social Reintegration Context

Specifically, it intends to explore on the following;

1. How does the Welfare and Development Program of the Bureau of Jail Management and Penology facilitate the reintegration of former persons deprived of liberty?
2. How do former persons deprived of liberty apply the training received under the Welfare and Development of Program of the Bureau of Jail Management and Penology across education, recreation, spirituality and livelihood in the course of reintegration?
3. What are the recommendations of former persons deprived of liberty towards the Bureau of Jail Management and Penology?

METHODOLOGY

Research Design

To assess the welfare and development programs for former persons deprived of liberty in Burauen District Jail, this study employed a qualitative research design to explain life events and give them significance.

This qualitative phenomenological study documented the experiences of former inmates and how the Welfare and Development Programs (WDP) of the Bureau of Jail Management and Penology (BJMP) assisted them in the context of social reintegration. The purpose of the study was to assess the WDP-BJMP programs provided by the Burauen District Jail. In this context, the researcher followed the guidance of Creswell (2013), utilizing qualitative research methods, particularly through the phenomenological approach.

Research Participants

The study's participants were former persons deprived of liberty (PDLs) from Burauen District Jail. The participants were purposively selected to ensure that the data collected would sufficiently address the study's main question. According to documents provided by the district jail, ten former PDLs who had served their sentences for the same violation (R.A. 9165) were included in the study.

To assess the program offered by Burauen District Jail, the researchers specifically chose these former PDLs because they could share their experiences related to the implemented welfare and development program. Their insights were crucial for identifying fundamental ways to improve the program.

Sampling Technique

Purposive sampling was used in this study. Purposive sampling is a non-probability sampling method based on selected characteristics of a population and the study's objective. It is also known as selective, judgmental, or subjective sampling. Hence, this method is frequently used and well-regarded in qualitative research for selecting information-rich data relevant to the phenomenon of interest. Purposive sampling was also used in this study because the process of choosing participants was based on the programs being studied rather than merely explaining them (Campbell et al., 2020).

The inclusion criteria for choosing the research participants were: a) released PDLs of the year 2018, b) residing in Julita, Tabon, Dagami, and Burauen Leyte, and c) released PDLs in 2018 with the same violation (R.A. 9165). The researcher used pseudonyms to ensure the anonymity of the participants, thus upholding their identities.

Research Locale

This study was conducted among former persons deprived of liberty at the Burauen District Jail, located in the 2nd District of Leyte Province.

For accessibility and its status as a Red Orchid Awardee, the study chose Burauen District Jail for its implementation of the Welfare and Development Program. The researcher selected Leyte Province, specifically the 2nd District or Burauen District Jail, as the site of the study.

Research Instruments

The primary instrument for data collection was a semi-structured interview guide that underwent pilot testing and credibility checks. The focus of the interview guide was to assess the programs offered by Burauen District Jail to former persons deprived of liberty. It consisted of open-ended questions derived from the study's problem statement. During the interviews, additional probing questions were posed based on participants' responses. The researcher employed indirect questioning techniques to elicit participants' explanations and perspectives on the implemented Welfare and Development Program of BJMP, covering areas such as Education, Livelihood, Spirituality, and Recreation.

More so, writing implements and materials were used to record participants' responses, while audio recording was conducted simultaneously, as agreed upon with the participants beforehand.

Data Analysis

In this study, the Collaizi Method was employed to conduct Inductive Thematic Analysis of participants' narrative accounts. The primary goal was to use Colaizzi's descriptive phenomenological approach to describe and illustrate the participants' experiences, while identifying emerging themes and exploring their interconnected relationships (Wirihana, 2018).

Ensuring the trustworthiness of the qualitative research, as emphasized by Stahl and King (2020), involved meticulous attention to data collection and analysis. The data underwent rigorous evaluation against criteria including credibility, transferability, dependability, and confirmability (Nowel et al., 2019). An interview schedule was utilized for direct data gathering from participants. The data analysis process was guided step-by-step by qualitative research experts: each participant's transcript was thoroughly reviewed and cross-checked to capture the breadth of experiences related to the Welfare and Development Program administered by the Bureau of Jail Management and Penology at Burauen District Jail.

Further, significant statements were meticulously extracted, transcribed with detailed references for verification, and organized into meaningful sub-themes. These sub-themes were then synthesized into overarching themes that formed the basis of a comprehensive description supported by relevant literature. Thus, the study culminated in outlining the fundamental structure of the phenomenon under investigation, and so, the researchers sought validation of their findings from the participants to ensure alignment between the descriptive results and the lived experiences of former persons deprived of liberty who were released in 2018 with similar violations.

Ethical Considerations

In conducting the research, several ethical considerations were addressed. Permission was obtained from relevant authorities to conduct interviews, and great care was taken to protect participants' rights and ensure confidentiality of collected data. Participants were given the option to choose a convenient time and location for interviews.

Hence, the participants were also informed about the researcher's journal, which documented perspectives, rationales, insights, and biases throughout the study process. Participants were assured of their right to withhold or withdraw information as desired, with a commitment to maintain confidentiality by ensuring that their identities would not be disclosed in any public reports or shared with others. Researchers ensured flexibility in scheduling interviews based on participants' availability and preferences for answering prepared questions.

All study-related costs were covered by the researchers as part of their academic responsibilities. During face-to-face interviews, strict adherence to safety measures, including wearing face masks, was observed. Participants did not receive financial compensation but were acknowledged with a small token of appreciation for their valuable time and contribution. Finally, after completing all study procedures, researchers planned to provide participants with a clear explanation of the study's findings.

RESULTS AND DISCUSSION

This chapter presents the narrative accounts derived from the collected data, encompassing themes and sub-themes that emerged from participants' responses. The primary objective of this study was to vividly capture the lived experiences of former persons deprived of liberty regarding the welfare and development programs, as well as their experiences with social integration.

Employing a phenomenological research design, the study aimed to address the following research questions:

1. How did the Welfare and Development Program of the Bureau of Jail Management and Penology facilitate the reintegration of former persons deprived of liberty?
2. How did former persons deprived of liberty apply the training received under the Welfare and Development Program of the Bureau of Jail Management and Penology across education, recreation, spirituality, and livelihood during their reintegration process?
3. What recommendations did former persons deprived of liberty have for the Bureau of Jail Management and Penology?

The study involved ten pre-identified co-researchers who were former persons deprived of liberty from Burauen District Jail. Data saturation was achieved by the fifth

interview. The analysis relied on narrative accounts and responses provided by these five co-researchers.

To ensure the validity of the findings, verbatim transcriptions of narrative accounts were returned to the co-researchers for member checking, validating the accuracy and authenticity of the information they provided. Results were presented with identifiers as FPDL (1) to (5), italicized, with translations enclosed in parentheses where necessary, accompanied by quoted responses and researcher feedback as supporting evidence.

The study participants comprised five former persons deprived of liberty who were released from Burauen District Jail. The profile of the co-researchers is summarized in Table No. 1 below:

Table 1 Age and Place of Origin of the Participants

	Characteristics	
Participants	Age	Place of Origin
FPDL 1	42	Julita, Leyte
FPDL 2	45	Burauen, Leyte
FPDL 3	47	Julita, Leyte
FPDL 4	50	Burauen, Leyte
FPDL 5	48	Burauen, Leyte

The table above illustrates that all participants fall within the age bracket of 40-50 years old. This demographic suggests that these individuals still have significant opportunities to lead fulfilling lives by applying the skills and knowledge acquired through programs provided by the agency

Thematic Reflection

The following are the discussions and interpretations of the common themes that emerged from the narratives of the participants.

Theme 1: Provision of Effective Programs

Without sufficient opportunities for skill development and capacity growth, an individual frequently returns to the society that imprisoned him or her as a jaded foe of that civilization. Such a former persons deprived of liberty frequently feels victimized rather than disciplined, which fuels his or her need for retribution. Additionally, former persons deprived of liberty who is viewed as one by society will probably cause more harm than good.

The rehabilitation of prisoners should start the moment they are taken into custody and should last until their release (Igbo, 2007). This is done to make sure they use the skills they learned throughout rehabilitation to lead law-abiding lives in society. Numerous initiatives are in place to steer offenders away from crime and toward worthwhile endeavors that make crime unappealing or detestable, such as moral or religious institutions, education, and vocational training. According to, FPDL 1 he said

that the programs provided for him are helpful in the sense that it changed and prepared for him to go back to the community.

> *"Naka bulig iton gehap na mga programa. Kay pag hikanhi ha community amo na ito nag bag'o ako".* [The program was helpful, since, when referred to the community, that's it, I've changed].

On a similar note, FPDL 2 stated that the program helped him to overcome his longingness to his family while he was in jail.

> *"Oo naman, an programa an nakabulig ha ak para baga deri dumuro nak kamingaw nak pamilya".* [Yes it is, the program help me to ease the feeling of missing my].

Meanwhile, FPDL 3 said that he made use of the programs as his leeway in entertainment while at the prison.

> *"Oo gad, saypa kay amo iton an akon baga nagiging kali-awan".[Probably yes, most especially that this serves as my pleasure].*

The responses of the participants concurred to the study of (Uche et al., 2015) as it talks about former persons deprived of liberty who actively pursue rehabilitation while they are in the custody of the jail agency as they develop skills that will help them find resources, opportunities, and employment once they are released (Uche et al., 2015). In collaboration with the government, the jail administration has offered a variety of rehabilitation programs in a number of institutions. These programs include a variety of topics, including farming, adult literacy, tailoring, welding, and woodworking.

These results are in line with Inciardi's (2009) observation that welfare and development programs involve a variety of activities, all of which can have an effect on prisoners' rehabilitation and effective reintegration into society after release, either directly or indirectly.

Sub-theme 1.1 Positive Outcomes of Program

After the persons deprived of liberty have served their sentences is always a major concern for both the government and society. This, however, can only be secured by providing them with a respectful opportunity to earn a living (Djoana and Aoas, 2020). Livelihood programs perse aim to alter attitudes, knowledge, and skills through a program of action service and education

However, this rehabilitation is a serious priority for both the government and society after they have fulfilled their terms. This, however, can only be achieved by providing them with a respectable means of earning a living. According to FPDL 1, he said that these programs are helpful for them so that they will not be bored during their stay inside.

> *"Usa ito hiya nga programa na inayad para haamon nga nadidto, para baga diri gehap kami ma lontogan pag inukoy didto". [That is a program made for us that was in Jail, and to ease our boredom in our stay in the Jail].*

Meanwhile, FPDL 3 said that these programs are helpful for him because it was hs avenue not to commit the mistake again.

> *"Para ha akon, koan iton hiya, ini nga mga borohaton nga igo buligan inin aton mga PDL na diri na makasala otro".* [For me, these programs are helpful in terms of PDL because it helped th PDL not to commit the mistake again].

More so, FPDL 4 gave emphasis that the programs have played an important role to him.

> *"Oo naka experience gadman ak ton didto, saypa kay baga nakabulig iton haak"*. [Yes, I've experience it in the Jail, most especially that it helps me].

With the passage of time, the responses of the participants agreed on the study of (Cano et al., 2023) that livelihood programs assist former persons deprived of liberty in building new abilities that can be utilized to earn money both inside and outside of jail.

With the premise of the BJMP's livelihood programs. It is still too early to tell how the program improves people's lives of former detainees, and what influence the program had on the participants' lives.

Sub-theme 1.2 Interpersonal Skills

Giving and receiving social assistance is a vital aspect of both individuals' and communities' existence. Such assistance is frequently exchanged within families, learning and working environments, communities, among coworkers, and in other connections (Education Reimagined, 2023).

And thus, policymakers thought that former prisoners needed help and support from family, relatives, and friends, as well as institutional institutions such as criminal justice agencies, correctional facilities, prison officers, and social welfare programs. In fact, FPDL1 described on his experiences on the importance of recreational activities.

> *"an recreation, orog man ton didto basketball, education liwat, mga pan ngiskwela sugad han ALS, pero an akon gud baga naka experience is an spirituality, kay baga sigi man gud nak ampo ton didto na makagawas na".* [The recreation, which is more on basketball, on the other hand, in Education was more on schooling just like with ALS, but what I experience the most is the spirituality. Since, I was more on doing prayers in there in able to get out].

While FPDL2 also gave emphasis on his experiences on the recreational activities that the BJMP provided for them as it develops his camaraderie among mates.

> *"Hito nga Recreation luwat, ini nga butang an akon paborito. Ha sulod han presuhan damo an mga pamulay nga nadidto ngan binuligan nakon para deri ako luntugon sugad, basketball, volleyball, table tennis ngan chess. Ini nga mga aktibididad it pinaka rason hito nga maupay nga relasyon ngan hit pagka murulay ha ika preso".* [In the area of Recreation, this area of the program was

my favorite. Inside the Jail there were many sports that was available that I have participated to kill my boredom namely, basketball, volleyball, table tennis and chess. These activities are the main reason in the creation of harmonious relationship and sportsmanship towards co-pdl].

On the same note, FPDL6 enjoyed the recreational opportunity that was gien to while on the custody of the BJMP.

> *"ha sulod han presuhan, mayda mga sports nga gin hatag para mag muruglay ngan mag upay an lawas luwat. Damoay adto nga sports mayda, basketball, volleyball, table tennis, ngan chess ngan basketball nak pinaka paborito kay katungod na baga player man ak anay ugsa ak ma sentensiyahan. Usa pa, namulay akon basketball hit mga competition sugad barangay ngan munusipyo nga lebel yana nga adi na ako ha hit kumyunidad".* [Inside the Jail, they were provided sports to play and to stay physically fit. There were numerous sports to play namely, basketball, volleyball, table tennis and chess and that basketball is my favorite one since I was some kind of a player before I served my sentence. Additionally, I play basketball during competitions such as barangay and municipal level now that I am in the community].

On a regular basis, correctional officers contact with these persons deprived of liberty, are a part of this interpersonal interaction. Interpersonal communication are truly abilities that are frequently underestimated. Simply said, it's necessary to place more emphasis on recreational activities that paves a way of an effective communication skills in corrections training. Knowing how to communicate and listen to others can help prevent incidents involving the use of force with offenders.

Sub-theme 1.3 Life Key Skills

For many people who have been deprived of their liberty likewise leaving jail and reentering society can be a tough process. Many people who have been deprived of their liberty are well-equipped to conduct productive lives once they are released. Various programs and organizations focus on teaching people who have been deprived of their liberty life skills. Hence, being a part of one of these programs is useful as it educates persons deprived of liberty a wide range of skills in order to aid their eventual reintegration into society.

Prison administrations provide persons deprived of liberty with external certification for their practical training, with documents that do not indicate that the skills were learned in prison, allowing for a smooth transition of former persons deprived of liberty to freedom (Ortaleza and Nabe, 2020). According to FPDL1 said that he has learned a lot on the livelihood program.

> *"May ada ada kogad nahabaruan parti hito nga programa. Kay ha livelihood dako adto nak nahubaruan".*[I was able to learn something within that program, however, it was on the livelihood, Ive learned a lot].

On the same note, FPDL3 shared something on what he have learned on the education and livelihood.

“Sugad han education, baga na update ini an akon mga nahibaruan. Han livelihood liwat, nanhibaro ako pag ayad hini nga mga magkote”. [In terms of Education, it updated my previous knowledge. With livelihood, I was able to learn meticulous task].

While FPDL5 have shared his learnings in general.

“Oo, baga damo iton akon mga nahibaruan didto parti hito nga programa“.[Yes, I’ve acquire several learnings in the Jail relative to that program]

Participants' responses agreed with Samilo et al., (2020), who stated in their paper that BJMP Valenzuela also works on and the strengths and weaknesses of the program to reform people and provide persons deprived of liberty (PDLs) with skills and learning that will be useful for them.

Former persons deprived of livert may also learn essential employability skills through these programs, which may lead to opportunities for employment upon their release to support themselves and even their families and live a reformed life that is different from their one before entering jail.

Theme 2 Self-Reflection

This training, which will be prioritized for prisoners with low levels of education and no prior work experience, is intended to improve their chances of successful self-employment after release. Simultaneously, the initiative is a first step toward the construction of a silver jewelry manufacturing and marketing facility, which will employ offenders and generate cash for them.

Understanding former persons deprived of liberty reentry into society after release is required for knowledge of their desistance processes (Vivares, 2023). As well as jails with a nice and well-organized social climate that is safe, helpful, and well-policed likewise treated convicts with humanity has to be detailed. According to FPDL1, he have learned on how to use the rosary and used it as his weapon on his fight while he was in jail.

“Amo iton an parti han kanan spirituality, sugad han mga pan rosary ngan pan ngadi, kay baga amo man gud iton an akon masyado nga nagagamit“. [That’s it, regarding spirituality, like those with rosaries, and with prayers, since that was mostly what I can used].

Meanwhile, FPDL2 have also explored on his ways on how he can supassd the problem through reading and other legal advices.

“Mayda gad gehap, amo naton han ak pagbinasa parte han akon kaso, nga kon paano ak makalosot, parte na gehap ito hit education”. [I also have those learnings, and that was in relation to my reading habits regarding my case, on how would I be dismissed, and that is already concomitant to education].

On the same manner, FPDL5 have gained learning that are useful on his present time as former person deprived of liberty.

“Sugad han kanan Edukasyon, mayda ko nabaruan ngadto kay tinutduan man ak nira, ngan hit livelihood, nabaro ak mag ayad Parol nga akon binaligya kada ma pasko, nabaro ako mangadi ngan magka maya koneksyion haiya, ngan nakabulig luwat adto pag upay pa nak mulay han basketball “. [Like the area of Education, I learned something for they were teaching me inside the Jail, and for the Livelihood, I learned to make a Parol that I sell during Christmas vacation, I learned to pray and to connect with him, and It have helped me improve my skills in basketball].

When former persons deprived of liberty are released from prison, they typically learn that their hopes for resuming normal life are not easy. This is especially true for long-term persons deprived of liberty who are less likely to meet various learning that are required in the social reintegration context.

Sub-theme Application of Learned Skills

Former persons deprived of liberty who developed good soft skills in prison have a better chance of decreasing their term, re-entering successfully, and finding meaningful work ((Cano et al., 2023)). As a result, an effective soft skills program necessitates careful skill selection and concentration, adaptive resources, various teaching techniques, continuous assessment, and precise tailored feedback and encouragement.

Thus, former persons deprived of liberty can extend soft skills training outside the correctional setting. According to FPDL2 shared his experiences relative to the phenomenon.

“kay an ak gin pagtoto-unan nak pansin is an ak kaso, naha apply ko logod an ak mga nabaruan parti nak kaso didto nga diri dapat buhaton dinhi, mga panotdo dinhi”. [What I was focusing was my case, but I were able to apply my learning relative to my studies of my case, lectures from the jail].

Same sentiment was shared by FPDL3 have applied his learnings on applying for a job that he was not able to encounter any difficulty.

“An akon baga mga nahabaruan tikang ha Jail, baga waray koman problema han akon pag apply hadto dinhi” [With all the learnings that I acquired from the Jail, it seems that I did not face problems with its application here in the community].

While FDL5 gave an emphasis on the usage of the learnings from the program that he can use in the social reintegration context.

“Oo, naha anu ko tun nga ak nabaruan about han livelihood, kay makakabulig gud ito haimo kun ada kana ha kumyunidad “. [Yes, I have applied those skills that I have acquired but, in the livelihood, I am satisfied about it since the course that has been offered can be used in a sustainable career once you are out in the community].

Former persons deprived of liberty can, in fact, use their acquired abilities in a variety of ways after their release. They can put their skills to use by looking for work or starting their own business. Teaching prisoner with practical work skills can boost their employability and provide them with better job opportunities, or better entrepreneurial abilities to assist them in self-employment.

Theme 3 Finding a Job Easier

The major objective of correctional officers is to instruct and teach former people who have been deprived of their freedom a variety of valuable occupations and assist them enhance their self-esteem, decision-making skills, and confidence in their future. Importantly, these professions will improve their employability, provide better employment opportunities, or, in the case of self-employment, better entrepreneurial skills to support them.

According to an Urban Institute study of Baltimore-area on former persons deprived of liberty, on social reintegration context tend to come from a concentrated collection of communities with "above-average unemployment rates. According to FPDL2 he has not encountered any problem during his application instead he was given advices.

> *"Dinhi ha community, baga waray man ako ig agi hin problema han pag apply hini nga akon nga nahibaroan, bagat, nanhihingaruyag pa an tawo nga nasusumatan nga amo ini, na ayaw diri dapat ta iton buhaton, delikado".* [Here in the community, I did not face problems in terms of applying these learnings that I acquired. Most of the citizen was even happy that I was able to share or impart my knowledge unto them, that they shouldn't do this because it's dangerous].

While FPDL4 shared also the same sentiment that he had not encounter any difficulty while he was applying for a job.

> *"Han pamiling han trabaho, kinaluyan ako han Ginoo nga waray ako kurian og waray magka problema han pag apply hin trabaho".* [Upon looking for a Job, I am blessed that I didn't have the difficulty or an issue in applying for a work].

On the same manner, FPDL5 have also shared his experiences that the prison have taught him so many lessons and those were very useful.

> *"An ak mga nabaruan didto sulod han presuhan, dako an gamit ha ak".* [The skills I have acquired inside the Jail was beneficial to me. And luckily upon looking for a job I didn't find any difficulty to be hired becuse of my past record].

These comments contradict the findings of Visher et al. (2011), who found that a high majority of former offenders have poor levels of educational attainment and work experience, health issues, and other personal qualities that make them difficult to hire.

For many of the participant's, finding work was a significant goal. As they were being released, their employment is a crucial component of the procedure for re-

entry jobs, more than just a consistent source of cash, can offer former inmates with a feeling of structure and responsibility as they try to reintegrate following release. Fortunately, in the context of Burauen District Jail, former persons deprived of liberty did not face a difficult path to finding and keeping work.

Theme 4 Continuation of the Programs

Prisons and jails are institutions for penal reform and rehabilitation. Correctional institutions likewise are supervised by the Department of Justice's Bureau of Corrections. They serve as a safe haven for education, socialization, moral healing, and self-improvement. The Bureau of JailManagement and Penology, specifically, is part of the Department of the Interior and Local Government, which in general oversees district, city, and municipal jails.

Livelihood services embraced the productivity of viable livelihood initiatives by reducing costs, looking for better markets, producing more, and improving quality (Patlunag, 2020). Included in the educational services are the facilitation of continued education for prisoners as well as the education of young and illiterate inmates. That is FPDL1 appeal from the department to continuously hold th program as it is helpful on the context of social reintegration.

> "*Angay ton paupayon kay maupay man an amon pan gawas nganhi, maupay man an palakad, kutob yana waray man kami ton manmalik ngadto ha presohan, baga nag bag'o na".* [It should be improved since our released here was with a good process, until this day, we did not return to the Jail, cause, of real reformation].

> While FPDL3 shared the same vision for the programs that BJMP ahs provided.

> *"Amo ito, kon makusog man ito yana, pakosgon pa ito nira, para man liwat hit kaupayan hit PDL".*[That's it, if it was currently strong, then make it even stronger, well, that's for the welfare of the PDL].

The delivery of various services can be measured by gauging former persons deprived of liberty's satisfaction with their quality of life. The degree of life that adds to happiness, contentment, and mental health advantages is referred to as the quality of life. Understanding their quality of life is essential for informing the government, jail administrators, and the community about the inmates' current situation. Measuring their level of happiness with their quality of life could provide a foundation for developing and designing effective and efficient rehabilitation programs (Patlunag, 2020).

Conclusions

The results of the assessment, derived from the narratives of former persons deprived of liberty, and the qualitative findings disclosed four major themes and seven sub-themes as follows: Theme 1: Provisions of Effective Programs, with sub-themes Positive Outcomes of Programs, Interpersonal Skills, and Life Key Skills. Theme 2: Self-Reflection, with sub-theme Application of Learned Skills. Theme 3: Finding Easier

Jobs. Theme 4: Continuation of the Programs. The results demonstrated that the programs provided by the BJMP-WDP were very useful and significantly aided former persons deprived of liberty in the context of social reintegration, particularly for those who worked to change for the better.

This was congruent with the study by Estillore and Aoas (2020), which found that the BJMP provided livelihood programs focusing on skill-based training for former persons deprived of liberty, as they learned and developed new skills that were extremely valuable. This was vital to their reintegration into normal society. The BJMP's livelihood projects yielded positive results and had a beneficial impact on the lives of former persons deprived of liberty. Furthermore, the employment opportunities available to former persons deprived of liberty improved their socioeconomic standing.

Recommendations

Based on the study's findings, the following recommendations for improvement and enhancements were provided:

1. The BJMP Burauen District Jail should continue and expand its livelihood programs, as they have made a significant contribution to the lives of former persons deprived of liberty.
2. The BJMP should offer more livelihood training, such as welding, by strengthening its collaboration with TESDA. T
3. The BJMP Burauen District Jail should also improve and strengthen its linkages and collaborations with other government and non-government agencies to assist in the efficient implementation of livelihood programs for former persons deprived of liberty. Moreover, enhancing the monitoring and evaluation processes for these programs is essential to ensure their effectiveness and to make necessary adjustments based on participant feedback.
4. Increasing awareness and advocacy efforts within the community is crucial to reduce stigma and create more employment opportunities for former persons deprived of liberty, facilitating their successful reintegration into society.

Compliance with Ethical Standards

The researchers declare that this study was conducted in strict compliance with ethical standards. Informed consent was obtained from all respondents, who were assured of their freedom to withdraw from the study at any time without any repercussions. The anonymity of the respondents was rigorously maintained to protect

their privacy, and their well-being was safeguarded throughout the research process. The researchers affirm that no conflict of interest existed in the conduct of this study.

Additionally, the researchers strictly avoided plagiarism and ensured that there was no bias in the interpretation of the findings. The results of this study were used solely for research purposes, adhering to the highest standards of academic integrity.

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LIVED EXPERIENCES OF TEDURAY ENGLISH LANGUAGE LEARNERS ON MODULAR DISTANCE LEARNING

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ABSTRACT

English language learning is a complex phenomenon and challenging that is set of words, grammar, structure, unpredictable spelling, and complexity of organizational ideas. Learning the English language is pivotal to the development of the learners in all aspect. Thus, the classroom is the ideal platform to acquire and learning the English language with the assistance of English teachers. The COVID-19 Pandemic brought distraction to all educational system where the modular distance learning modality is being adopted while learners accustomed to face to face learning approach. This qualitative phenomenological study aimed to explore the lived experiences of selected Teduray English language learners during the modular distance learning from Datu Blah Sinsuat, District of Maguindanao-II, Division. The purposive sampling technique was used to select the participants relevant to the research study. The in-depth interview employing semi-structure research questionnaire was utilized to explicate the challenges and experiences in the phenomena.The Collaizi's, (1978) seven steps strategy in phenomenological approach was utilized to provide rigorous analysis of data. Thus, the findings of the study revealed important themes. Poor Reading Comprehension, Very Poor in Writing, Difficulty in Word Recognition, Poor Writing Skills. Consequently, the coping mechanism of Teduray English language learners were, Studying the Lesson, Asking Assistance from Parents/Siblings. Therefore, the suggested solution of the English

language teachers to the Teduray learners were, Enrichment Activities in Reading and Writing on Module, Learning Through Social Media Platform, Guidance and Supervision from Adults/Parents and lastly, Utilization of Dictionary. The study concluded that, Teduray English language learners had experienced serious difficult challenges in their learning English language on modular distance learning.

Keywords: *English language learning, lived experiences, modular distance learning, Teduray, phenomenology*

INTRODUCTION

Education has a significant impact on the lives of learners. Teachers are one of the most important tools in delivering high-quality education. The introduction of COVID-19 in the Philippines resulted in significant changes in the educational landscape. One of these is the Department of Education's implementation of a new form of instruction. Most education systems have been forced to adopt alternatives to face-to-face teaching and learning as a result of the present COVID-19 dilemma. Many educational systems have transferred activities online in order to continue teaching despite school closures (OECD, 2020). The transition in school teaching-learning delivery to modular distance learning made the delivery of fundamental quality education more difficult for school workers. As stated by Bagood (2020), DepEd authorities are continually looking for methods to overcome difficulties and capacitate teachers and school administrators to become more effective in the field of modular distant learning (Castroverde & Acala, 2021). The majority of students are modular (print) learners, especially in rural locations where internet access is not always available. They are learning at home with the assistance of their parents or guardians, who have taken on the role of teachers. Teachers, on the other hand, provide guidance to the parents. Teaching their children at home, particularly the younger ones from kindergarten to grade three. The same is true in Grades 4 to 6, albeit with less direction than in the early grades, when students receive more attention and monitoring. The modular system had certain difficulties, particularly in engaging students who were uninterested in studying (J. A. Barcenas and M. B. Bibon, 2021). Students also complained about too many activities in class. As they indicated, a teacher would assign them nearly three exercises in a subject, leaving them with less time to carefully answer all of them. Sundarasen et al. validated the difficulty of remote learning in their investigation (2020).

Some Malaysian university students voiced concern about the enormous number of assignments assigned by their professors. Their studies also demonstrated that this difficulty had a significant impact on the students' stress and anxiety levels. Sarvestani et al., (2019) have a similar situation, in which students complain about the huge volume and quantity of courses that they must complete. More learners think they didn't fully comprehend the modules. They even have trouble understanding the lessons when they are taught face to face (Helpline, 2020). As a result, it is clear that there are issues with using modular distance learning (Castroverde & Acala, 2021).

Therefore, a poor learning environment makes it difficult for students to participate in remote learning comfortably. Students' comments have repeatedly highlighted this issue. Creating a happy and supportive learning environment has always been a challenge in remote education, particularly for most disadvantaged families (Baticulon et al., 2020).

There are also parents who do not know how to read and write, making it more difficult to teach their children the lessons in their subject areas. This deficiency of learning the English language on Modular Distance Leaning is very much observable in one of the rural schools in Maguindanao II especially at Resa Elementary School, Kinimi Elementary School, and Nalkan Elementary School. Engaging in the teaching and learning process using the English language is a serious concern for the school and to its educators. In this context, this study was conducted to describe and understand the live experiences of grade 4 Teduray English Language Learners on Modular Distance Learning as affected by the factors which hamper their learning and ability to use English as an important component in their academic endeavor. This made the study relevant and timely.

Research Questions

This study determined the lived experiences of Teduray English Language Learners on Modular Distance Learning at Resa Elementary School, Kinimi Elementary School, and Nalkan Elementary School.

Specifically, the study sought answers to the following questions:

1. What are the challenges encountered by Grade 4 Teduray English language learners on modular distance learning in the following:
   1.1 reading; and
   1.2 writing?
2. What are the coping mechanisms of Grade 4 Teduray English language learners in overcoming the challenges on modular distance learning in the following:
   2.1 reading; and
   2.2 writing?
3. What are the suggested solutions of the English Language Teachers in the following language parameters:
   3.1 reading; and
   3.2 writing?

METHODOLOGY

This chapter presents the method employed in this qualitative research. This includes the research design used, research participants, the data collection, locale of the study, the research instruments, ethical consideration, and the data gathering procedures.

Research Design

The researchers used a qualitative design employing phenomenology in order to generate the interpretation of the text relating to the shared experiences of selected Teduray English language learners in the course of modular approach to learning during the Covid-19 pandemic. Phenomenology, as defined by Creswell (2013). As cited by Pulidao & Mohamad, (2023). In addition, qualitative research commonly produces a meaningful and detailed information about much smaller number of people and cases (Patton, 1990). that talks about the study of things in their natural setting (Denzin & Lincoln, 2011) as cited in Fukofuka ,2014; Mohamad, 2022; Manakan, Untong, Mohamad, & Sinsuat, 2023; Zaniel, Mohamad & Parcon, 2023; Ugalingan,. et al., 2023; Pulindao & Mohamad, 2023)

The Phenomenological approach was used to describe how one orients to live experiences (Sloan & Bowe, 2014). as cited by, Pulindao and Mohamad, (2023). Phenomenology allows the researchers to get in deep conversation with the participants in order to invite readers to understand the participants' livedexperiences through the texts disclosed in front of them. In order to collect the necessary data needed for the understanding aimed to determine the lived experiences of Teduray English language learners on Modular Distance Learning. The participants were asked on the challenges encountered by Grade 4 Teduray English language learners on modular distance learning in the following language parameters: a.) reading; and b.) writing, the coping mechanisms of Grade 4 Teduray English language learners in overcoming the challenges on modular distance learning in the following language parameters: a.) reading; and b.) writing, the suggested solutions of the Teduray learners in learning the English language in the following language parameters. This study focused on the description of the participants' lived experiences which relate to the phenomenon. Cresswell (2007) summaries the philosophical postulation associated with phenomenology as the study of the life experiencesof individuals, with the understanding that these experiences are conscious ones.The study includes the development of descriptions of the substances of these experiences, not explanations or analyses.

Locale of the Study

The study was conducted at Resa Elementary School, Kinimi Elementary School, and Nalkan Elementary School. Resa Elementary School is situated in Resa, Datu Blah Sinsuat, Maguindanao. It is approximately 46.1 km away from Cotabato City and 41.7 km away from Datu Odin Sinsuat Maguindanao. It is located at Barangay Resa in the municipality of Datu Blah Sinsuat in the province of Maguindanao. The 2015 Census determined that barangay Resa have 2,007 total of population. This represented 8.02% of the total population of Datu Blah T. Sinsuat municipality. On January 1950, Resa Elementary School was established at Sitio Kamis in barangay Resa. Due to the conflict happened in the year 2017 which resulted to the transfer of residents to other barangays, the school was also relocated at Sitio Padian of the same barangay. It was situated at 700sq land with five buildings consisting eight classrooms and one multifucntion room of the former Resa National High School where the said school was originated. Since the

said school was also transfered to other barangays in Datu Blah Sinsuat, the buildings was given to the Resaa elementary school with the pursuant of the land owner Datu Gimmie Sinsuat on his pure intention of education continuity to the people of barangay Resa. Resa Elementary School was re-established with the guidance of Ms. Marivic Solmerano Ariston, the current School Head of Sedem Elementary school who also acted as the school head of Resa Elementary School as well as Meti Primary School. Currently, the school is handled by its two permanent teachers headed by Hasma U. Butukan as Teacher in-Charge with the guidance of the District Supervisor Miss Samira S. Mustapha.On the other hand, Kinimi Elementary School is situated in Kinimi, Datu Blah Sinsuat, Maguindanao. It is approximately 38.8 km away from Cotabato City and 54.4 km away from Datu Odin Sinsuat Maguindanao. Kinimi Elementary School is demographically situated in Kinimi, one of the barangays in the municipality of Datu Blah T. Sinsuat in the province of Maguindanao. Kinimi Elementary School was tested again when flood hits, which resulted to devastation. The same of what was happened before the Kinimi Elementary School was rebuilt in the service of the people and its stakeholders with the utmost leadership of Mrs. Milaida T. Utto as a school principal. Meanwhile, the Nalkan Elementary School is situated in Nalkan, Datu Blah Sinsuat, Maguindanao. It is approximately 36.3 km away from Cotabato City and 36.9 km away from Datu Odin Sinsuat Maguindanao. Currently, the school is handled by its seven permanent teachers headed by Sampaguita S. Casada as School Principal with the guidance of the District Supervisor Miss Samira S. Mustapha.

Participants of the study

The participants of the study were seven (7) and three (3) English language teachers from Resa Elementary School, Kinimi Elementary School, and Nalkan Elementary School. These Teduray English Language Learners were officially enrolled during the school year 2021-2022.

The learner-participants were purposively chosen since they were Teduray English Language Learners from Grade 4 who are sincerely and willingly participated in the data gathering. The consent of their parents were secured. The teacher-participants were selected since they were the only English language teachers at the said schools.

Research Instrument

This study used a semi-structured interview guide questionnaire. This was verified and checked by thesis adviser and the panel members. The instrument contained an open- ended questions with three parts to gather information about the lived experiences of Teduray English Language Learners on Modular Distance Learning. The first question talked about the challenges in English Language Learning on Modular Distance Learning, second was their coping mechanisms in overcoming the challenges in English Language Learning on Modular Distance Learning, and the third was the suggested solutions of English language teachers to help address the challenges of Teduray English Language Learners in Modular Distance Learning. In this study, each interview started with acclimatization to prepare the participant psychologically and emotionally as the purpose

of the interview was slowly unfolded to them without necessarily being told. Since the participants understood Filipino language, the interviewers anticipate the possibility of asking questions in Filipino. Thus, the questions was framed in English but there was a ready translation in Filipino in the event the researcher sensed the need to use the translated version. Moreover, this was done to ensure that the questions are well-understood in order to obtain rich substantial data. A semi-structured set of questions were arranged to steer and guide the interview as well as to avoid leading questions as suggested by Morse and Richards (2002) (as cited in Kalis, 2018). A semi-structured interview guide is a technique for generating qualitative data and is characterized by open-ended questions rather than closed type to allow free flowing of thoughts from the participant. The interviewer is free to probe interesting areas that arise from participant's interest or concerns (Lindolf & Taylor, 2002) as cited in Kalis (2018).

To assess whether an instrument is valid, different sources of evidence could be evaluated such as content validity evidence. As cited by Samson (2017), (as cited in Kalis, 2018), Beck and Gable (2001), content validity stresses "the degree to which items in an instrument adequately represent the domain of content". Moreover, they state that content validity should be assessed in the developmental phase of the instrument rather than evaluating its final form.

Data Gathering Procedures

The following procedures were carefully followed during the conduct of the study: Transmittal letter was sent to the District Supervisor of Datu Blah Sinsuat District asking for her approval for the conduct of the study and to the Principal of Kinimi Elementary School and Nalkan Elementary School. A letter was sent also to the class adviser of Grade 4-A of Resa Elementary School, and Kinimi Elementary School, and Nalkan Elementary School and discuss the subject of the study. A letter of consent was sent to the guardian of the participants to ask permission and fully aware them about the study. Upon the approval, the researchers scheduled an in-depth interview with the participants. The in-depth-interview was scheduled at the most convenient time of the participants with their guardian/s at their respective schools. The in-depth-interview was conducted with the participant. They were invited at the school together with their guardian for the one on one interview which lasted for 20 minutes. Interview instruments and other materials was made ready for the use of the researchers. After the in-depth-interview, the researcher carefully transcribed the data gathered verbatim and systematically. The transcribing of data gathered was rechecked by listening to the recorded audio multiple times. This is to ensure the clarity and correctness of transcribing the information given by the participants. In order to validate this study, it was presented to the experts from Mindanao State University-Maguindanao.

Data Analysis

The researchers utilized the Collaizi's, (1978) seven steps strategy in data analysis in phenomenological approach that provided a rigorous and intensive analysis. (Mohamad, 2022). According to Collaizi, stated that, to understand, describe, depict and the lived

experiences of Teduray English language learners during the modular distance learning brought by the COVID-19 Pandemic. The main objective employing this method is generate a detailed description of certain phenomena. (Marrow, 2015) as cited by, Altecin, De Leon, Gomez, Grijalvo, Magabo and Villanueba, 2023). In addition, with each step staying close to the data. Transcripts were read repeatedly, significant statement, formulated meaning, cluster themes, developing exhaustive description, producing the fundamental structure and seeking verification of the fundamental structure to extract thematic analysis. As cited by. (Morrow, Roise, Rodriguez, Alison and King, Nigel 2015; Mohamad, 2022; Zaniel, Mohamad & Parcon, 2023; Ugalingan., et al, 2023) The responses of the participants were recorded, noted, and transcribed. The significant statements from the responses of the participants were singled out as basis of getting the code.Mohamad, (2022).

Ethical Considerations

Before allowing this study to take place, the researchers established an ethically sound ambiance. Nothing was done to infringe on the participants' rights to respect, privacy, and protection from physical and psychological damage. The District Supervisor, participants' class adviser, parents/guardians, and participants received the transmittal letters stating that both sides (the researcher and the participant) have agreed to engage in an interview, furthermore, the participants were notified ahead of time that the researcher and the adviser will have access to all of the information acquired. Additionally, the dignity of the subjects of this study were protected in accordance with the "confidentiality clause," which states that no identifying features or information, including names, would be included in transcripts or the final report. Furthermore, deletion of the voice recordings after transcribing was done for safety and confidentiality purposes of the participants of this study. Finally, it was assured that the participants in this study are aware of the study's purpose. The participants in this study were given clear and sufficient background information on which to make their own decisions about whether or not to participate.

RESULTS AND DISCUSSION

This chapter presents the phenomenological data gathered to achieve the objective of this study. The data were taken from audio recordings of the in-depth interviews of the Teduray English Language Learners and their English Language teachers. There were twelve (12) target participants in this phenomenological study but only ten (10) have participated. Those were the seven (7) Teduray English Langauge Learners and three (3) grade 4 English Language teachers from Resa Elementary School, Kinimi Elementary School, and Nalkan Elementary School. These recordings were manually transcribed and translated into English.

Throughout the process of identifying significant statements from each transcript of interviews to formulation of meanings and clustering themes that established the

surfaced patterns, themes were formulated according to influenced factors of the lived experiences of Teduray English Language Learners on Modular Distance Learning.

The Challenges Encountered by the Grade 4 Teduray English Language Learners on Modular Distance Learning in Reading as English Language Parameter

Table 1.1 reflects the significant statement, formulated meaning, code, and theme clusters of the responses about the challenges encountered by the Teduray English Language Learners on Modular Distance Learning in reading as English Language Parameter.

Table 1.1: Challenges Encountered by Teduray English Language Learners on Modular Distance Learning in Reading

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	My mama teaches me. I can understand few of it… I can't read other words.	The learner taught by her mother to read.	001	Poor reading comprehension
2	It was Mama..who reads it. I can't read it, I can only read some.	The learner can't read but can read some.	002	Very poor reading
3	I can't read English. Tagalog/Filipino only.	The learner can't read English.	003	Reading problem
4	English is hard ma'am.I can't read it.	The learner can't read.	002	Very poor reading
5	I can only read few from it. I don't understand it. I don't understand the content of our module in English.	The learner can read few but can't understand.	002	Very poor reading comprehension

6	Ahmm.. I can only read few English words ma'am..ahmmm.. It is hard to understand. I understand only few words in English, so I can't answer all of my modules in English.	The learner has difficulty in reading and understanding words in English.	002	Very poor reading comprehension
7	I can read. Ahhhmmm… I understand few in English.	The learner can read but cannot understand everything.	002	Very poor reading comprehension

Table 1.1 presents the challenges encountered by the Teduray English Language Learners on Modular Distance Learning in reading. There were three (3) themes emerged from the seven (7) participants.

Theme 1 "poor reading comprehension" with the code 001, one participant mentioned that he can read some words in English language but there is lack of comprehension on it. This is supported by his statement that: "*My mama teaches me. I can understand few of it… I can't read other words."* (Transcript 1, lines 40-42)

This implies that Teduary English Language Learners need reinforcement to develop their reading comprehension skill. Reading is beneficial for language acquisition, according to Harmer (2008). Assuming that pupils comprehend what they read, the more they read, the better they get (Setiawan, 2017).

Majority of the participants mentioned that "very poor reading" coded 002 in English language means that it is hard for them to read and comprehend. This made the learners less interested in answering their modules. It was revealed by participant 2 from the transcription quoted as: "*It was Mama..who reads it. I can't read it, I can only read some."* (Transcript 2, lines 41-43)

Participant 4 mentioned in the interview that she was facing difficulty in reading English language. It was revealed by participant 4 from the transcription and lines: "*English is hard ma'am.I can't read it."* (Transcript 4, lines 46-47)

Most kids have inadequate reading skills, according to Njie (2013) and Rany (2013), due to a lack of effective learning methodologies, as well as their unwillingness and motivation to learn how to read (Setiawan, 2017).

Theme 3 “reading problem**”** with the code 003, one participant stated that he was having hard time in answering module since the learner mentioned that he cannot read English words. Participant 3 revealed it from the transcription and lines: “*I can’t read English. Tagalog/Filipino only.”*(Transcription 3, lines 43-44)

According to Njie (2013) and Rany (2013), most pupils have poor reading skills due to a lack of efficient learning methodologies as well as their unwillingness and motivation to learn to read. Setiawan, 2017

Theme 4 “very poor reading comprehension” with the code of 004, three (3) participants denoted that these learners could read but could not comprehend everything they read. The learner found it hard to understand the content of their modules as they revealed. Participant 5 revealed from the transcription and lines: *“I can only read few from it. I don’t understand it. I don’t understand the content of our module in English.”* (Transcript 5, lines 50-55)

When participant 6 was asked about her challenges in reading on Modular Distance Learning, she revealed that she has difficulty in reading and understanding words in English. It was revealed from the transcription and lines: “*Ahmm.. I can only read few English words ma’am..ahmmm.. It is hard to understand. I understand only few words in English, so I can’t answer all of my modules in English.”* (Transcript 6, lines 45-51)

Participant 7 stated on the interview that the learner can read English but cannot understand everything. It was revealed from the transcription and lines: “*I can read. Ahhhmmm… I understand few in English*.” (Transcript 7, lines 55 and 59)

Rany (2013) claims the limitations of pupils’ vocabulary proficiency impedes their reading ability as well as a challenge to teachers when teaching reading strategies to pupils (as cited in Setiawan, 2017).

The Challenges Encountered by the Grade 4 Teduray English Language Learners on Modular Distance Learning in Writing as English Language Parameter

Table 1.2 reflects the significant statement, formulated meaning, code, and theme clusters of the responses about the challenges encountered by the Teduray English Language Learners on Modular Distance Learning in writing as English Language Parameter.

Table 1.2: Challenges encountered by the Teduray English Language Learners on Modular Distance Learning in Writing

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	I don't know what to write maam.	The learner do not know what to write	101	Very poor in writing
2	I know how to write..but sometimes the spelling is incorrect.	The learner know how to write but poor in spelling	101	Very poor in writing
3	Don't know English Language ma'am.	The learner does not have knowledge on writing using English Language	101	Very poor in writing
4	I know how to write..but I can only write few words.	The learner can write but only few words.	102	Poor writing skill
5	I find it hard to write in English ma'am, but sometimes the answers are found in the module. I'll just rewrite it, I just can't answer some when answers are not found in the module.	The learner finds it hard to write in English language	102	Poor writing skill

6	In English ma'am… spelling is difficult for me.	The learner is having difficulty in spelling.	102	Poor writing skill
7	I rewrite the answers that mama writes.	The learner can write by copying	102	Poor writing skill

Table 1.2 presents challenges encountered by Teduray English Language Learner on Modular Distance Learning in writing. This table emerged two (2) themes from seven (7) participants.

Theme 1 "very poor in writing" with the code 101 showed that the learners struggle on writing using English Language. Participant 1 revealed in the interview that he do not know what to write on his module. He stated it in the lines: *"I don't know what to write maam*." (Transcript 1, lines 47-48)

When participant 2 was asked the challenges he encountered on Modular Distance Learning in writing, he responded that he know how to write but poor in spelling. It was stated it from the transcription and lines: "*I know how to write..but sometimes the spelling is incorrect*." (Transcript 2, lines 57-59)

Participant 3 affirmed on the interview that he does not have knowledge on writing using English Language. It was stated it from the transcription and lines: *"I don't know English Language ma'am*." (Transcript 3, lines 49-50)

Students must master particular principles and develop abilities linked to handwriting, spelling, flow, punctuation, and structuring thoughts into readable texts, making writing competency more complicated and harder than other language skills (Richards, Richards, & Renandya & Renandya, 2002; Alsamadani, 2018; Adas & Bakir, 2013, Akhiar, Mydin & Kasuma, 2017). Students' enthusiasm is sometimes stifled by the complexity of writing, which has an impact on their comprehension and performance in language learning. In this regard, Zainab, Isarji, and Zaidi (2017) argued that students with poor writing proficiency tend to perform poorly in written examination and reporting research projects (as cited in Hassan et al., 2021).

Theme 2 "poor writing skill" with the code 102 indicated that the learners do not able to write using English language. As they revealed on the interview, there is lack of interest in answering modules since they struggle on writing using English language. They confirmed it on the transcription and lines: *"I know how to write..but I can only write few words."* (Transcription 4, lines 56-57); *"I find it hard to write in English ma'am, but*

sometimes the answers are found in the module. I'll just rewrite it, I just can't answer some when answers are not found in the module." (Transcription 5, lines 64-69); *"In English ma'am… spelling is difficult for me."* (Transcription 6, lines 61-62); and *"I rewrite the answers that mama writes.* "(Transcription 7, lines 65-66)

The primary obstacles identified by Dangle & Sumaoang (2020) were a lack of school funds in the design and delivery of modules, students' struggles with self-study, and parents' lack of understanding to academically assist their child/children. As a result, it is clear that there are issues with using modular distance learning (as cited in Acala and Castroverde, 2021).

The Coping Mechanisms of the Grade 4 Teduray English Language Learners on Modular Distance Learning in Reading as English Language Parameter

Table 2.1 reflects the significant statement, formulated meaning, code, and theme clusters of the responses about the coping mechanisms of the Teduray English Language Learners on Modular Distance Learning in reading as English Language Parameter.

Table 2.1: Coping Mechanisms of the Teduray English Language Learners on Modular Distance Learning in Reading

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	I study my lesson ma'am.	The learner do not know what to write	201	Studying the lesson
2	Only Mama answers it.	The learner is dependent on her mother on answering the module.	202	Asking assistance from the mother
3	I ask my older sister to answer it.	The learners asks help from siblings.	203	Asking assistance from the sibling
4	Only my mother answers it.	Learners rely on their parents.	202	Asking assistance from the mother

5	I study my lessons ma'am.	The learner study her lesson.	201	Studying the lesson
6	I ask my older sister to teach me.	The learner asks help from siblings	203	Asking assistance from the sibling
7	She answers it. Mama reads it	The learner becomes dependent due to deficiency of reading.	202	Asking assistance from the mother

Table 2.1 presents coping mechanisms of the Teduray English Language Learners on Modular Distance Learning in reading. The seven (7) participants reveal three (3) themes.

Theme 1 "studying the lesson" with the code 201 revealed that despite the situation facing by the learners during Modular Distance Learning, they express positive attitude towards learning by studying their lessons. It is shown in the transcriptions and lines: *"I study my lesson ma'am."* (Transcript 1, line 58); *"I study my lessons ma'am."* (Transcript 5, line 83)

According to Jumat (2014), motivation is vital in boosting students' learning results (as cited in Gbollie & Keamu, 2017).Further, theme 2 "asking assistance from the mother" with the code 202 have shown that some of the Teduray English Language Learners has lack of interest in learning during Modular Distance Learning. The learners ask their parents to answer their modules instead of exerting effort to learn from it. It was revealed from the transcription and lines: *"Only Mama answers it."* (Transcript 2, lines 72); "*Only my mother answers it."* (Transcript 4, lines 70-71); and "She answers it. Mama reads it." (Transcript 7, lines 51-52).

Many studies indicate that when parents are involved, children learn and achieve more. Parents should take appropriate care of their children's physical and educational development to the extent that they are able to be independent and satisfy the needs of the world in which they live, according to Ceka and Murati (2016) (as cited in Gevero, 2021).

Theme 3 "asking assistance from the sibling" with the code 203 showed that the learners provide answers to their modules by letting their siblings answer it instead of doing it themselves. This also shows that the learners have less interest in learning the language during Modular Distance Learning since they are having difficulty in reading and comprehension as well. These were revealed on the transcriptions and lines: *"I ask my*

older sister to answer it."(Transcript 3, lines 61-62) and *"I ask my older sister to teach me." 6* (Transcript 6, lines 76-77).

Nonetheless, all of this is reduced to the point where they are completely aware of their "critical" position as study-buddy in this new usual instruction (Gevero, 2021).

The Coping Mechanisms of the Grade 4 Teduray English Language Learners on Modular Distance Learning in Writing as English Language Parameter

Table 2.2 reflects the significant statement, formulated meaning, code, and theme clusters of the responses about the coping mechanisms of the Teduray English Language Learners on Modular Distance Learning in writing as English Language Parameter.

Table 2.2: Coping Mechanisms of the Teduray English Language Learners on Modular Distance Learning in Writing

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	I call Mama, I ask help from her. I don't know the other topics.	The learner ask help from parent.	301	Asking assistance from the mother
2	Mama writes the asnwers on a separate paper… then I just transfer it on my module.	The learner rely on their parents on answering their module	301	Asking assistance from the mother
3	My older sister writes answers to my modules.	The learner depends on sibling.	302	Asking assistance from the sibling
4	Only Mama answers it.	The learner depends on parent.	301	Asking assistance from the mother
5	I call my older sister or my papa.	The learner asks help from	302	Asking assistance from

		sibling and parent		the sibling
6	I imitate what my older sister writes.	The learner copies answers given by sibling.	302	Asking assistance from the Sibling
7	I ask Mama to teach me.	The learner asks guide to parent	301	Asking assistance from the mother

In table 2.2, the seven (7) participants reveal four (4) varied answers coded 301, 302, 303, and 304 regarding the coping mechanisms of the Teduray English Language Learners in writing on modular Distance Learning.

The first theme “asking assistance from the mother” with the code 301 indicates that due to difficulty in writing using the language, the learners’ best option is to ask help from their parents to answer their modules. Participants 1, 2, 4, and 7 revealed it on the transcriptions and lines: *“I call Mama, I ask help from her. I don’t know the other topics.”* (Transcript 1, lines 68-69); “*Mama writes the asnwers on a separate paper… then I just transfer it on my module.”* (Transcript 2, lines 82-84); “*Only Mama answers it.”* (Transcript 4, lines 81-82); and “*I ask Mama to teach me.”* (Transcript 7, lines 94)

Gevero (2021) goes on to say that when parents are aware of and involved in their children's educational process, the outcome is more likely to be positive and inspiring. Parents in this survey expressed fears, safety worries, and a sense of duty. Nonetheless, all of this is reduced to the point where they are completely aware of their "critical" position as study-buddy in this new usual instruction (as cited in Matilov, 2002).

Moreover, theme 2 “asking assistance from the sibling”with the code 302 implies that Teduray English Language Learners depend on their sibling when it comes to answering their modules. As they have mentioned on the interview, they find it hard to write using English language. To aid their problem on answering their module, they ask their sibling to provide the answers for them. These was affirmed by the partcpants 3, 5, and 6 on the transcription and lines: *“My older sister writes answers to my modules.”* (Transcript 3, lines 73-74); “*I call my older sister or my papa*.” (Transcript 5, lines 96-97); and *“I imitate what my older sister writes*.” (Transcript 6, lines 87-88)

Furthermore, reading comprehension teaching styles are vital in the learning process and can influence students' reading comprehension (Tingsona and Aquinob, 2021).

English Language Teachers' Suggested Solutions for the Teduray English Language Learner on Modular Distance Learning in Reading

The significant statement, formulated meaning, code, and theme clusters of the English Language Teachers' suggested solutions for the Teduray English Language Learner on Modular Distance Learning in reading is shown in the table 3.1

Table 3.1: English Language Teachers' Suggested Solutions for the Teduray English Language Learner on Modular Distance Learning in Reading

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	As an English teacher, to improve learners' reading skills during Modular Distance Learning, activities that focuses on improving their macro skills such as writing should be lessen while activities that will improve reading skills should be emphasized.	Giving activities that will improve the reading skills of the learners should be focused during Modular Distance Learning.	401	Giving activities that would improve reading skill than writing skill
2	As a teacher, our number one job is to teach learners and to learn from them. In order for the learners to learn well, we have to apply actual learning experience to them and let them reflect on it for their everyday life. I recommend to let the learners read more and comprehend what they are reading. I also suggest to give focus on the slow learners. Giving videos about reading for them to	Reading more and practice comprehension are suggested by the English language teacher Parents' plays important role on learners' learning during Modular Distance	402 403	Practice reading Parents' guidance on the reading activities of their children

	watch might help, but this technique is not easy in this place. Parents also need to guide their children. By giving them extra effort to practice reading in this situation, it can help the learners to excel in their reading skills.	Learning		
3	Learners do not rely on the modules given. I strongly suggest they need extra effort to improve their reading skills like watching television or videos related to the language skills. Let them observe and imitate the unfamiliar words or difficult words and always check the dictionary and ask elders to guide and teach learners.	Integration of the Modular Distance Learning to technology and giving reinforcement to the slow learners were recomended Giving extra effort to the learners is recommended Learners should check unfamiliar words on dictionary.	404 405 406	Watching television or videos Guidance from the adult learners Using dictionary

Table 3.1 presents English Language Teachers' responses on the suggested solutions for the Teduray English Language Learner on Modular Distance Learning in reading. The three (3) participants revealed six (6) themes.

Theme 1 "giving activities that would improve reading skill than writing skill" with the code 401 reflected that English Language teachers are suggesting that more activities that will focus on the improvement of the reading skill of the learners during Modular Distance Learning. Teacher -participant 1 mentioned it on the transcription below:

"As an English teacher, to improve learners' reading skills during Modular Distance Learning, activities that focuses on improving their macro skills such as writing should be lessen while activities that will improve reading skills should be emphasized." (Transcript 1, lines 20-23)

According to a study conducted by Ambayon (2020), modular instruction is more effective in the teaching-learning method than traditional teaching methods since students learn at their own pace in this modular approach (Acala and Castroverde, 2021).

Theme 2 practice reading with the code 402 implied that the English language teacher is aware on the needs of the Teduray English Language Learner during Modular Distance Learning. As he stated on the interview, teachers need to focus on the slow learners and help them read more and practice comprehension for their improvement. Teacher-participant 2 revealed it on the transcription and lines below:

"*As a teacher, our number one job is to teach learners and to learn from them. In order for the learners to learn well, we have to apply actual learning experience to them and let them reflect on it for their everyday life. I recommend to let the learners read more and comprehend what they are reading. I also suggest to give focus on the slow learners. Giving videos about reading for them to watch might help, but this technique is not easy in this place. Parents also need to guide their children. By giving them extra effort to practice reading in this situation, it can help the learners to excel in their reading skills."* (Transcript 2, lines 20-30)

It is an unfettered self-learning approach in which pupils are stimulated and their interest is piqued by quick feedback and a comment supplied to practice exercises. As a result, this type of learning modality promotes a student-centered learning strategy. However, instructors, students, and parents faced numerous obstacles as a result of the deployment of modular learning (Acala and Castroverde, 2021).

Theme 3 "parents' guidance on the reading activities of their children" with the code 403 emphasized that parents' plays important role on learners' knowledge acquisition during Modular Distance Learning. Teacher-participant stated it on the transcription below:

"*As a teacher, our number one job is to teach learners and to learn from them. In order for the learners to learn well, we have to apply actual learning experience to them and let them reflect on it for their everyday life. I recommend to let the learners read more and comprehend what they are reading. I also suggest to give focus on the slow learners. Giving videos about reading for them to watch might help, but this technique is not easy in this place. Parents also need to guide their children. By giving them extra effort to practice reading in this situation, it can help the learners to excel in their reading skills."* (Transcript 2, lines 20-30)

Theme 4 "watching television or videos" with the code 404 exposed that integration of the Modular Distance Learning to technology and giving reinforcement to the slow

learners were recommended by the English language teacher as one activity to improve the reading skill of the leaner. Teacher-participant 3 stated it on the transcription and lines below:

> "*Learners do not rely on the modules given. I strongly suggest they need extra effort to improve their reading skills like watching television or videos related to the language skills. Let them observe and imitate the unfamiliar words or difficult words and always check the dictionary and ask elders to guide and teach learners."* (Transcript 3, lines 21-26)

Theme 5 "guidance from the adult learners" with the code 405 exposed that giving extra effort to the learners by guiding them on learning during Modular Distance Learning was suggested by the English language teacher as a help to improve the reading skill of the leaners. In addition, guidance from their parents is also essential since parents are the new teachers during this Modular Distance Learning. Teacher-participant 3 stated it on the transcription and lines below:

> "*Learners do not rely on the modules given. I strongly suggest they need extra effort to improve their reading skills like watching television or videos related to the language skills. Let them observe and imitate the unfamiliar words or difficult words and always check the dictionary and ask elders to guide and teach learners."* (Transcript 3, lines 21-26)

Theme 6 "using dictionary" with the code 406 exposed that learners when they encounter unfamiliar words, they should check it on the dictionary as suggested by the English language teacher as one activity to improve the reading skill of the leaners. Teacher-participant 3 detailed it on the transcription and lines below:

> "*Learners do not rely on the modules given. I strongly suggest they need extra effort to improve their reading skills like watching television or videos related to the language skills. Let them observe and imitate the unfamiliar words or difficult words and always check the dictionary and ask elders to guide and teach learners."* (Transcript 3, lines 21-26)

Moreover, it is undeniable that during this pandemic, learners must realize the importance of the use of other learning materials like checking dictionaries as suggested by the English teacher is necessary.

Other problems for elementary school pupils learning to write include a lack of exposure to books and reading resources, according to Foster (2015). (Jumat, 2014).

English Language Teachers' Suggested Solutions for the Teduray English Language Learner on Modular Distance Learning in Writing

The significant statement, formulated meaning, code, and theme clusters of the English Language Teachers' suggested solutions for the Teduray English Language Learner on Modular Distance Learning in writing is shown in the table 3.2

Table 3.2: English Language Teachers' Suggested Solutions for the Teduray English Language Learner on Modular Distance Learning in Writing

Participants	Significant Statement	Formulated Meaning	Code	Theme Cluster
1	Activities that will focus on improving writing skill should be easier depending on the level of the learners and to the area they live.	The teacher focus on activities to improve writing skill	501	Giving of simple writing activities
2	For me, writing skills is one of the foundation of the children. To learn from skills, to apply it, but writing skills can be different in its style. The school where I am assigned is very far. Since we are now in the pandemic, we only use Modular Distance Learning. For me, I can suggest to use some videos for the learners to watch. But since it is not easy in this place, tutorial would be a better help. Have a schedule to those pupils whoa re in need and having problems on their writing skills. When the teacher is free to guide and to enlighten their lack of capacity to write, the learners could manage. Also, parents are the best teacher on guiding their children to learn better.	The teacher helps the learners through tutorial Parents should guide their children to learn better	502 503	Tutorial Parent's guidance

3	Integrate writing in a task in learning materials like rewriting articles in the news. Meaningful activities that enhances writing skills. Writing essay and diaries could encourage them to express their ideas through writing.	Supplementary witing activities will enhance the learners writing skills	504	Giving writing activities

Table 3.2 presents the English Language Teachers' responses on the suggested solutions for the Teduray English Language Learner on Modular Distance Learning in writing. The three (3) participants revealed 4 themes.

Theme 1 "giving of simple writing activities" has the code 501 where in the English language teacher suggests that more activities should be given to the learners to improve their writing skill. The teacher should focus on activities that will improve learners' writing skill depending on their capacity. It was implied by teacher-participant 1 on the transcription and lines: "*Activities that will focus on improving writing skill should be easier depending on the level of the learners and to the area they live*." (Transcript 1, lines 28-30)

Theme 2 "tutorial" have the code 502 which emphasized that the teacher could help the learners through tutorial. He responded during the interview that tutorial would be a better help to the Teduray English Language Learners especially to those who are having problems on their writing skill. It was mentioned by teacher-participant 2 on the transcription and lines below:

> *"For me, writing skills is one of the foundation of the children. To learn from skills, to apply it, but writing skills can be different in its style. The school where I am assigned is very far. Since we are now in the pandemic, we only use Modular Distance Learning. For me, I can suggest to use some videos for the learners to watch. But since it is not easy in this place, tutorial would be a better help. Have a schedule to those pupils whoa re in need and having problems on their writing skills. When the teacher is free to guide and to enlighten their lack of capacity to write, the learners could manage. Also, parents are the best teacher on guiding their children to learn better."* (Transcript 2, lines 34-46)

Theme 3 "parent's guidance" have the code 503 stressed that parents should guide their children to learn better. Consequently, guidance of the parents on learners' education has big impact to their learning. It was stated by teacher-participant 2 on the transcription and lines below:

“For me, writing skills is one of the foundation of the children. To learn from skills, to apply it, but writing skills can be different in its style. The school where I am assigned is very far. Since we are now in the pandemic, we only use Modular Distance Learning. For me, I can suggest to use some videos for the learners to watch. But since it is not easy in this place, tutorial would be a better help. Have a schedule to those pupils who are in need and having problems on their writing skills. When the teacher is free to guide and to enlighten their lack of capacity to write, the learners could manage. Also, parents are the best teacher on guiding their children to learn better.” (Transcript 2, lines 34-46)

Theme 4 “giving writing activities” have the code 504 stressed that supplementary witing activities will enhance the learners writing skills. More writing activities like writing essay and diaries as mentioned in the interview, would help the learners improve their writing skill and could encourage them to express their ideas. It was implied by teacher-participant 3 on the transcription and lines: *“Integrate writing in a task in learning materials like rewriting articles in the news. Meaningful activities that enhances writing skills. Writing essay and diaries could encourage them to express their ideas through writing.”* (Transcrpt 3, lines 30-33)

"Many writing problems may stem from too little time dedicated to writing instruction or from writing instruction improperly designed around the learning needs of many students," according to Stein, Dixon, and Isaacson (1994) (as cited by Defazio et al., 2010)

DISCUSSION

Summary of Findings

Based on the data gathered and presented, the following are the findings of the study:

1. The challenges encountered by the Teduray English Language Learners on Modular Distance Learning in reading are poor reading comprehension, very poor reading, reading problem, and very poor reading comprehension.
2. The challenges encountered by the Teduray English Language Learners on Modular Distance Learning in writing are very poor in writing and poor writing skill.
3. The coping mechanisms of the Teduray English Language Learners on Modular Distance Learning in writing are studying the lesson, asking assistance from the mother, and asking assistance from the sibling.
4. The coping mechanisms of the Teduray English Language Learners on Modular Distance Learning in writing are asking assistance from the mother, and asking assistance from the sibling.

5. The English Language Teachers' responses on the suggested solutions for the Teduray English Language Learner on Modular Distance Learning in reading are giving activities that will improve reading skill, practice reading, parents' guidance on the reading activities of the children, using dictionary, and guidance from adult learners.

6. The English Language Teachers' responses on the suggested solutions for the Teduray English Language Learner on Modular Distance Learning in writing are giving of simple writing activities, tutorial, parent's guidance, and giving writing activities.

Conclusions

Based on the summary of the results, it is concluded that Teduray English Language Learners have encountered serious challenges both in reading comprehension and writing comprehension. Furthermore, most learners have cope these challenges by depending on their parents or sibling in answering their modules.

However, their English Language teachers suggested that giving more activities to improve the reading and writing skills of the learners would be a great help. Moreover, giving extra effort on tutorial to the learners especially to the slow learners is also suggested.

Recommendations

Based on the findings and conclusion of the study, the following are recommended.

1. The Department of Education may deploy additional English teachers that will enhance the reading and writing skills of the pupils.
2. The school administration may conduct seminar or training to capacitate English teachers to plan and implement remedial reading and writing program in school.
3. The English language teachers may develop strategies to address the learners' weaknesses in reading and writing skills in Modular Distance Learning.
4. The English Language Learners may develop genuine love for reading and writing to complete their reading and writing tasks in their modules.
5. The English teachers may use interesting reading and writing materials like Big Books and Guided Writing to enhance pupils' reading and writing skills.
6. Other researchers may conduct similar study to other setting and participants to further validate the result of the study. .

Compliance with Ethical Standards

Since the study is qualitative in nature particularly phenomenology. The research studies involved District Supervisor, English Teachers, class advisers, and parents/guardians, were received the transmittal letters stating that both sides (the researcher and the participant) have agreed to engage in an in-depth interview in order to explicate the significant statement needed to the study. the participants were notified ahead of time that the researchers and the adviser will have access to all of the information acquired. Additionally, the dignity of the subjects of this study were protected in accordance with the "confidentiality clause," which states that no identifying features or information, including names, would be included in transcripts or the final report.

Furthermore, deletion of the voice recordings after transcribing was done for safety and confidentiality purposes of the participants of this study.

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MATATAG AGENDA: ANALYZING SCHOOL HEADS' AND TEACHERS' PERSPECTIVES IN LAMBAYONG DISTRICT I

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ABSTRACT

This aimed to investigate the perspectives of school heads and teachers on the MATATAG agenda in District I of Lambayong, Division of Sultan Kudarat. The researcher used qualitative research designed specifically phenomenology nature of study, and purposively sampling technique was employed in the selection of school heads and teacher as participants. The data gathered was analyzed using thematic analysis to describe the information gathered and answer the problems of the study. The result revealed that school heads perceived that the Curriculum must align with the latest industry needs, and the programs, and activities projects in the school should aligned to the different objectives of every agenda. The curriculum centers on the pupils' holistic development, and makes the stakeholders aware of the MATATAG agenda. In terms of the teachers' perspectives on the agenda is that, the implementer always consider the learners' needs, and the teachers must solve first the problem of the reading abilities of the pupils. Also, teachers were always updated and prepared for ensuring that every learner had the access to quality education. Finally concluded that school heads and teachers facing tensions such as confusion, frustration, and powerlessness considering that head and teacher had crucial role in the implementation of agenda. Further, concluded that agenda prioritized teachers' training and development because of the critical role in curriculum reform to eradicate poor literacy and numeracy issues of the learners and quality of education.

Keywords: *School Heads, Teachers, MATATAG Perspectives, Lambayong*

INTRODUCTION

MATATAG Agenda aims to resolve basic education challenges, namely MA- Make the curriculum relevant to produce job-ready, active, and responsible citizens; TA- Take steps to accelerate delivery of basic education facilities and services; TA- Take good care of learners by promoting learner well-being, inclusiveness learning, and positive learning environment and G- Give support to teachers to teach better (DepEd, 2023). In the 2023 General Appropriations Act, the education sector received the highest budget (Republic of the Philippines, 2023). However, these national budget allocations for basic education are not enough to cover all the requirements for achieving our MATATAG Agenda (DepEd, 2023).

According to Grauwe (2022), IIEP-UNESCO stated that the Education 2030 Agenda, which reflects the seven objectives, not only defines a global agenda; it also offers guidance to countries and challenges them. This agenda has a multitude of implications for the planning and management of the education sector. Education 2030 is ambitious. So was the Exploratory Factor Analysis framework. It can be argued that the major progress made at the global level and in several countries demonstrates the potential value of ambition (IIEP-UNESCO, 2022). Further, such ambition may help to bring people together, to mobilize resources, and to create enthusiasm. But there are still many countries in South Asia that are at risk of not achieving even the EFA goals by 2030 (Grauwe, 2022). It is essential therefore that the agenda is accompanied by an analysis of key lessons learned by countries that have made progress (UNESCO, 2022).

The overarching agenda highlights the importance of Early Childhood Care and Education, emphasizes the need for universal secondary education, and underscores the significance of strengthening Technical and Vocational Education and Training to develop essential skills (IIEP-UNESCO, 2022). While there is a well-supported emphasis on teachers, the rationale behind prioritizing investments in facilities and scholarships is less apparent, as these are not the primary factors contributing to the success of education systems (UNESCO, 2022).

The K-12 program is a part of international educational standards. The implementation of the K-12 Curriculum is still a challenge of basic education in the Philippines as the teaching forces in senior high school, professional growth of the teachers, school facilities, and classrooms are integral parts of the major problems in the Philippine Education Department (DepEd, 2023). At this time, MATATAG Agenda has become the concern of school heads, and teachers because they are the direct persons involved in this agenda (DepEd, 2023).DepEd- Sultan Kudarat Division covers a large number of districts along remote areas that are facing problems such as a lack of facilities, school buildings, and teachers to capacitate personnel in the field of teaching and sustain the needs of our 21st-century learners (DepEd-Sultan Kudarat Division, 2023). Some schools are striving to meet the standard requirement in education so that quality of education may also be achieved (DepEd-Sultan Kudarat Division, 2023). DepEd-Sultan Kudarat Division. (2023). Challenges in Basic Education in Remote Areas. Department of Education, Sultan Kudarat Division. This is why the researcher assessed and evaluated

the status of education in the District of Lambayong I, and its readiness to face challenges to solve it, then finally initiate intervention to meet the targets of the MATATAG Agenda in the Division of Sultan Kudarat.

Research Questions

This study aimed to investigate the MATATAG Agenda: Analyzing school heads' and teachers' perspective in District I of Lambayong, Sultan Kudarat Division.

Specifically, it sought to answer the following questions:

1. What is the perspective of school heads on MATATAG Agenda?
2. What is the perspective of teachers on MATATAG Agenda?
3. How do school heads' and teachers' ready and prepared on this MATATAG Agenda?

METHODOLOGY

Research Design

This study employed a qualitative research methodology to explore the behaviors and perceptions of school heads and teachers regarding the MATATAG Agenda. Qualitative methods were chosen for their ability to provide rich, descriptive insights into participants' lived experiences. Among the various qualitative methods, the phenomenological research design was selected, as it is particularly effective in social and behavioral sciences when the goal is to understand complex phenomena such as perceptions and thoughts.

Participants of the Study

The participants of this study consisted of school heads and teachers from District I of Lambayong. Criteria have been established to select individuals who have significant experiences within their roles and who are likely to provide insightful feedback on the MATATAG Agenda.

Sampling Technique

In this research, a purposive sampling technique was employed to select participants who possess specific attributes that align with the study's objectives. Aiming for a sample size of 5 to 10 participants enables the study to remain focused while ensuring a comprehensive collection of data. The smaller sample size fosters an intimate exploration of the school heads' and teachers' perspectives and experiences with the MATATAG Agenda, providing richness and depth to the resulting analysis.

Data Gathering Instrument

The collection and analysis of data on participants' perspectives were facilitated through a self-made structured survey carefully constructed and developed for this study. The survey was designed to elicit rich, detailed information about the participants' views on the MATATAG Agenda.

Additionally, the survey was validated using the validation tool provided by East-West Mindanao College Inc. This validation process ensured that the survey effectively measured the intended constructs and met the necessary standards for reliability and validity.

Upon approval by the evaluation panels and validation through the East-West Mindanao College Inc. validation tool, the researcher was authorized to administer the developed survey. Before data collection, ethical clearance was sought from the East-West Research Ethics Committee (EREC) to ensure that the research adhered to ethical standards, including participant consent, confidentiality, and protection of participant rights.

Data Gathering Procedure

In the process of data collection, the researcher sought permission with notification from her research adviser, the Graduate School Dean, and the Schools Division Superintendent of Sultan Kudarat Division. After obtaining the necessary approvals, the researcher meticulously coordinated with the school principal to schedule in-depth interviews with the participants at convenient times, ensuring minimal disruption to their regular academic activities. The researcher took great care to build rapport with the participants, explaining the purpose and significance of the study to encourage open and honest communication.

During the interviews, the researcher used audio recordings to capture the participants' responses accurately, ensuring that every detail was documented for subsequent analysis. The use of audio recordings allowed the researcher to focus on the conversation and engage more fully with the participants, fostering a more natural and comprehensive dialogue. These recordings were later transcribed verbatim to maintain the integrity of the participants' responses. The transcriptions were then reviewed and cross-checked for accuracy, ensuring that the data reflected the true sentiments and insights shared by the participants. This careful and systematic approach to data collection ensured the reliability and validity of the research findings.

Data Analysis

Thematic analysis was utilized to analyze the qualitative data collected from the participants, comprising interviews and focus group transcripts. This method allowed for the identification of recurring patterns of meaning within the dataset, enabling a deeper understanding of the participants' perspectives on the MATATAG Agenda.

Following data collection, the transcripts were systematically reviewed to identify common themes and patterns emerging from the participants' responses which patterened after the study of Ngag (2023). Through an iterative process of coding and categorization, key themes were identified, reflecting the participants' perceptions, concerns, and insights regarding the agenda.

The analysis was guided by Flick's (2014) framework for thematic analysis, which provided a structured approach to organizing and interpreting the data. Themes were identified based on their frequency, relevance, and significance to the research objectives, ensuring that the analysis captured the essence of the participants' experiences and perspectives.

Scope and Limitations

This study focused on the new and updated agenda of the VP of the Philippines Sarah Z. Duterte, the DepEd MATATAG Agenda specifically on the perspectives of school heads and teachers in the implementation of agenda. The researcher was not evaluated the implementation because the program is still on the process of implementation. However, the focused was on the individual perspectives of school heads' and teachers' on this agenda despite of unresolved problem in education in the country.

RESULTS and DISCUSSION

MATATAG Agenda aims to resolve basic education challenges, namely MA- Make the curriculum relevant to produce job-ready, active, and responsible citizens; TA-Take steps to accelerate delivery of basic education facilities and services; TA-Take good care of learners by promoting learner well-being, inclusiveness learning, and positive learning environment and G- Give support to teachers to teach better. This study employed a qualitative-phenomenological research design to explore the perspectives of the school heads and teachers in Lambayong I.

The following were the findings of the study:

Firstly, there's a clear emphasis on aligning the curriculum with industry needs to enhance skill application. School heads in Lambayong District I stress the importance of updating the curriculum to ensure it meets contemporary industry demands, thus facilitating the practical application of skills acquired by learners.

Secondly, school heads underscore the significance of commitment and dedication to improving the educational system. They advocate for the implementation of the MATATAG curriculum to provide learners with the flexibility and adaptability needed

for the evolving job market, demonstrating a commitment to educational excellence and continuous improvement.

Lastly, there's a recognition of the crucial role of teacher preparation for successful curriculum implementation. School heads prioritize ensuring teachers are adequately prepared for the implementation of the MATATAG Agenda, including providing instructional materials and organizing training sessions to align with the demands of the new curriculum.

According to Cobo (2013), there is a growing demand for educational systems to adapt to the changing requirements of the labor market, ensuring that learners are equipped with relevant and up-to-date skills. This alignment is crucial for preparing students to meet contemporary industry demands, thus facilitating their transition from education to employment.

As to the perspectives of teachers on the MATATAG Agenda, several major findings emerge:

1. Teachers perceive the MATATAG Agenda as emphasizing holistic student development, focusing not only on academic achievement but also on essential life skills and values.

2. Teachers recognize the transformative nature of the curriculum, which prioritizes the holistic development of learners. Additionally, teachers observe that the MATATAG curriculum encourages student-centered learning approaches, promoting greater student engagement and ownership of learning processes.

3. Teachers appreciate the curriculum's focus on active student involvement and empowerment. Furthermore, teachers value the emphasis of the MATATAG Agenda on providing diverse learning opportunities tailored to meet individual student needs and interests. They recognize the importance of fostering an inclusive and supportive learning environment that caters to the diverse needs of all learners.

A study by Smith (2021) supports the findings regarding the perspectives of teachers on the MATATAG Agenda. Smith's research emphasizes the importance of holistic student development in educational curricula. It highlights how teachers value curriculums that not only focus on academic achievement but also incorporate essential life skills and values, which align with the core principles of the MATATAG Agenda. The study further underscores the transformative potential of such curriculums, noting that student-centered learning approaches can significantly enhance student engagement and ownership of the learning process. Moreover, Smith's findings indicate that teachers appreciate curriculums that provide diverse learning opportunities, tailored to meet the individual needs and interests of students, thereby fostering an inclusive and supportive educational environment.

On the preparations of school heads and teachers for the implementation of the MATATAG Agenda, the following were observed:

1. There's collaborative preparation for curriculum alignment, with school heads and teachers actively engaged in planning sessions to ensure alignment between teaching practices and the objectives of the MATATAG Agenda.

2. There's a focus on professional development for MATATAG Agenda implementation, with teachers participating in workshops and training sessions to enhance their pedagogical skills and familiarity with the new curriculum framework. Additionally, teachers are diligently working to develop and adapt instructional materials tailored to the requirements of the MATATAG curriculum, demonstrating a commitment to providing relevant and effective teaching resources.

3. School heads and teachers are fostering strong partnerships with parents and the local community to garner support and engagement in implementing the MATATAG Agenda, recognizing the importance of collaborative efforts in promoting educational excellence and ensuring the success of curriculum implementation.

One supporting study that aligns with these observations is from Fullan (2007), who emphasizes the importance of collaborative professional learning communities (PLCs) in educational reform. Fullan argues that successful implementation of new curricula and educational reforms depends significantly on the active involvement and collaboration of school leaders and teachers. The study highlights the need for continuous professional development and community involvement to ensure effective curriculum alignment and improved teaching practices.

Fullan (2007) supports the observed preparations of school heads and teachers for the implementation of the MATATAG Agenda, emphasizing collaborative planning sessions for curriculum alignment, professional development workshops, and strong community partnerships as critical factors for successful educational reform.

Conclusions

Based on the findings of the study, the researcher concluded the following:

1. The perspectives of school heads in Lambayong District I underscore the importance of aligning the curriculum with industry needs, emphasizing commitment to improving the educational system, and prioritizing teacher preparation for successful curriculum implementation.

2. The teachers in Lambayong District I view the MATATAG Agenda as transformative, prioritizing holistic student development by integrating essential life skills with academic achievement. They commend its promotion of student-centered learning, enhancing engagement and ownership of learning. Additionally, they value its emphasis on diversity and inclusivity, tailored to meet individual student needs. Lastly, teachers recognize the need for ongoing professional development to effectively implement the

agenda, ensuring adaptation to evolving educational trends and seamless curriculum integration.

3. Lambayong District I school heads and teachers are actively preparing for MATATAG Agenda implementation in the K to 10 Curriculum. They engage in collaborative planning, attend professional development workshops, and develop tailored instructional materials. Additionally, they align teaching practices with agenda objectives and foster partnerships to promote educational excellence.

Recommendations

The following are the recommendations of the study based on the findings:

1. DepEd may provide continued training and professional development opportunities for both school heads and teachers to enhance their readiness and effectiveness in implementing the MATATAG Agenda.

2. Teachers and school heads may also initiate collaboration among stakeholders to ensure alignment with MATATAG objectives and holistic development of students.

3. The school may continuously monitor and evaluate curriculum implementation to address emerging challenges and ensure its effectiveness.

4. Future researchers may conduct further investigation to understand further the readiness and perceptions of teachers about the MATATAG Agenda.

Compliance with Ethical Standards

Ethical considerations were prioritized throughout the study to ensure the protection and respect of all participants involved. Initially, participants were fully informed about the nature and objectives of the research, and their voluntary participation was emphasized. They were provided with comprehensive details about the study's purpose, their role as participants, and the specific ways in which their responses would be utilized. This information was communicated clearly and thoroughly to guarantee that participants had a complete understanding of the research before consenting.

Informed consent was obtained from each participant, with assurances that their participation was entirely voluntary and that they could withdraw from the study at any point without any negative consequences. Participants were also assured of the confidentiality and anonymity of their responses. It was made explicit that all collected data would be used solely for academic purposes, and measures were put in place to ensure that the data would not be used against the participants or the organization in any manner.

This approach ensured transparency and respected the autonomy of the participants. By upholding these ethical standards, the study maintained the integrity and trustworthiness of the research process, fostering an environment of trust and respect between the researcher and the participants.

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MATHEMATICAL PROBLEM-SOLVING SKILLS: BASIS FOR THE DEVELOPMENT OF GAME-BASED ACTIVITY SHEETS

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ABSTRACT

This research employed a descriptive-correlational research design to investigate the relationship between mathematical problem-solving skills and mathematics achievement among Grade 7 learners at Libo-o Integrated School during the school year 2023-2024. The study involved 24 purposively sampled respondents, with data collected using a researcher-developed multiple-choice (30-item) test. Descriptive statistics such as frequency counts, percentages, and means were utilized, while the inferential statistical tools employed included the Mann-Whitney U test, Kruskal-Wallis test, and Spearman's rho. The findings revealed that the level of mathematical problem-solving skills was at an average level, while overall mathematics achievement was considered satisfactory. The study also examined the influence of gender and socioeconomic status on mathematical problem-solving skills and mathematics achievement. It was determined that socioeconomic status does not significantly impact mathematical problem-solving skills or mathematics achievement. However, in terms of gender, females tend to have higher averages in both mathematical problem-solving skills and overall mathematics achievement. Furthermore, the study uncovered a significant positive correlation between mathematical problem-solving skills and mathematics achievement, emphasizing the interdependence of these two variables. To address the research objectives, the study proposed the development of "Mathemagical: Game-Based Activity Sheets for Mathematical Problem-Solving Skills," which aims to enhance mathematical problem-solving skills by utilizing gamified learning experiences that engage learners in meaningful and enjoyable activities. In conclusion, this study offers valuable insights into the

dynamics of mathematical problem-solving skills and mathematics achievement among Grade 7 learners.

Keywords: *Mathematical Problem-Solving Skills, Game-Based Activity*

INTRODUCTION

Mathematical problem-solving is a crucial aspect of mathematics teaching and learning, influencing global curricula and attracting interest from mathematics education researchers for its long-standing importance (Liljedahl, Santos-Trigo, Malaspina, and Bruder, 2016). Numerous studies in educational evaluation have shown that pupils have difficulty completing mathematical problem-solving tasks. These difficulties are mostly brought on by difficulties in solving problems. Students adopt techniques that can be categorized as either problem-focused or emotion-focused coping methods to deal with these difficulties (Vidad and Quimbo, 2021). To foster critical thinking and problem-solving skills, students must first acquire a strong foundation in essential competencies. In order to promote meaningful learning in a math classroom, it is essential to have learning materials that align with the students' specific context readily accessible (Suguitan and Natividad, 2022).

In the research conducted by Layug, Valerio, and Capones (2021), it was reported that in 2018, the Programme for International Student Assessment (PISA) ranked the Philippines as the second lowest out of 79 participating nations worldwide. This suggests that the mathematics skills of students in the Philippines are quite weak. In the published work of Balagtas (2020), the Philippines likewise did poorly in Trends in International Mathematics and Science Study (TIMSS), which is consistent with the PISA 2018 results. Likewise, over the course of its involvement in the investigation, Filipino kids performed far worse on the TIMSS mathematics achievement test than Singapore, Taiwan, and Korea, which are some neighboring countries. Based on TIMSS (2019), the Philippines did not fare better in the 2019 Trends in International Mathematics and Science Study.

By providing relevant learning activities, the goal was to motivate students to continually improve their math knowledge and skills, ultimately dispelling the misconception that mathematics is a challenging subject. The purpose of this study was to assess and develop appropriate game-based activity sheets for the improvement of mathematical problem-solving skills in Grade 7 learners.

Research Questions

The main objective of this study is to determine the Math achievement of the respondents in mathematical problem-solving skills as a basis for the development of game-based activity sheets.

Specifically, this study seeks answers to the following questions:

1. What is the profile of the respondents when taken as a whole and when classified according to sex and socio-economic status?

2. What is the level of mathematics achievement among the respondents as a whole and when grouped as to sex and socio-economic status?

3. What is the level of mathematical problem-solving skills among the respondents as a whole and when grouped as to sex and socio-economic status?

4. Is there a significant difference in the level of mathematical problem-solving skills among the respondents when classified as to sex and socio-economic status?

5. Is there a significant difference in the level of mathematics achievement among the respondents when classified as sex and socio-economic status?

6. Is there a significant relationship between Math achievement and mathematical problem-solving skills among the respondents when classified as sex and socio-economic status?

7. What intervention can be developed based on the result of the study?

METHODOLOGY

This study employed descriptive-correlational research. Descriptive-correlational research is a type of research that is used to determine the relationship between two variables.

The respondents of the study were twenty-four (24) Grade seven learners of Libo-o Integrated School. The researchers utilized purposive sampling in choosing the said respondents for the study. This sampling method was chosen due to the limited number of respondents who fit the profile required for the study. According to Foley (2018), purposive sampling is a form of non-probability sampling in which researchers rely on their judgment when choosing members of the population to participate in their study. The tools that were utilized by the researchers in gathering the data were the researcher-made and expert-validated multiple-choice test. The researchers initially created a 30-item multiple-choice test. The instrument underwent expert consultation and validation before being implemented in face-to-face testing with a purposively selected learner. The reliability score was 0.75 Cronbach's alpha.

Upon receiving permission from the Dean of the School of Teachers Education to conduct research outside the school, the researchers sent a letter to the School Division of Passi City. After the letters were signed, the researchers sent a letter to the school principal of Agdayao Integrated School for pilot testing of the research instrument. The data was then sent to the statistician for a reliability test. After the statistician confirmed that the research instrument was reliable for the study, the researcher sent a letter to the school principal of Libo-o Integrated School for the conduct of the study. A face-to-face implementation was observed. Once the data was gathered from all the respondents, the researchers compiled and analyzed the data. Descriptive and inferential statistics were used to quantify the data and determine the association of variables included in the study. The data was analyzed using Frequency Count and Percentage, Mean, Mann-Whitney U test, Kruskal-Wallis H Test, and Spearman's rho. Frequency count and percentage were used

to describe the profile of the respondents in terms of sex and socio-economic status. Mean was used to find out the mathematical problem-solving skills of the respondents. The Mann-Whitney U Test was used to determine if there was a significant difference in the level of mathematical problem-solving skills among the respondents when classified according to sex. The Kruskal-Wallis H Test was used to determine if there is a significant difference in the level of mathematical problem-solving skills among the respondents when classified according to socio-economic status (low-income class, middle-income class, and high-income class). Spearman's rho was used to determine the relationship between Math achievement and mathematical problem-solving skills of the respondents.

RESULTS

Profile of the Respondents. Table 1 presents the profile of the respondents. Out of 24 respondents, 13 or 54.2% are males, and 11 or 45.8% are females. In terms of socio-economic status, 1 or 4.2% are classified as poor, 13 or 54.2% as low income, 7 or 29.2% as lower middle-income, and 3 or 12.5% as upper middle-income. This indicates a larger male participation in the study. According to Herbert, Joyline, and Elliot's (2020) study, there were 93 male learners and 87 female learners as respondents. These findings suggest a higher representation of male participants compared to their female counterparts. Sintema and Jita's (2022) study involved 490 students, 288 boys, and 202 girls from three schools, and it assessed mathematical problem-solving beliefs using a questionnaire. The results indicated a higher representation of male participants in mathematics surveys.

Table 1
Profile of the Respondents

Group	Categories	Frequency	Percent
Sex			
	Male	13	54.2
	Female	11	45.8
	Total	**24**	**100**
Socio-Economic Status			
	Poor	1	4.2
	Low Income	13	54.2
	Lower Middle-Income	7	29.2
	Upper Middle-Income	3	12.5
	Total	**24**	**100**

Level of Mathematics Achievement as to Sex and Socio-Economic Status. The results show that the level of mathematics achievement, taken as a whole, was satisfactory (M=81.38, SD=5.52). When grouped according to sex, males had a mean score of 78.61 (SD=3.07), while females had a mean score of 84.64 (SD=6.10). In terms of socio-economic status, lower middle-income students had a mean score of 82.71 (SD=7.59), which was interpreted as "satisfactory". This was followed by low-income students (M=77.00, SD=4.66), upper middle-income students (M=78.33, SD=4.16), and poor students (M=77.00). The findings of Peteros, Gamboa, Etcuban, Dinauanao, Sitoy, and Arcadio (2020) suggest that respondents believe in their ability to perform well in the subject, especially when they put more effort into math-related tasks. The study by Garinganao and Bearneza (2021) found that the average proficiency in algebraic skills among Grade 7 students in a Chinese high school suggests that they have a solid grasp of concepts such as signed numbers, arithmetic, fractions, exponents, and factors. The students' competence in algebraic skills significantly influences their overall academic performance in mathematics.

Table 2
Level of Mathematics Achievement

Group	Categories	Mean	N	Std. Deviation	Description
Sex					
	Male	78.62	13	3.07	*Fairly Satisfactory*
	Female	84.64	11	6.10	*Satisfactory*
	Total	**81.38**	**24**	**5.52**	***Satisfactory***
Socio-Economic Status					
	Poor	77.00	1	0	*Fairly Satisfactory*
	Low Income	81.69	13	4.66	*Satisfactory*
	Lower Middle-Income	82.71	7	7.59	*Satisfactory*
	Upper Middle-Income	78.33	3	4.16	*Fairly Satisfactory*
	Total	**81.38**	**24**	**5.52**	***Satisfactory***

Note: Outstanding (90-100), Very Satisfactory (85-89), Satisfactory (80-84), Fairly Satisfactory (75-79), and Did Not Meet Expectation (Below 75).

Level of Mathematical Problem-Solving Skills as to Sex and Socio-Economic Status. The results showed that the level of mathematical problem-solving skills, taken as a whole, was "average" (M=14.29, SD=4.88). When grouped according to sex, males

had a mean of 12.46 (SD=3.31), while females had a mean of 16.45 (SD=5.66). As for socio-economic status, lower-middle-income was "average" (M=15.4, SD=6.39), followed by low income (M=14.77, SD=4.27), upper-middle-income (M=13.00, SD=1.00), and poor (M=6.00, SD=0). Incebacak and Ersoy (2016) found that students generally performed well when solving problems similar to those they had encountered before. They were able to correctly understand and distinguish between the given information and the requirements of the problem. Quinto (2021) revealed that the participants in the study possessed a remarkable comprehension of GBL. Moreover, they held positive attitudes toward GBL and believed that its integration into education could enhance their understanding of mathematics. Problem-solving is an individualized process that requires various strategies to tackle. Prema and Sathiskumar's (2021) findings also demonstrated that demographic variables such as gender have a significant effect on the academic achievement of high school students. Female students possess significantly higher academic achievement than their male counterparts.

Table 3

Level of Mathematical Problem-Solving Skills

Group	Categories	Mean	N	Std. Deviation	Description
Sex					
	Male	12.46	13	3.31	*Below Average*
	Female	16.45	11	5.66	*Average*
	Total	**14.29**	**24**	**4.88**	***Average***
Socio-Economic Status					
	Poor	6.00	1	0.	*Poor*
	Low Income	14.77	13	4.27	*Average*
	Lower Middle-Income	15.14	7	6.39	*Average*
	Upper Middle-Income	13.00	3	1.00	*Average*
	Total	**14.29**	**24**	**4.88**	***Average***

Note: Advanced (25-30), Above Average (19-24), Average (13-18), Below Average (7-12), and Poor (0-6).

Difference in the Level of Mathematical Problem-Solving Skills as to Sex.

Differences in the level of mathematical problem-solving skills among the respondents were analyzed based on their sex. Table 4.1 shows that the Mann-Whitney U results revealed a significant difference in the level of mathematical problem-solving skills

according to sex (z=-2.125, p=.034). As a result, the null hypothesis was rejected. Guler and Cekmez's (2023) research indicates that problem-solving abilities among middle school students were similar between genders, with females scoring slightly higher on average (mean = 3.53 compared to 3.33 for boys).

Table 4.1
Difference in the Level of Mathematical Problem-Solving Skills as to Sex

Pair	Mann-Whitney U	Wilcoxon W	Z	p	Decision
Sex	35.000	126.000	-2.125	.034	Significant

**Significant @ p<0.05*

Difference in the Level of Mathematical Problem-Solving Skills as to Socio-Economic Status. The Kruskal-Wallis H test revealed that there is no significant difference in mathematical problem-solving skills among the respondents based on socio-economic status (df=3, p=.302). This indicates that the mathematical problem-solving skills of the respondents do not vary with socio-economic status. Thus, the null hypothesis was accepted. It was found that the mathematical problem-solving abilities of individuals were indirectly influenced by the educational levels of both parents, with family income playing a mediating role (Amalina and Vidakovick, 2023).

Table 4.2
Difference in the Level of Mathematical Problem-Solving Skills as to Socio-Economic Status

Pair	Kruskal-Wallis H	df	p	Decision
Socio-Economic Status	3.651	3	.302	Not Significant

**Significant @ p<0.05*

Difference in the level of Mathematics Achievement as to Sex and Socio-Economic Status. In Table 5.1, the Mann-Whitney U results revealed that there is a significant difference in the level of mathematics achievement among the respondents according to sex (z=-2.648, p=.008). Therefore, the null hypothesis was rejected. The findings from the study conducted by De Jesus (2023) suggest that students perceive MathScore as a valuable supplemental tool in their mathematics learning journey. The research revealed a significant difference in students' mathematics achievement based on their sex and total engagement time in MathScore per week. According to Egorova and Chertkova (2016), it was observed that sex differences existed across various measures of mathematical achievement. Specifically, girls demonstrated higher math grades in school compared to boys, whereas boys surpassed girls in their scores on the Unified State Exam (USE) in

mathematics. The variability among boys was greater, with a higher proportion of boys excelling at the upper end of the performance distribution. Notably, girls who held a positive perception of their math abilities outperformed boys on math tests.

Table 5.1
Difference in the level of Mathematics Achievement as to Sex

Pair	Mann-Whitney U	Wilcoxon W	Z	p	Decision
Sex	26.000	117.000	-2.648	.008	Significant

**Significant @ p<0.05*

Difference in the level of Mathematics Achievement as Socio-Economic Status. The Kruskal Wallis H test revealed that there is no significant difference in mathematics achievement among the respondents based on socio-economic status (df=3, p=.515). This indicates that the mathematics achievement of the respondents does not vary according to socio-economic status. Therefore, the null hypothesis was accepted. Cabuquin and Abocejo (2023) found that their study did not identify any significant differences between male and female students, suggesting that both genders have equal potential for academic success. The study concludes that fostering mathematical proficiency is crucial for academic achievement, and secondary education institutions should ensure that students, regardless of gender, have ample opportunities to engage with mathematics through classes and various activities. Academic achievement is significantly influenced by socioeconomic status, with students from higher socioeconomic backgrounds generally performing better than their counterparts from lower socioeconomic backgrounds, who face a variety of obstacles to their academic advancement (Aashiq, Zeb, Yan, and Tahir, 2023).

Table 5.2
Difference in the level of Mathematics Achievement as to Socio-Economic Status

Pair	Kruskal-Wallis H	df	p	Decision
Socio-Economic Status	2.288	3	.515	Not Significant

**Significant @ p<0.05*

Spearman's rho Result on the Relationship between the Level of Mathematical Problem-Solving Skills and Mathematics Achievement. Table 6 shows the relationship between the level of mathematical problem-solving skills and mathematics achievement, which is highly positively correlated with r = 0.725. The results also showed

that there is a significant relationship between mathematical problem-solving skills and mathematics achievement ($p = 0.000$, $p < 0.001$). Therefore, the null hypothesis was rejected. The study conducted by Hassan and Rahman (2017) highlights the significant role of problem-solving skills and metacognitive awareness in enhancing secondary school students' mathematics achievement. It is crucial to help students develop both metacognitive awareness and problem-solving skills, as both are related to mathematics achievement. According to Maheswari and Benjamin (2015), students with a limited understanding of mathematical concepts exhibit poor problem-solving skills. Those with moderate proficiency in mathematical concepts demonstrate average problem-solving abilities, while students with advanced mathematical skills showcase high problem-solving skills. Furthermore, there is a high positive correlation between problem-solving skills and academic achievement in mathematics among 7th-standard pupils.

Table 6

Relationship between the Level of Mathematical Problem-Solving Skills and Mathematics Achievement

	Problem- Solving Skills		
	r value	p-value	Description
Math Achievement	.725	.000	Significant

**p<0.0001, Highly Significant*

Mathemagical: Game-Based Activity Sheets for Mathematical Problem-Solving Skills. The figure below shows the output of the study, “Mathemagical: Game-Based Activity Sheets for Mathematical Problem-Solving Skills." The content of this output consists of the first quarter competencies of Grade 7. Utilizing games as a pedagogical tool in the teaching of mathematics has been recognized as an effective approach to making mathematical learning enjoyable (Beyhan and Tural, 2007; as cited by Baskahya, 2021). This strategy not only fosters a positive learning experience but also helps counteract any misconceptions students may have about mathematics. Numerous mathematician-designed games have emerged, contributing to the advancement of mathematical skills and instilling a sense of enjoyment in the subject Baskahya, 2021). According to the findings of Rondina and Roble (2019), using mathematical game-based design activities, such as "A Line to Win," proved to be an effective method for enhancing students' computational skills.

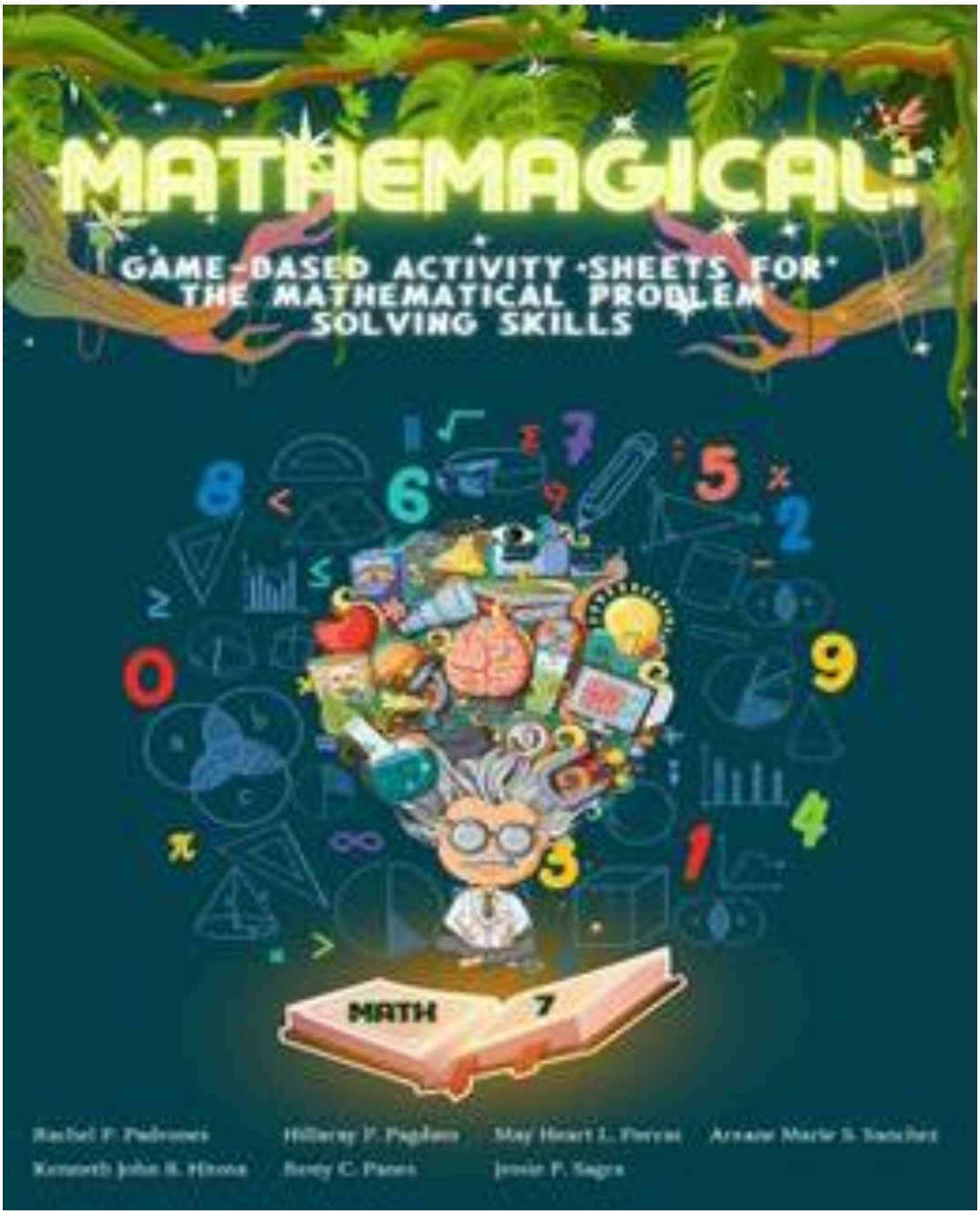


Figure 4. Shows the cover output of the study.

The fifteen competencies in the first quarter of Mathematics 7 were divided into three different games; each set of games has five competencies. The goal of these game-based activity sheets is to develop the mathematical problem-solving skills of seventh-grade learners. Additionally, to make the learning process effective and enjoyable at the same time, and to create a meaningful learning experience through the games that are presented in this output, the researchers created three different kinds of game-based

activity sheets, namely “Math-tastic Bingo, Math Race, and Math and Friends Scavenger Hunt.”

Math-tastic Bingo. The Math-tastic Bingo includes five competencies from the first quarter: illustrating well-defined sets, subsets, universal sets, null sets, the cardinality of sets, union, and intersection of sets, and different of two sets; solving problems involving sets with the use of a Venn diagram; representing the absolute value of a number line as the distance of a number from 0; performing fundamental operations on integers; and illustrating the different properties of operations on integers. The primary objective of the game is for players to achieve bingo by marking off numbers that correspond to the answers of provided questions or situations. The game offers three distinct playing options. Firstly, players can opt for a "free-tastic" table or blank space, allowing them to decide how to arrange numbers 1-24 on their bingo card. Secondly, the "speed round" introduces a time limit, challenging players to answer questions within the allotted time. The winner is determined by the player with the most marked squares. Lastly, the "math facts mix-up" involves presenting mathematical problems on separate cards, shuffling them, and calling them out randomly, introducing an element of surprise and additional challenges for the players.

Math Race. The Math Race includes five competencies: describing principal roots and determining whether they are rational or irrational; determining between what two integers the square root of a number is; estimating the square root of a whole number to the nearest hundredth; expressing rational numbers from fraction form to decimal form and vice versa; and performing operations on rational numbers. The aim of this game is for players to reach the finish line. They need to start by solving the equation that is posted on every road or way; getting the correct answer will advance them to the finish line. The first player to reach the finish line will be the winner.

Math and Friends Scavenger Hunt. The Math, Friends, and Scavenger Hunt includes five competencies: plotting irrational numbers (up to the square root) on a number line; illustrating the different subsets of real numbers; arranging real numbers in increasing or decreasing order and on a number line; writing numbers in scientific notation and vice versa; and represent real-life situations and solve problems involving real numbers. This game is fun and exciting and promotes teamwork and collaboration. The goal of this game is to explore by finding the answers in a designated area. The team should use creativity and teamwork to calculate solutions to uncover hidden answers. Each group will have a time limit and another minute to review answers and solutions. The team with the highest score will be the winner.

The game-based approach to learning involves students working in groups to engage with educational materials interactively and enjoyably, mastering fundamental competencies. Employing the game method in education aids students in comprehending the subject matter (Hastuti, Mustikaningtyas, & Widiyatmoko, 2014; as cited from Raupu,

Utari, Nursyamsi, and Marwiyah, 2022). In the Philippines, the Department of Education created Learning Activity Sheets for all grade levels for the 2020-2021 school year. These sheets include activities like coloring, word search, mazes, and math tests. They should also use manipulative, authentic materials and accommodate cultural, linguistic, and racial diversity. Games can serve as a useful starting point for daily study (Suguitan and Natividad, 2022).

DISCUSSION

The study involved purposively selected grade seven learners from Libo-o Integrated School, with both genders adequately represented. More males participated in the study than females. As for socio-economic status, more respondents were from low-income classes.

The overall level of mathematics achievement was deemed "satisfactory." When grouped according to sex, males performed at a "fairly satisfactory" level, while females achieved a "satisfactory" level. In terms of socio-economic status, those with low income and lower-middle income demonstrated a "satisfactory" performance, whereas individuals with poor and upper-middle income achieved a "fairly satisfactory" level.

The overall level of mathematical problem-solving skills was assessed as "average." When grouped according to sex, males were "below average," while females were deemed "average." In terms of socio-economic status, individuals with low income, lower-middle income, and upper-middle income were all evaluated as having "average" mathematical problem-solving skills.

There is a significant difference in the level of mathematical problem-solving skills among the respondents when grouped according to sex. There is no significant difference in the mathematical problem-solving skills among the respondents when grouped according to socio-economic status.

There is a significant difference in the level of mathematics achievement among the respondents according to sex. While there is no significant difference in mathematics achievement among the respondents according to socio-economic status.

There is a significant relationship between the level of mathematical problem-solving skills and mathematics achievement, which is highly positively correlated.

The overall proficiency in mathematical problem-solving skills was assessed as "average." In response to these findings, an intervention titled "Mathemagical: Game-Based Activity Sheets for Mathematical Problem-Solving Skills" was developed.

Conclusions

In light of the findings presented, the following conclusions were drawn:

Based on the respondents' profiles, most of the respondents are male rather than female. Additionally, a notable majority of participants originate from families with lower income levels. Sintema and Jita's (2022) study involved 490 students, 288 boys, and 202 girls, from three schools, assessing mathematical problem-solving beliefs through a questionnaire. The results show a higher representation of male participants in mathematics surveys.

It has been found in the study that the level of mathematics achievement as a whole was satisfactory. When grouped according to sex and socio-economic status, females interpreted the mean as satisfactory, which is higher than the male mean. Learners who were in the lower middle-income class showed a satisfactory level of mathematics achievement. This means that the female learners and lower-middle-income class respondents are satisfactory compared to males and other socio-economic classes. The study of Garinganao and Bearneza (2021) found that the average proficiency in algebraic skills among Grade 7 students in a Chinese high school suggests that they have a solid grasp of concepts such as signed numbers, arithmetic, fractions, exponents, and factors. The students' competence in algebraic skills significantly influences their overall academic performance in mathematics.

The research indicates that overall mathematical problem-solving skills are at an average level. When examining the data based on gender and socio-economic status, females perceived the mean as average, surpassing the male mean. Similarly, learners from the lower middle-income class, low-income class, and upper-middle-income class demonstrated an average proficiency in mathematical problem-solving. In essence, this suggests that female learners and those from the lower middle-income class, low-income class, and upper-middle-income class are on par with their male counterparts and individuals from other socio-economic classes in terms of mathematical problem-solving skills. Incebacak and Ersoy (2016) found that students generally performed well when solving problems similar to those they had encountered before. They were able to correctly understand and distinguish between the given information and the problem's requirements. Furthermore, Prema and Sathiskumar's (2021) findings exhibited that demographic variables such as gender have a significant effect on the academic achievement of high school students. The female students possess significantly higher academic achievement than their male counterparts.

The Mann-Whitney U test indicates that there is no statistically significant distinction in the proficiency of mathematical problem-solving skills based on sex among the participants. Similarly, the results of the Kruskal-Wallis H test suggest that there is no noteworthy variation in mathematical problem-solving skills among the respondents

concerning their socio-economic status. According to Guler and Cekmez's (2023) research, middle school students' problem-solving abilities were comparable between genders, with females scoring slightly higher on average. Additionally, the mathematical problem-solving abilities of individuals were found to be indirectly affected by the educational levels of both parents, with family income playing a mediating role (Amalina and Vidakovick, 2023).

Mann-Whitney U test results revealed that there is a significant difference in the level of mathematics achievement among the respondents according to sex. While Kruskal Wallis H test result revealed that there is no significant difference between the mathematics achievement among the respondents according to socio-economic status. The findings from the study conducted by De Jesus (2023) suggest that students perceive MathScore as a valuable supplemental tool in their mathematics learning journey. The research revealed a significant difference in students' mathematics achievement based on their sex and total engagement time in MathScore per week. Moreover, academic achievement is significantly influenced by socioeconomic status, with students from higher socioeconomic backgrounds generally performing better than their counterparts from lower socioeconomic backgrounds who encounter a variety of obstacles to their academic advancement (Aashiq, Zeb, Yan, and Tahir, 2023).

Spearman’s rho result on the relationship between the level of mathematical problem-solving skills and mathematics achievement at Libo-o Integrated School showed that there was a high positive correlation between mathematical problem-solving skills and mathematics achievement. The result also shows that there is a significant relationship between the level of mathematical problem-solving skills and mathematics achievement. The study conducted by Hassan and Rahman (2017) highlights the significant role of problem-solving skills and metacognitive awareness in enhancing secondary school students' mathematics achievement. It is crucial to help students develop both metacognitive awareness and problem-solving skills, as both are related to mathematics achievement.

The study aimed to address the average proficiency in mathematical problem-solving skills among seventh-grade learners by introducing an intervention titled "Mathemagical: Game-Based Activity Sheets for the Mathematical Problem-Solving Skills." The researchers created a game-based approach, incorporating three distinct activity sheets: "Math-tastic Bingo," "Math Race," and "Math and Friends Scavenger Hunt." The rationale behind the intervention was to create an effective and enjoyable learning process for students, fostering mastery in mathematical problem-solving skills. By integrating games into the educational framework, the researchers aimed to make the learning experience both engaging and meaningful. These games were specifically designed to cater to the needs of seventh-grade learners, aligning with the identified proficiency levels.

Utilizing games as a pedagogical tool in the teaching of mathematics has been recognized as an effective approach to making mathematical learning enjoyable (Beyhan and Tural, 2007; as cited by Baskahya, 2021). In the Philippines, the Department of Education created Learning Activity Sheets for all grade levels for the 2020-2021 school year. These sheets include activities like coloring, word search, mazes, and math tests. They should also use manipulative, authentic materials and accommodate cultural, linguistic, and racial diversity. Games can serve as a useful starting point for daily study (Suguitan and Natividad, 2022). Matienzo (2022), implies that providing students with supplemental worksheets that offer an appropriate level of challenge can foster motivation and active engagement in the learning process.

Recommendations

In light of the findings and conclusions of the study, the following recommendations are presented.

1. For learners, effective mathematics learning, learners should embrace diverse activities, such as game-based sheets, to enhance problem-solving skills interactively. Collaborative learning with peers through group activities and discussions fosters a deeper understanding of mathematical concepts by incorporating different perspectives. Consistent practice using game-based activities is crucial for reinforcing comprehension and boosting confidence in mathematical problem-solving.

2. For mathematics teachers, it is recommended to enhance the learning experience by incorporating game-based activities into the curriculum. This approach not only makes the subject more engaging but also fosters a deeper understanding of mathematical concepts. Recognizing the diversity in learning styles and abilities, teachers should employ differentiated instruction, combining traditional methods with game-based activities to cater to various preferences. Providing constructive feedback based on students' performance in these activities is crucial for promoting continuous learning, and helping students understand their strengths and areas for improvement.

3. For the Mathematics Department of Education Policy Makers and Learning Material Developers, it is crucial to enhance the mathematics curriculum by incorporating game-based learning strategies. This involves developing activity sheets that not only align with educational objectives but also make the learning process enjoyable for students. Additionally, emphasis should be placed on providing continuous professional development opportunities for teachers, enabling them to effectively integrate game-based learning into their teaching methods. This approach fosters a more engaging and dynamic learning environment.

4. For the community, create a nurturing learning environment at home by actively engaging in your child's education and providing access to educational games and

materials that align with classroom learning. Additionally, foster a sense of community by organizing workshops and events that center around enhancing mathematical engagement and problem-solving skills. By promoting collaboration within the community, these initiatives contribute to a supportive and enriching educational experience for all involved.

5. For parents and guardians, parents and guardians play a crucial role in fostering their child's mathematical development. Actively participating in their learning journey by discussing progress, assisting with homework, and incorporating enjoyable game-based activities can significantly enhance mathematical comprehension. Additionally, advocating for improved math education within the community and engaging with educators to understand the curriculum is essential. By supporting initiatives aimed at enhancing mathematical learning experiences, parents contribute to creating a positive and enriching environment for their children's mathematical education.

6. For future researchers, it is crucial to expand investigations into the efficacy of game-based learning in enhancing mathematics achievement and problem-solving skills. This involves exploring innovative technologies and methodologies to continually improve educational practices. Additionally, conducting longitudinal studies is recommended to comprehensively assess the enduring impact of game-based learning on students' mathematical performance and problem-solving abilities over an extended period. By delving into these areas, researchers can contribute valuable insights that can inform the ongoing development and implementation of game-based learning strategies in the realm of mathematics education.

Compliance with Ethical Standards

In conducting this study, strict adherence to ethical standards was maintained throughout the research process. Informed consent was obtained from the respondents prior to their participation, ensuring that they were fully aware of the study's purpose and procedures. Respondents were explicitly informed of their right to withdraw from the study at any time without any negative repercussions. Confidentiality was strictly upheld, with all personal identifiers removed to protect the identities of the respondents. The well-being of the respondents was safeguarded at all times, ensuring that their participation did not cause any harm or distress. There were no conflicts of interest influencing the conduct of the study, and the researchers ensured that all findings were presented objectively without bias. Plagiarism was strictly avoided, with all sources and references appropriately cited. The result of the study was solely for academic purposes, contributing to the improvement and mastery of mathematical problem-solving skills of the learners. Through these measures, the researchers ensured the highest standards of ethical integrity in the study.

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MEDICAL-SURGICAL NURSES' KNOWLEDGE, PERCEPTION, AND ATTITUDE TOWARDS TELEMEDICINE

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ABSTRACT

Telemedicine has been around for decades but has not been appreciated until recently. To disrupt the spread of the 2019 coronavirus disease (COVID-19) infection, health authorities are strategizing to shift face-to-face patient interaction to a virtual mode of care. Advances have been developed and protocols have been revised to accommodate different clients across the country. Studies were conducted and several issues were noticed. Among these, clinicians' knowledge, perceptions, and attitudes were factors affecting clinicians' willingness to use telemedicine. On the other hand, few studies only focus on nurses; therefore, the researchers would like to investigate the nurses' knowledge, perception, and attitude towards telemedicine from December 2023 to April 2024. An electronic questionnaire was developed that was adapted from the studies of Ayatollahi, et.al (2015) and. Chang, et.al (2021). The researchers include 355 participants classified as nurses, classified by the Saudi Commission for Health Specialties (SCFHS), aged 18-59 years to exclude vulnerable populations, working in the hospital with at least a year of medical-surgical clinical experience during the study regardless of work experience in a selected tertiary hospital in Riyadh, Saudi Arabia. The analysis of the data revealed that on average, medical-surgical nurses' knowledge of telemedicine is very high with an average of 4.62, have a very high perception of its advantages (mean=4.82), low extent of its disadvantages, a high view for its necessity(mean=4.82), ease of use (mean=4.81), security (mean=4.85) and strong positive attitude toward it (mean= 4.84-4.87).

Keywords: *telemedicine, telehealth nursing, knowledge, perceptions, attitude, virtual care*

INTRODUCTION

It is recorded that in 1993 the Saudi government launched a National E-health program under the supervision of the Ministry of Health (MOH, 2021) to deliver telemedicine services such as consultation and medical education through videoconferencing and networks. It provides medical care, and it accommodates patients' access to care inside and outside the country using advances in modern medical systems, and diagnostic and therapeutic applications. However, telemedicine implementation has not reached its full capacity due to several identified barriers (El Mahalli et al., 2012). Following the reports of COVID-19 infection in the country, an increase in the demand for healthcare providers (HCP) and the transmission of the said infection have affected the way of care delivery drastically (Alghamdi et al., 2020; Kaliyadan et al., 2020, Jalabneh et al., 2021; Ahmed et al., 2021). The healthcare authorities continue to discuss the preventive measures to stop the spread of COVID-19. National E-Health was one of the strategies that was implemented in the Kingdom of Saudi Arabia (KSA) to slow down the transmission of the virus including the use of telemedicine to improve the accessibility and quality of care among patients and HCP (MOH Saudi Arabia, 2021). The dramatic change in the modality of care from in-person into virtual practice has caused a shift in the paradigm of practice in healthcare and nurses were expected to adapt to an unfamiliar method of healthcare delivery (Rutledge & Gustin, 2021; Rouleau et al.,2017; Sensmeier, 2012). By contrast with telemedicine, telehealth (TH) includes a broader range of remote medical services than telemedicine. In addition to remote clinical services, TH can refer to non-clinical services such as training, education, organizational meetings, and information sharing to facilitate and support patient care management. (American Academy of Family Physicians, 2021). In this study, the terms TH and telemedicine are used interchangeably.

As a result of the COVID-19 outbreak, TH has been essential for the delivery of primary health services. MOH has encouraged people to use mobile apps rather than visit primary care clinics during this time (Kaliyadan et al., 2020). Besides from teleconsultations, TH applications have an important role in tracing, tracking, and disseminating information about COVID-19 (Alghamdi et al., 2020). As the largest professional group of HCPs, nurses have a vital role to play in ensuring the success of TH utilizations (Barret & Wallis, 2013). It is now appropriate to embrace this new paradigm and train nurses to not only support telemedicine but to take the initiative in ensuring that it is fully integrated into healthcare and becomes a crucial means of providing treatment (Kaliyadan et al., 2020). It is helpful both in reducing the administrative and technical problems in hospitals and saving a lot of HCPs time, which can be better allocated for the care of admitted patients (Kaliyadan et al., 2020). In KSA, telemedicine's goal is to improve the standards of medical care and the well-being of certain groups of patients. Many studies have proved that healthcare quality has tremendously improved by utilizing telemedicine services in consultations (Jalabneh et al., 2021; Assiri et al., 2021).

With the development and expansion of telemedicine services, this is expected to continue after the COVID-19 era (Bhaskar et al., 2020). TH seems to be a long-term care solution. Better patient outcomes, reduced workforce inequities, access to specialists or clinicians, a more effective healthcare system, and lower hospital transfer or travel expenses for families are just a few of the potential effects. Telenursing has been used to provide multimodal treatment, including remote interventions, follow-up, family education, and support, outside of acute settings, with a focus on chronic wellness and self-management. This allows for prompt nurse interventions while being under the supervision of a doctor, giving the patient convenience and a sense of security (Bashir & Bastola, 2018). The MOH is providing proactive measures for the country's vulnerable population through telemedicine, virtual, and phone and text message clinics, as well as online medication delivery. The implementation of electronic medical records in all hospitals across KSA is one of the core components of the healthcare strategy, in line with Vision 2030 (Global Health Exhibition, 2020). According to a recent report by KPMG Al Fozan & Partners (2021), KSA's health system will continue to benefit tremendously from better out-of-hospital and community-based services, as the Kingdom adopts Integrated Care Systems (ICS) and the MOH continues to implement its e-health strategy that seeks to connect all levels of care digitally. In addition to the rapid onset of digital healthcare transformation, the Kingdom is also experiencing a monumental shift in the way that the healthcare industry is working with partner industries, from both the public and private sectors, to provide innovative technologies and solutions to protect the healthcare infrastructure of the country. The hope is that all government entities and private organizations across the globe will continue to work together to design a better, more digitally connected way to cope with the pandemics of the future.

There are several digital tools used to enhance ICS delivery in KSA. There are platforms to provide care guidance that arm patients with relevant information and reminders of key points in their interaction with the healthcare system. Some employ wearable technologies that help patients track and manage existing conditions and enable preventive approaches. Most use remote telemedicine to diagnose and treat patients using video conferencing over mobile devices or a web portal, allowing them to access physicians, specialists, or care professionals from their homes. ICS also offers health networks that help people find new treatments, connect with others, and take action to improve their health outcomes. Additionally, it also provides continuous, automatic, and remote monitoring of users via sensors, to enable people to continue living in their own homes.

Quite a few studies have been carried out in KSA to assess clinicians' knowledge, perception, and attitude regarding this modality of healthcare to remotely manage acute or chronic patients. The researchers decided to take a different view and carried out a study to determine nurses' knowledge, perceptions, and attitudes towards telemedicine.

Research Questions

The study aims to determine nurses' knowledge, perception, and attitude towards telemedicine.

Guided by the overall objective, the study aims to answer the following questions:

1. To describe the medical-surgical nurses' demographic profile as to:
    a. Age;
    b. Sex;
    c. Civil Status;
    d. Nationality;
    e. Education attainment;
    f. Type of employment and;
    g. Length of KSA work experience.
2. To describe the medical-surgical nurses' knowledge of telemedicine.
3. To describe the medical-surgical nurses' perception of telemedicine as to:
    a. Advantages of telemedicine technology;
    b. Disadvantages of telemedicine technology;
    c. Necessity of telemedicine technology;
    d. Telemedicine technology ease of use, and;
    e. Security of telemedicine technology.
4. To describe the medical-surgical nurses' attitude toward telemedicine.
5. To determine the difference in knowledge, perception, and attitude in telemedicine across demographic variables.
6. To determine the relationship among knowledge, perception, and attitude of the respondents regarding telemedicine

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METHODOLOGY

1. Study Design and Locale

This study is descriptive research where the researcher described the medical-surgical nurses' socio-demographic characteristics, knowledge, perceptions, and attitudes. This study was conducted in King Fahad Medical City (KFMC), one of the tertiary hospitals in Riyadh with a 1200-bed capacity. Being one of the largest and fastest-growing medical complexes in the Middle East and the capital of KSA, Riyadh, this hospital continues to strive to become a regional and international benchmark for specialist medical services.

2. Study Participants

2.1. Sample Size and Sampling

The sample size is measured because the sample group will be representative of the total population of the study. The target number of participants for the study was calculated using Raosoft® tool. Considering that the population size is more than 2800 (Al-Yamany, 2018) with a 5% margin of error, 95% confidence level, and a 50% response distribution; the calculated minimum recommended size is 338 participants.

The research made us of purposive sampling.

2.2. Inclusion and Exclusion Criteria

The researcher included a total of 355 eligible participants classified as nurses by the SCFHS taking care of medical-surgical patients, aged 18-59 years to exclude vulnerable populations, working in the hospital with at least a year of medical-surgical clinical experience during the study regardless of work experience from December 2023 to April 2024. The researcher involved participants through purposive sampling because the researchers could not access the complete list of hospital nurses' names. Participants who are more than 60 years of age, who are currently working in another setting with medical-surgical experience before the study, who do not wish to partake in the study, and those who are currently on vacation during the study period are excluded.

3. Research Instruments

The study utilized two questionnaires that were adapted from the previous study of Ayatollahi, et.al (2015) and. Chang, et.al (2021). The researcher chose these two instruments because of their applicability to the study of interest and revealed a wide perspective to cover the objectives of the study. Ayotallahi's study aimed to compare knowledge and perceptions of telemedicine technology among different groups of clinicians. The content validity of the questionnaire was checked, and the reliability was calculated using Cronbach's α coefficient (α = 0.73). Meanwhile, Chang's study aimed to identify factors that significantly affect nurses' behavioral intention to practice telenursing, applying the decomposed theory of planned behavior model as the research framework. The study adopted the content validity index of expert validity, and the total content validity index of the questionnaire was 0.93. The Cronbach's α value was used to evaluate the self-developed tool after collecting the data. The Cronbach's α value of attitude, subjective norms, perceived behavior control, and behavioral intention was 0.948, 0.862, 0.790, and 0.889, respectively, indicating good reliability of our self-developed questionnaire content. Therefore, these questionnaires are apt for the current research.

Since the researchers combined the two questionnaires, the newly developed questionnaire underwent a pretest, and reliability validation, and conducted a pilot study before floating it to the targeted participants. The researcher hired a psychometrician, language expert, subject matter expert, and statistician to test the validity and reliability of the tool. The self-made questionnaire was tested for reliability/ internal consistency using Cronbach's α with the following results: alpha of 0.9243, 0.9127, 0.9494, 0.9254, 0.9397, 0.9662 and 0.9676 (excellent internal consistency) for the constructs of knowledge, perception of the advantages, perception of the disadvantages, perception of the necessity, perception of the ease of use, perception of the security, and attitude of telemedicine technology.

The researcher will use this as a scoring guide. The overall perception was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100%, moderate if the score was between 60 and 79%, and poor if the score was less than 60%. The overall attitude was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100%, moderate if the score was between 60 and 79%, and poor if the score was less than 60% (Feleke, 2021).

4. Specific Procedures Based on Study Objectives

4.1. Procedure 1: Communication Letters

An electronic mail was sent to the nursing director and nurse managers. Individual consent is part of the electronic questionnaire to get the permission of the participants before proceeding with the electronic survey. The researcher hired a coordinator or data collector to follow up with participants' responses.

4.2. Procedure 2: Floating of Questionnaire

The study questionnaire was designed based on previously published research articles. The researchers developed an electronic questionnaire distributed to participants with instructions for filling out and obtaining the respondents' consent.

5. Statistical Analysis of Data

Guided by the statistician, researchers analyzed the data with Statistical Package for Social Sciences (SPSS) software, and results were shown using descriptive data (frequency percentage distribution, mean score, and standard deviation). ANOVA T-test was used to test the significant difference across nurses' demographic characteristics, knowledge, perception, and attitude. Non-parametric tests such as the Wilcoxon Rank Sum Test and the Kruskal-Wallis Test were used to test differences with data that do not show the normality of data. Dunn's test was used to test multiple comparisons of variables. Spearman correlation was used to determine the relationship between variables (knowledge, perception, and attitude).

RESULTS

A total of 355 nurses participated in this study. Table 1 presents the demographic profile of the medical-surgical nurses. Among these, 251 (70.70%) were female, and 104 (29.30%) were males. The majority were 25 to 35 years old (38.03%), followed by those 18 to 24 years old (27.89%), and 36 to 44 years old (20.56%). In terms of civil status, most of the respondents were single (65.07%), while others were married (33.80%). More than half of the nurses in the study were Filipinos (53.24%), followed by those from Saudi (19.72%), Indian (11.27%), and Jordanian (4.51%). Almost all (98.59%) were graduates of a Bachelor's degree, while 5 (1.41%) were other degree graduates, and 1 (0.28%) was a graduate of a post-doctoral degree. Almost all respondents were working full-time (99.44%), and only 2 were working part-time (0.56%). In terms of their length of KSA work experience in handling patients, most of them were working for 1 to 3 years (29.30%), followed by those working for 10 or more years (26.27%).

Table 1. Demographic characteristics of participants

Demographic Profile	Frequency	Percentage
Age (in years)		
18-24	99	27.89
25-35	135	38.03
36-44	73	20.56
45-54	33	9.30
55 and above	15	4.23
Sex		
Female	251	70.70
Male	104	29.30
Civil Status		
Single	231	65.07
Married	120	33.80
Others	4	1.13
Nationality		
Saudi	70	19.72
Filipino	189	53.24
Indian	40	11.27
Jordanian	16	4.51
Others	40	11.27
Educational Attainment		
Bachelor's degree	350	98.59
Others	5	1.41
Type of employment		
Full-time	353	99.44
Part-time	2	0.56

Length of KSA work experience in handling medical-surgical patients		
Less than 1 year	53	14.93
1-3 years	104	29.30
4-6 years	60	16.90
7-9 years	43	12.11
10 or more years	95	26.76

The knowledge of the medical-surgical nurses on telemedicine is presented in Table 2. The context in their assessment of their knowledge applied to the medical-surgical clients and/or units. Most of the nurses have a very high familiarity with telemedicine technology (79.44%), the medical applications of telemedicine (79.72%), tools (73.34%), and the use of telemedicine in other countries (62.54%). There are also conferences, speeches, and meetings regarding telemedicine technology being held in the majority of the workplaces of the nurses (78.59%). Moreover, 69.86% have a very high extent of applying the telemedicine guidelines in their unit. The majority also believe that there is a very high necessity for continuous training in the use of telemedicine (85.92%).

On average, nurses have very high knowledge of telemedicine except for the familiarity with the use of telemedicine in other countries, which they only have high knowledge of. Overall, the knowledge of telemedicine is very high with an average of 4.62.

Table 2. Knowledge of telemedicine technology

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. To what extent are you familiar with telemedicine technology?	6 (1.69%)	4 (1.13%)	13 (3.66%)	50 (14.08%)	282 (79.44%)	4.68	*VH
2. To what extent are you familiar with the medical applications of telemedicine technology?	4 (1.13%)	7 (1.97%)	14 (3.94%)	47 (13.24%)	283 (79.72%)	4.68	VH
3. Are there conferences, speeches, or	7 (1.97%)	5 (1.41%)	9 (2.54%)	55 (15.49%)	279 (78.59%)	4.67	VH

meetings held in your workplace regarding telemedicine technology?							
4. To what extent are you familiar with telemedicine tools?	6 (1.69%)	5 (1.41%)	16 (4.51%)	57 (16.06%)	271 (73.34%)	4.64	VH
5. To what extent are you applying telemedicine guidelines in your unit?	7 (1.97%)	5 (1.41%)	16 (4.51%)	79 (22.25%)	248 (69.86%)	4.57	VH
6. To what extent are you familiar with the use of telemedicine in other countries?	5 (1.41%)	11 (3.10%)	75 (21.13%)	42 (11.83%)	222 (62.54%)	4.31	*H
7. To what extent is continuous training in the use of telemedicine necessary for nurses?	6 (1.69%)	2 (0.56%)	14 (3.94%)	28 (7.89%)	305 (85.92%)	4.76	VH
Overall knowledge mean						4.62	VH

*VI = verbal interpretation; *VH= very high; *H= high

The nurses' perception of the advantages of telemedicine technology is shown in Table 3.1. The majority are very familiar with the benefits of telemedicine (88.45%). Moreover, around 90% of the respondents believe that telemedicine is very effective in reducing transportation costs (91.27%), the cost of patient care in hospitals (91.55%), and in improving patient care (89.01%). Most of the nurses also believe that telemedicine influences satisfaction of patients in the care being provided (88.45%), that it saves nurses' time (90.42%), and provides faster and better medical care (90.42%).

The nurses have very high perception on the advantages of telemedicine technology with mean ranging from 4.79 to 4.85. Overall, the respondents have very high extent of agreement on the advantages of telemedicine technology (mean=4.82).

Table 3.1. Nurses' perception of the advantages of telemedicine technology

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. To what extent are you familiar with the benefits of telemedicine?	6 (1.69%)	1 (0.28%)	12 (3.38%)	22 (6.20%)	314 (88.45%)	4.79	*VH
2. In your opinion, to what extent is telemedicine effective in reducing the unnecessary transportation costs?	5 (1.41%)	2 (0.56%)	9 (2.54%)	15 (4.23%)	324 (91.27%)	4.83	VH
3. In your opinion, to what extent is telemedicine effective in reducing the costs of patient care in hospitals?	5 (1.41%)	3 (0.85%)	9 (2.54%)	13 (3.66%)	325 (91.55%)	4.83	VH
4. In your opinion, to what extent does telemedicine influence users' satisfaction in terms of care provided?	4 (1.13%)	2 (0.56%)	14 (3.94%)	21 (5.92%)	314 (88.45%)	4.80	VH
5. In your opinion, to what extent does telemedicine technology save nurses' time?	4 (1.13%)	1 (0.28%)	12 (3.38%)	12 (3.38%)	326 (91.83%)	4.85	VH
6. In your opinion, to what extent does telemedicine technology provide faster and better medical care?	3 (0.85%)	2 (0.56%)	15 (4.23%)	14 (3.94%)	321 (90.42%)	4.83	VH
7. In your opinion, how effective is telemedicine technology in	3 (0.85%)	4 (1.13%)	13 (3.66%)	19 (5.35%)	316 (89.01%)	4.81	VH

improving patient care?		
Overall mean for the perception of the advantages of telemedicine technology	4.82	VH

*VI = verbal interpretation; *VH= very high

Table 3.2 presents the perception of the medical-surgical nurses on the disadvantages of telemedicine. In their opinion, there is a very low extent to which telemedicine disrupts a nurse-patient relationship (71.55%), to which it reduces the effectiveness of patient care (67.89%), it causes ethical issues in terms of privacy, confidentiality, and security (63.94%), and endanger their privacy (63.94%). They also believe that it has a very low extent in reducing the efficiency of patient care (64.51%), results in unauthorized access to patient medical information (64.51%), increase expenses of a hospital (76.90%), and increase malpractice in healthcare (65.91%).

On average, they believe that there is a very low extent to telemedicine disrupting nurse-patient relationships, reducing the efficiency of patient care, and increasing the expenses of a hospital. Overall, the nurses believe to a low extent the disadvantages of telemedicine technology.

Table 3.2. Nurses' perception of the disadvantages of telemedicine technology

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. In your opinion, to what extent may telemedicine technology disrupt a nurse–patient relationship?	254 (71.55%)	58 (16.34%)	26 (7.32%)	8 (2.25%)	9 (2.54%)	1.48	*VL
2. In your opinion, to what extent has telemedicine technology reduced the effectiveness of patient care?	241 (67.89%)	71 (20.00%)	27 (7.61%)	6 (1.89%)	10 (2.82%)	1.52	*L
3. In your opinion, can telemedicine technology cause	227 (63.94%)	79 (22.25%)	32 (9.01%)	6 (1.69%)	11 (3.10%)	1.58	L

ethical issue to the patient in terms of privacy, confidentiality and security issues?							
4. In your opinion, to what extent does telemedicine technology endanger patient privacy?	227 (63.94%)	83 (23.38%)	31 (8.73%)	4 (1.13%)	10 (2.82%)	1.55	L
5. In your opinion, to what extent does telemedicine technology reduce the efficiency of patient care?	255 (71.83%)	56 (15.775)	28 (7.89%)	5 (1.41%)	11 (3.10%)	1.48	VL
6. In your opinion, to what extent may telemedicine technology result in unauthorized access to patient medical information?	229 (64.51%)	81 (22.82%)	32 (9.01%)	3 (0.85%)	10 (2.82%)	1.55	L
7. In your opinion, to what extent may telemedicine technology increase the expenses of a hospital?	273 (76.90%)	48 (13.52%)	20 (5.63%)	5 (1.41%)	9 (2.54%)	1.39	VL
8. In your opinion, to what extent may telemedicine technology increase malpractice in healthcare?	234 (65.91%)	77 (21.69%)	30 (8.45%)	4 (1.13%)	10 (2.82%)	1.53	L
Overall mean for the perception of the disadvantages of						1.51	L

telemedicine technology							

*VI = verbal interpretation; *VL= very low; *L= low

The medical-surgical nurses also rated their perception on the necessity of telemedicine technology, and results are shown in Table 3.3. More than 90% of the nurses said that the extent that it provides healthcare on a timely manner (90.70%), that new techniques should be used with the current technology (90.42%), that it is essential in providing healthcare to remote areas (91.55%), and that it provides access to patient's information (91.83%) is very high. Moreover, 90.99% of the nurses said that there is a very high extent of implementation of telemedicine in their hospitals. In terms of its necessity for patient care, 89.58% believes it to be very high.

Overall and on the average, the nurses view the necessity of telemedicine technology as high with means ranging from 4.79 to 4.89 and an overall mean of 4.82.

Table 3.3. Nurses' perception of the necessity of telemedicine technology

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. In your opinion, to what extent is telemedicine technology necessary for patient care?	5 (1.41%)	2 (0.56%)	18 (5.07%)	12 (3.38%)	318 (89.58%)	4.79	*VH
2. In your opinion, to what extent can telemedicine provide healthcare to patients in a timely manner?	4 (1.13%)	2 (0.56%)	17 (4.79%)	10 (2.82%)	322 (90.70%)	4.81	VH
3. In your opinion, to what extent should new techniques be used along with the current technology?	4 (1.13%)	4 (1.13%)	13 (3.66%)	13 (3.66%)	321 (90.42%)	4.81	VH
4. In your opinion, to what extent is telemedicine essential to provide	4 (1.13%)	2 (0.56%)	15 (4.23%)	9 (2.54%)	325 (91.55%)	4.83	VH

healthcare to underprivileged and remote areas?							
5. In your opinion, to what extent can telemedicine technology provide nurses with instant access to patient information?	4 (1.13%)	2 (0.56%)	16 (4.51%)	7 (1.97%)	326 (91.83%)	4.83	VH
6. In your opinion, to what extent are national standards essential for telemedicine technology implementation?	4 (1.13%)	3 (0.85%)	15 (4.23%)	10 (2.82%)	323 (90.99%)	4.82	VH
Overall mean for the perception of the necessity of telemedicine technology						4.82	VH

*VI = verbal interpretation; *VH= very high

Table 3.4 shows the perception of nurses on the ease of use of telemedicine. The majority said that the extent of practicality for nursing staff is very high (90.70%). Similarly, there is also a very high extent of understanding software programs for telemedicine (91.27%), increasing efficiency (90.42%), reducing errors (90.42%), facilitating learning (90.14%), and increasing nursing skills (90.70%).

On average and overall, there is a very high extent perception of the ease of use of telemedicine technology among the medical-surgical nurses in the study. The overall mean is equal to 4.81.

Table 3.4. Nurses' perception of telemedicine technology ease of use

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. In your opinion, to what extent does the ease of use of telemedicine	4 (1.13%)	4 (1.13%)	14 (3.94%)	11 (3.10%)	322 (90.70%)	4.81	*VH

technology make it practical for the nursing staff?							
2. To what extent do easy-to-understand software programs make it easy for nurses to apply telemedicine technology?	3 (0.85%)	2 (0.56%)	16 (4.51%)	10 (2.82%)	324 (91.27%)	4.83	VH
3. To what extent does easy-to-use telemedicine technology increase the efficiency of nurse users?	3 (0.85%)	2 (0.56%)	17 (4.79%)	12 (3.38%)	321 (90.42%)	4.82	VH
4. To what extent does ease of use of telemedicine technology reduce nurses' errors?	3 (0.85%)	3 (0.85%)	18 (5.07%)	10 (2.82%)	321 (90.42%)	4.81	VH
5. To what extent does ease of use of telemedicine technology facilitate its learning?	3 (0.85%)	3 (0.85%)	18 (5.07%)	11 (3.10%)	320 (90.14%)	4.81	VH
6. To what extent does ease of use of telemedicine increase nurses' skills?	4 (1.13%)	5 (1.41%)	18 (1.69%)	6 (1.69%)	322 (90.70%)	4.79	VH
Overall mean for the perception of the ease of use of telemedicine technology						4.81	VH

*VI = verbal interpretation; *VH= very high

The security of telemedicine technology was also rated based on the nurses' perception with the results presented in Table 3.5. Like other constructs of perception on telemedicine, the majority, or more than 90% believe that there is a very high extent in

the following areas: the necessity of authorized access (92.11%), the necessity of policies and guidelines (91.83%), creation of framework for preventing data breach (92.39%), and for accessing medical information (92.11%). Moreover, they believe to a very high extent that telemedicine requires legal clarification for patients (92.39%), and that it needs to be supported by the nursing community (92.11%).

Overall, the perception of nurses on the security of telemedicine is to a very high extent with a mean equal to 4.85.

Table 3.5. Nurses' perception of the security of telemedicine technology

Statement	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean	*VI
1. In your opinion, to what extent is authorized access necessary for the implementation of telemedicine?	2 (0.56%)	3 (0.85%)	16 (4.51%)	7 (1.97%)	327 (92.11%)	4.84	*VH
2. To what extent are security policies and guidelines necessary for the use of telemedicine technology?	2 (0.56%)	2 (0.56%)	14 (3.94%)	11 (3.10%)	326 (91.83%)	4.85	VH
3. To what extent does telemedicine need to be supported by the nursing community?	2 (0.56%)	3 (0.85%)	15 (4.23%)	8 (2.25%)	327 (92.11%)	4.85	VH
4. To what extent should a framework be created to prevent breaching data confidentiality when using telemedicine?	3 (0.85%)	3 (0.85%)	13 (3.66%)	7 (1.97%)	329 (92.68%)	4.85	VH
5. To what extent does telemedicine technology require legal clarification for patients?	2 (0.56%)	3 (0.85%)	13 (3.66%)	9 (2.54%)	328 (92.39%)	4.85	VH

6. To what extent does telemedicine technology require a formulated and clear framework for access to medical information?	3 (0.85%)	3 (0.85%)	13 (3.66%)	9 (2.54%)	327 (92.11%)	4.84	VH
Overall mean for the perception of the security of telemedicine technology						4.85	VH

*VI = verbal interpretation; *VH= very high

Table 3.6 shows the summary of the nurses' perception.

Table 3.6. Summary table for nurses' perception

	Mean	VI
1. Overall mean for the perception of the advantages of telemedicine technology	4.82	VH
2. Overall mean for the perception of the disadvantages of telemedicine technology	1.51	L
3. Overall mean for the perception of the necessity of telemedicine technology	4.82	VH
4. Overall mean for the perception of the ease of use of telemedicine technology	4.81	VH
5. Overall mean for the perception of the security of telemedicine technology	4.95	VH

*VI = verbal interpretation; *VH= very high; *L= low

Table 4 shows the attitude of nurses towards telehealth nursing. More than 90% of the respondents strongly agree that the communication systems of telehealth can provide information interpretation function (91.83%) and can increase efficiency (91.83%). They also strongly agree that the following features are very important in telenursing: provide accurate information (92.11%), send instant messages (92.11%), fire instant alerts as soon as possible for abnormal physiological measurements (92.11%).

The majority also strongly agree that nurses should be familiar with using the telehealth communication system (92.39%) and that the system should be easy to use and easy to learn (91.83%).

In terms of telehealth being of service to patients, most of the nurses strongly agree that it would assist people with disabilities, older adults, and patients with chronic diseases (91.83%), that it helps patients carry out self-care (91.83%), self-manage and control health issues (92.11%), and develop good personal health management habits (91.27%). They also believe that it helps the patients reduce the frequency of hospital visits (92.11%) and save time in hospital consultations (92.11%). Most of the nurses also believe that it can help caregivers improve their care skills (91.27%) and can help reduce expenditure on national health insurance (91.55%).

The nurses strongly agree on the important roles they play in telenursing (90.99%); that professional competence is important (92.39%), must have excellent communication skills (92.96%), and that they should have the ability to provide care and consultations for chronic diseases (92.68%).

The average rating for each statement on the attitude of medical-surgical nurses on telehealth nursing ranges from 4.84 to 4.87, which corresponds to strongly agree.

Table 4. Attitude towards telehealth nursing

Statements	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Mean	*VI
1. I think that telehealth communication system can provide medical personnel with information interpretation function.	2 (0.56%)	3 (0.85%)	14 (3.94%)	10 (2.82%)	326 (91.83%)	4.85	*SA
2. I think the ability of telehealth communication system to provide accurate information is very important in telenursing	2 (0.56%)	3 (0.85%)	13 (3.66%)	10 (2.82%)	327 (92.11%)	4.85	SA

3. I think the ability of telehealth communication system to instant messages is very important in telenursing.	2 (0.56%)	2 (0.56%)	14 (3.94%)	10 (2.82%)	327 (92.11%)	4.85	SA
4. I think the ability of telehealth communication system to fire instant alert as soon as it receives abnormal physiological measurements, including blood pressure, heart rate, blood glucose and blood oxygen values is very important in telenursing.	2 (0.56%)	2 (0.56%)	17 (4.79%)	7 (1.97%)	327 (92.11%)	4.85	SA
5. I think that telehealth communication system can increase work efficiency.	2 (0.56%)	2 (0.56%)	17 (4.79%)	8 (2.25%)	326 (91.83%)	4.84	SA
6. I think that nurses involving in telenursing must be familiar with the use of telehealth communication system	2 (0.56%)	3 (0.85%)	11 (3.10%)	11 (3.10%)	328 (92.39%)	4.86	SA
7. I think that an easy-to-learn and	1 (0.28%)	2 (0.56%)	14 (3.94%)	12 (3.38%)	326 (91.83%)	4.86	SA

easy-to-use telehealth communication system is very important for telenursing.							
8. I think that telenursing would assist people with disabilities, older adults, and patient with chronic diseases.	2 (0.56%)	1 (0.28%)	15 (4.23%)	11 (3.10%)	326 (91.83%)	4.85	SA
9. I think that telenursing can help the person being served to carry out self-care in their home or the living environment they are familiar with.	2 (0.56%)	1 (0.28%)	19 (5.35%)	7 (1.97%)	326 (91.83%)	4.84	SA
10. I think that telenursing can help the person being served with the ability to self-manage and consequently in controlling health issues (e.g. blood pressure, blood glucose, etc).	2 (0.56%)	4 (1.13%)	14 (3.94%)	8 (2.25%)	327 (92.11%)	4.84	SA
11. I think that telenursing can help the person being served to develop good personal health	2 (0.56%)	1 (0.28%)	17 (4.79%)	11 (3.10%)	324 (91.27%)	4.84	SA

management habits.							
12. I think that telenursing can help caregivers to improve care skills	2 (0.56%)	2 (0.56%)	16 (4.51%)	11 (3.10%)	324 (91.27%)	4.84	SA
13. I think that telenursing can help the person being served to reduce the frequency of hospital visits.	2 (0.56%)	3 (0.85%)	13 (3.66%)	10 (2.82%)	327 (92.11%)	4.85	SA
14. I think that telenursing can help the person being served to save time in hospital-consultation	2 (0.56%)	3 (0.85%)	10 (2.82%)	13 (3.66%)	327 (92.11%)	4.86	SA
15. I think telenursing can help reduce national health insurance expenditure.	2 (0.56%)	2 (0.56%)	15 (4.23%)	11 (3.10%)	325 (91.55%)	4.85	SA
16. I think that nurses play very important roles in telenursing.	3 (0.85%)	2 (0.56%)	13 (3.66%)	14 (3.94%)	323 (90.99%)	4.84	SA
17. I think that professional competence is very important for telehealth nurses.	1 (0.28%)	3 (0.85%)	11 (3.10%)	12 (3.38%)	328 (92.39%)	4.87	SA

18. I think that nurses participating in telehealth must have excellent communication skill.	2 (0.56%)	2 (0.56%)	11 (3.10%)	10 (2.82%)	330 (92.96%)	4.87	SA
19. I think that nurses participating in telehealth must have ability to provide care and consultation for chronic diseases	2 (0.56%)	1 (0.28%)	14 (3.94%)	9 (2.54%)	329 (92.68%)	4.86	SA
Overall mean for attitude on telehealth nursing						4.85	SA

*VI = verbal interpretation; *SA= strongly agree

Table 4.1 shows the summary of the knowledge, perception, and attitude on telemedicine of medical-surgical nurses based on Bloom's cut-off point. Bloom's cut-off point categorized knowledge as high if the score was between 28 to 35 (80% to 100%), moderate if the score was between 21 to 27 (60% to 79%), and low if the score was below 21 (<60%). In terms of perception, it was considered high if the score was between 132 to 165, moderate if between 99 to 131, and low if the score was less than 99. Lastly, attitude was categorized as high for scores 76 to 95, moderate for scores 57 to 75, and low for scores less than 57.

There were 314 (88.45%) nurses with high knowledge, 28 (7.89%) with moderate knowledge, and 13 (3.66%) with low knowledge. For the perception, 328 or 92.39% have good perception, 16 or 4.51% have moderate, and 11 or 3.10% have low or poor perception. Lastly, 332 (93.52%) have a high or positive attitude, 16 or 4.51% have moderate or neutral attitude, and 7 or 1.97% have a negative or low attitude.

Table 4.1. Knowledge, perception, and attitude on telemedicine

Construct	Category	Scores	n	%
Knowledge	High	28-35 (80%-100%)	314	88.45
	Moderate	21-27 (60%-79%)	28	7.89
	Low	<21 (<60%)	13	3.66

	Good	132-165 (80%-100%)	328	92.39
Perception	Moderate	99-131 (60%-79%)	16	4.51
	Poor	<99 (<60%)	11	3.10
	Positive	76-95 (80%-100%)	332	93.52
Attitude	Neutral	57-75 (60%-79%)	16	4.51
	Negative	<57 (<60%)	7	1.97

To determine if the demographic characteristics affect the knowledge, perception, and attitude on telemedicine, a test of difference across demographic profiles was utilized. Knowledge, perception, and attitude scores were computed by summing the ratings of the nurses on the statements under these constructs. Higher scores mean higher knowledge, positive perception, and positive attitudes toward telemedicine and telehealth. For the perception, negatively stated statements such as those under disadvantages were reverse coded to reflect positive perception. The scores were then subjected to a normality test and results showed that the data were not normally distributed. Hence, non-parametric tests such as the Wilcoxon Rank Sum Test and the Kruskal-Wallis Test were used to test differences. Table 5.1 presents the results of the tests.

There is a difference in the knowledge of telemedicine across nationality (p=0.0479), and length of work experience in KSA handling medical-surgical patients (p=0.0022).

For the overall perception of telemedicine, a significant difference was found across sex (p=0.0494), and employment status (p=0.0279). Males have a higher (more positive) perception of telemedicine compared with females, and those who work full-time also have higher (more positive) perception on telemedicine compared to those who work part-time.

Furthermore, there is a significant difference in the attitude toward telehealth nursing across sex (p=0.0353), and civil status (p=0.0005). Males have a higher (more positive) attitude on telehealth nursing compared with females.

Table 5.1. Test of difference on the knowledge, perception, and attitude in telemedicine across demographic characteristics of nurses

Demographic Variable	Knowledge	Perception	Attitude
Age	0.1104	0.4959	0.2767
Sex	0.3317	0.0494*	0.0353*

Civil Status	0.1228*	0.0792	0.0005*
Nationality	0.0479*	0.9387	0.7791
Educational attainment	0.0846	0.2355	0.3755
Employment status	0.9686	0.0279*	0.5768
Length of KSA work experience in handling medical-surgical patients	0.0022*	0.1132	0.2171

*significant at 0.05 level

Table 5.2 shows the multiple comparisons of knowledge across different civil statuses. From the Dunn's Test, significant differences were found between those single and widow/widower (p=0.0031), married and widow/widower (p=0.0026), and separated and widow/widower (p=0.0206). In all multiple comparisons, the widow/widower has lower knowledge compared with the other three categories.

Table 5.2. Multiple comparison test on knowledge across civil status

	Single	Married	Widow/Widower
Married	Diff= -0.35 p=0.3622		
Widow/Widower	Diff= 2.74 p=0.0031*	Diff= 2.79 p=0.0026*	
Separated	Diff= -0.77 p=0.2218	Diff= -0.73 p=0.2342	Diff= -2.04 p=0.0206*

*significant at 0.05 level

The multiple comparison of knowledge across nationalities is presented in Table 5.3. There is a significant difference between Jordanians and those from Saudi (p=0.0119), Filipinos (p=0.0045), Indians (p=0.0032), and other nationalities (p=0.0017). In all comparisons, Jordanians have higher knowledge.

Table 5.3. Multiple comparison test on knowledge across nationality

	Saudi	Filipino	Indian	Jordanian
Filipino	Diff= 0.38 p=0.3525			
Indian	Diff= 0.90 p=0.1832	Diff= 0.72 p=0.2344		

Jordanian	Diff= -2.26 p=0.0119*	Diff= -2.61 p=0.0045*	Diff= -2.72 p=0.0032*	
Others	Diff= 1.21 p=0.1137	Diff= 1.07 p=0.1422	Diff= 0.27 p=0.3939	Diff= 2.93 p=0.0017*

*significant at 0.05 level

The multiple comparison test for the difference in knowledge across the length of experience in KSA is shown in Table 5.4. There is a significant difference in knowledge among those less than one year when compared to those with experience for 4 to 6 years (p=0.0166), 7 to 9 years (p=0.0009), and above 10 years (p=0.0002). Those with longer experience have higher knowledge scores compared to those with less than 1 year. It can also be observed that the difference increases as the years of experience increase. There is also a significant difference between those with 1 to 3 years of experience compared with those with 7 to 9 years of experience (p=0.0196) and above 10 years of experience (p=0.0087). Those with higher years of experience also have higher knowledge compared with those 1-3 years.

Table 5.4. Multiple comparison test on knowledge across length of KSA work experience in handling medical-surgical patients

	Less than 1 year	1-3 years	4-6 years	7-9 years
1-3 years	Diff= -1.59 p=0.0563			
4-6 years	Diff= -2.13 p=0.0166*	Diff= -0.82 p=0.2050		
7-9 years	Diff= -3.13 p=0.0009*	Diff= -2.06 p=0.0196*	Diff= -1.20 p=0.1145	
Above 10 years	Diff= -3.53 p=0.0002*	Diff= -2.38 p=0.0087*	Diff= 0-1.24 p=0.1081	Diff= 0.20 p=0.4216

*significant at 0.05 level

Table 5.5 shows the multiple comparison test on attitude toward telehealth nursing across civil status. Only one pair showed a significant difference— single vs married (p=0.0001). Those with single status have a higher (more positive) attitude compared to married nurses.

Table 5.5. Multiple comparison test on attitude across civil status

	Single	Married	Widow/Widower
Married	Diff= 3.85 p=0.0001*		
Widow/Widower	Diff= 1.25 p=0.1059	Diff= 0.50 p=0.3081	
Separated	Diff= -0.24 p=0.4047	Diff= -0.67 p=0.2509	Diff= -0.84 p=0.2011

*significant at 0.05 level

The relationship of knowledge, perception, and attitude on telemedicine is presented in Table 6. Spearman correlation was used to determine the relationship between the variables. There is a significant relationship between knowledge and perception (p=<0.0001), knowledge and attitude (p=<0.0001), and perception and attitude (p=<0.0001). Furthermore, a strong relationship on all pairs of variables was observed (spearman correlation equal to 0.5805, 0.4047, and 0.4542, respectively).

Table 6. Relationship of knowledge, perception, and attitude on telemedicine

	Knowledge	Perception
Perception	0.5802 p=<0.0001	
Attitude	0.4047 p=<0.0001	0.4542 p=<0.0001

Figure 1 shows the scatter plot of the knowledge, perception, and attitude on telemedicine. As shown in the graph, as the knowledge increases, the perception also increases or is more positive; as the knowledge increases, attitude also increases or is more positive, and lastly as the perception increases, attitude also increases or is more positive.

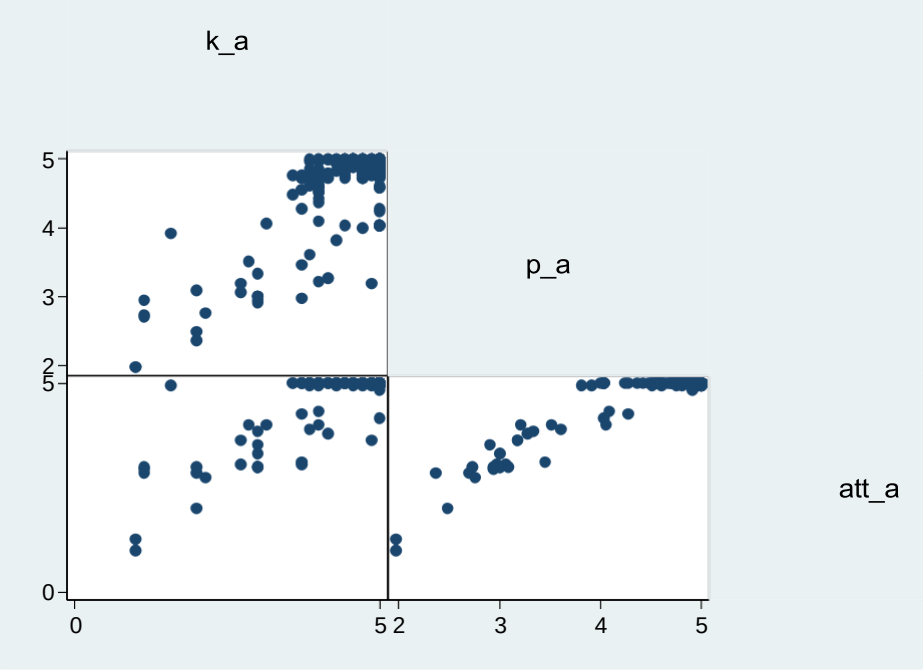


Figure 1. Scatter plot matrix of knowledge, perception, and attitude towards telemedicine.

DISCUSSION

Literature offers a generous number of studies that implies on the importance of telemedicine in the improvement of patient care in the medical industry and HCP play a vital role for its usage and sustainability. Still, there has not been any particular research regarding nurses' knowledge, perception, and attitude toward telemedicine and that is the focus this research and to fill in the gap in that area. Notably, our study showed that participants expressed an overall high knowledge, positive perception, and attitude. Although this study was randomized and anonymous, the study limits generalizability of some of its findings because of small-scale of sample. Also, since this study is self-reported, the results could be liable to underestimation or overestimation by the participants.

This study was able to describe the nursing population of KFMC. Zippia in 2023 gave an in-depth look into sociodemographic profile of employees of KFMC in total, self-reported details from employees. Their data is supportive to this study where they accounted 68% of KFMC employees are female, 50% are between the ages of 20-30 years, and 44% work and stay at the company for 1-2 years. In a discussion paper in 2019 talking about the nursing workforce in KSA revealed that the number of nurses produced in Saudi Arabia is extremely low therefore, the heavy reliance upon expatriates or foreign nurses for the health workforce from India and Philippines which also supports why majority of the nurses' respondents in this study are Filipinos.

One of the findings in our study showed widow/widower respondents have lower knowledge compared to married and single nurses. However, the researchers could not generalize this finding because those who belong to this group only account for 0.85% of the total sample size (3 out of 355 respondents). There is no other research to back this up, but a study done in China in 2020 (Yu-tong, 2021) explained that married nurses are less receptive to telemedicine because married women must work while taking care of their families to lessen the financial strain on their families and TH scope takes more time and adds further labor. However, Davis et al. (2017) proved that the TH approach also boosts nurses' take-home pay and elevates their level of expertise. Consistent with the findings of Tian et al. (2023), this also indirectly enhances married nurses' willingness to engage in telehealth services and their access to pertinent knowledge, boosting their initiative to successfully deploy telehealth.

Although this study revealed that Jordanian nurses have higher knowledge, the study limits the generalizability of the findings because those who belong to this group only account for 4.51% of the total sample size (16 out of 355 respondents). There has been no reported study that would have supported why Jordanians have higher knowledge when it comes to telemedicine but a study in 2022 by Murshidi et al. disclosed that most of the Jordanian participants portrayed favorable views toward telemedicine. Higher educational degrees, living in urban districts, and having a higher perception of electronic usage ability were linked to Jordanian's higher knowledge and better attitudes toward telemedicine.

Contrary to a finding in this study in which nurses with higher years of experience also have increased knowledge, there is a cross-sectional study that was carried out in the same research local which is King Fahad Medical City, KSA from June 2019 until February 2020, during which 370 healthcare professionals, including physicians, nurses, and other healthcare professionals participated that reported no statistically significant association observed between knowledge score of telemedicine and length of work experience (Bashir, et.al, 2023). Similar results were generated by a survey in Peru in 2021 to a group of physicians and medical students where there was no association of knowledge to experience and previous training in telemedicine (Garcia-Guiterrez, et.al, 2023).

This study has suggested that males have a more positive perception of telemedicine compared to females and to support this finding, a study regarding pandemic-triggered adoption of telehealth in Alabama that gathered data from March 2019-June 2021 revealed that both the female and male groups saw a considerable increase in the rate of telemedicine visits during the pandemic, with the male group experiencing a somewhat higher rate than the female group. This is probably because telemedicine services were not available for many female visits, including labor and delivery (Xu, et.al, 2022). Additionally, men were more likely than women to convert to telemedicine services during the epidemic because they tend to have higher levels of self-efficacy and trust in telemedicine technologies compared to women who are more likely to trust telemedicine services because of the influence of the people around them (Wu, et.al, 2021).

Another finding in this study suggests that nurses who work full time have more positive perception in telemedicine compared to who works part-time. Contradictory to this, a study done considering the clinical workload of physicians, in a large academic health

care system in New York City have suggested that doctors who utilized telemedicine more frequently during the pandemic's different phases completed more electronic health record-based after-hours work than doctors who utilized it less frequently. This shows that telemedicine as it is now provided might be less effective than in-person care and might put more pressure on doctors to work after hours (Lawrence, et.al, 2022).

Additionally, this study indicated that males have a more positive attitude compared to their counterpart which is congruent to the findings of a study on healthcare providers at Zagazig University and Hospitals in Egypt where men had the highest level of interest in telemedicine. This may be because many occupations have been forced to work remotely due to the coronavirus pandemic, and the increase in the use of internet services to maintain the work-life balance. One of the apps that people were more interested in at that time was TH. Factors such as the attitude towards TH, the relationship between the patient and the doctor, and the usage of technology may all play a role in the willingness to use TH (Fouad, et.al, 2023). On the contrary, Elhadi et al. 2021, who investigated telemedicine awareness, knowledge, attitudes, and skills of health workers in a low-resource country during the COVID-19 pandemic in Libya, found that there were no differences in attitudes between men and women.

In our study, single nurses have a more positive attitude compared to married nurses as reinforced by a study in Bangladesh in 2021 showed that compared to the married, the unmarried participants were significantly more likely to ‘may utilize’ and ‘will utilize’ telehealth (Kabir, et.al, 2022). Additionally, Chinese clinical nurses in the 2020 study also presented significantly higher domain scores recorded for nurses in the unmarried, head of responsible nursing group. There were positive correlations between telehealth readiness level and service experience, service willingness, mode cognition, manpower allocation, and policy guidance. Thus, having more opportunities to participate in telehealth services and training than ordinary nurses can improve personal readiness because of their clinical practice and learning.

Our study revealed that when the nurses' knowledge is high, their perceptions and attitudes toward telemedicine also increase. The same finding was disclosed by a global survey done by Navqi et.al in 2022. Another study shows that healthcare workers have a favorable attitude and perception towards telemedicine despite having limited knowledge of it (Bashir, 2023). This only shows that there is a promising opportunity to introduce remote working systems nationwide and to ensure the proper implementation and continuation of telemedicine across the country, it is necessary to establish specialized training programs for healthcare professionals, especially nurses.

Nurses are vital conductors of telemedicine in the country; unfortunately, the literature is very anemic in regards to data regarding nurses' knowledge, perception, and attitude toward telemedicine. Without health authorities' cognizance of this issue, enforcement of such technology will bring up a lot of issues. However, this research is very substantial because it generated insight into how nurses use technology and its future implications in local or global settings.

This study is not without any inefficiencies. The results may be dependent on over or under-estimation by the surveyed group. Additionally, several factors such as access to

the questionnaire and connectivity may have indirectly affected the outcome of the study since the distribution of the survey is online.

Conclusions

The hospital-wide investigation suggests multi-level grasp and understanding with telemedicine by exploring the nurses' knowledge, perception, and attitude in King Fahad Medical City among 355 respondents. We can shed light on nurses, in general, have very high knowledge of telemedicine, have very high perception on its advantages, low extent of its disadvantages, high view for its necessity, ease of use, security and strong positive attitude toward it.

The researchers were pleased to see that nurses in this study were very accepting of telemedicine implementation. With the nationwide use of mobile apps and remote telemedicine use that started during the COVID-19 pandemic and was carried out years after, structures and standards have been developed by Saudi's health system, and platforms were introduced to make the HCP work easier, faster, and more effective to reach out to patients who have less access to the facilities. It is at this time that we see technologies revolutionizing and TH has shown promise in clinical and non-clinical areas. The introduction of a new system will have its challenges, but telemedicine is now becoming widely accepted and may be successful in its application nationally.

Recommendations

This study has made notice of nurses' role in the effective operation of such technology in the workplace and as KSA approach Saudi Vision (2030) wherein health authorities has increased investment in digital healthcare, MOH should focus on strengthening the nurses' engagement and develop strategies for its long-term and wider scale use of telemedicine services in KSA by continuing to update legislation, regulations, security, and HCPs education and training.

Compliance with Ethical Standards

The researchers got an ethical clearance from the Ethics Review Committee and Institutional Review Board. Additionally, the researchers got approval from the Chairperson of the Nursing Research Committee in Riyadh, Second Health Cluster (King Fahad Medical City) to allow nursing staff to be included in the study. The researchers got an informed consent from participants by disclosing information regarding the study before they make an informed decision, facilitating understanding and promoting their voluntariness. The participants proceed to answer the survey once they agree and sign the informed consent. Participants can freely withdraw from the study without any questions and potential loss of any benefits. The researchers are responsible for safeguarding the participant's privacy and confidentiality following KSA's new Personal Data Protection Law Royal Decree M/19 of 9/2/1443H (16 September 2021); Cabinet Resolution No. 98 of 7/2/1443H (14 September 2021). The data is electronically stored and protected and does not include the name of the participants which means there is no way that data analysis can be traced back to the participants. The data was accessed by the research team for data analysis and stored as a computer file a year after publication

for reference and will then be deleted. Data and statistics will be published for public access.

The researchers do not see any conflicts of interest in this work. Plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research. The authors would also like to declare that this research was not funded and conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest and was purely research in nature.

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MODERNIZING AGRICULTURAL EDUCATION: ENHANCING PEDAGOGY and TECHNOLOGY INTEGRATION FOR TEACHING AGRICULTURAL CROP PRODUCTION NC II IN THE 21ST CENTURY

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ABSTRACT

This research investigates the integration of contemporary agricultural practices, including sustainable farming methods, precision agriculture, and agrotechnology. Emphasis is placed on how these innovations are incorporated into the curriculum to equip students with relevant and practical skills. This study seeks information on the perception of Grade 8 and 10 students composing of 49 participants at San Mateo Vocational & Industrial High School on the competencies of teachers in Agricultural Crop Production NC II. This study employs the Input-Process-Output (IPO) model of evaluation. The study utilized descriptive research design because the study tried to find out the competencies of teachers in teaching agricultural crop production under the Special Program of Technical Vocational Education. Descriptive research is used to describe characteristics of a population or phenomenon being studied. Since there are predefined categories, a respondent must choose from, it is considered descriptive research. These questions will not give the unique insights on the issues like exploratory research would. Instead, grouping the responses into predetermined choices will provide statistically inferable data. The data being gathered were interpreted and analyzed. Bracketing was performed to avoid bias. After data collection, the researchers found four (4) common themes. Each of these themes was discussed in terms of supporting or not supporting the review of literature. The majority of the findings of the study, supported by participants, served as authentic guidelines for the study. The fact that San Mateo Vocational and Industrial High School clearly adhere to the highest standards possible in developing its learners to be an effective part of society. It is evident from the high regard

of the respondents to the school in terms of adequacy and effectivity of its facilities and its teaching staff as well as the high regard to its administration.

Keywords: *Agriculture, Approaches and Strategies, Attitude, Crop Production, Curriculum, Department of Education or DepEd, Education, Learning, Perception, Performance, Skills, Special Program of Technical Vocational Education (SPTVE)*

INTRODUCTION

Agriculture continues to be the major and certain path to economic growth and sustainability. It encompasses all aspects of human activities. It is the act, art, a cultural necessity and science of production of goods and services through cultivation of land and management of plants and animals which creates an activity web–chain that satisfies social and economic needs.

It is opined that the last solution to our food problem would unavoidably involve the young ones (youth) who would be farmers of tomorrow. The objectives of agricultural education in secondary schools in the Philippines include stimulation of students' interest in agriculture. Enable students to acquire basic knowledge and skills in agriculture, expose students to opportunities in the field and prepare students for further studies and employment in agriculture. Because of the important role of agriculture in the development of this country, the program in Special Program for Technical Vocational Education (SPTVE), Technology and Livelihood Education (TLE) and Technical Vocational Livelihood (TVL) has been undergoing development.

In the Philippine system of education, there are factors that give difficulty to the implementation of objectives. The problems of inadequately-trained teachers, lack of support either from the government or from private sector, lack of solid planning, lack of follow-up of result – all these add to the difficulty Nem Singh et al., (2019) added.

In evaluating teacher's instructional competencies Joshua et.al., (2016) emphasized the use of student achievement as the basis to assess or evaluate teachers is one of the many approaches of teacher evaluation. Other approaches in evaluating teacher's instructional competencies include classroom observation, student ratings, peer ratings, principal/HOD/administrator ratings, self-rating, teacher interview, parent rating, competency tests, and other indirect measures.

According to Arthur and Philips, competence gives the teacher the responsibility to present evidence of the achievement of the students. The question is how teachers perform, identifies the competencies and relate to overall performance of the students according to the capacity.

Also, Kyriacou said that the essence of being an effective teacher lies in knowing what to do to foster students' learning and being able to do it. Effective teaching is primarily concerned with setting up a learning activity for each student which is successful in bringing about the type of learning the teacher intends. Successful teaching is thus crucially bound up with developments on both decision-making skills and action skills. This distinction between these two types of skills is extremely important, because teaching is as much a thinking activity as it is observable actions. Developing skills as a teacher therefore is as much about developing and extending the type of decisions that teachers make about their own teaching as it is about the successful execution of those decisions.

In an interview with Brandt, Shulman pointed out that the generalizations about effective teaching from the early process-product studies had too many limitations to be a basis for information. For instance, he noted that the sampling procedures used did not give a true reflection of what a real teaching process was like. According to Shulman, there is need for "a literature that focuses on the intersection of content and pedagogy, that brings together the 'wisdom of practice' on a topic by topic, idea by idea basis" according to Brandt. Shulman viewed use of research methods such as case histories and specific stories about classroom practice as significant for enriching this 'wisdom of practice'

More so, that Agricultural Crop Production NC II is one of the subjects in Secondary Schools; and as a Vocational subject, it cannot be taught effectively without the use of appropriate instructional materials.

According to the study of Delos Santos (2013), there are factors which affect the academic performance of TLE students. Profile of the students, in terms of age, gender, occupation of parents and their educational attainment are variables that contribute to the performance of the students. Other variables are attitude of the students, parental support to the students and their performance of students in TLE.

However, Garduque (2022) in his study stated that learning theories were not enough we need to have skills to do things. Those skills are technical skills and livelihood programs which may help the students and graduates to become skilled workers of the future.

Griffith and Wade, worked on a study of The Relation of High School Career and Work-Oriented Education to Postsecondary Employment and College Performance, A Six-Year Longitudinal Study of Public High School Graduates in Maryland, USA. Employment and college enrolment history of high school graduates of a large, suburban school district were examined.

On the other hand, strong academic achievement, technical skill, certainty of occupational choice, college readiness promote degree and job attainment in careers of interest and job satisfaction helps high school graduates to enter college. It means that academic and technical skills are still essential (ACT,2019).

In a study conducted by Powell, the researcher explored how the behaviors and practices of the principals of various schools in Virginia, USA, influence and contribute to the success. The findings led to some of the following conclusions: the vision of the principal is paramount for school success, the culture of the school must be as nurturing to teachers as the students; the teaching of curriculum is foremost.

According to Parker, the Technology and Livelihood Education views the family as a major source of nurturance, protection and renewal for the individuals. As an educational force, the family significantly contributes to the qualitative development of its individual members and has the potential to prepare them for effective productivity in respect of self and society As the relationship between the family, home & home financial matters is indivisible, so from this point of view, home financial aspects lives up to expectations through family to create adjusted relationship in the middle of individuals and social environment and hence making ready for sound human improvement.

Hence, the teaching of agriculture can be made more effective by the use of locally available aids. The persistent call by science educators as far back as two decades ago to improvise simple science equipment for use at the primary schools levels is a clear indication of their non-availability.

Thus, the advocacy to promote academic excellence and quality education in San Mateo Vocational & Industrial High School in view of making this institution a center of academic excellence in Agricultural Crop Production NC II made the researcher decide to conduct the study that will serve as a baseline for future research in agriculture education.

Research Questions

The study aims to show the respondent's perception in the following topics that relates to Agri-Crop Production education subject.

Specifically, it seeks to answer the following questions:

1. What is the extent level of realization of the objectives of Agricultural Crop Production NC II?
2. What is the extent state of Agricultural Crop Production education as to:
   - 2.1 Methods in Teaching
   - 2.2 Techniques in Teaching
   - 2.3 Teaching Strategies
   - 2.4 Teaching Approaches
   - 2.5 Instructional Materials used in Teaching
   - 2.6 Equipment Used in Teaching
   - 2.7 Facilities Used in Teaching
3. What are the problems encountered along the following:
   - 3.1 Student Variables
   - 3.2 Home Variables
   - 3.2 School Variables

3.3 Community Variables

4. What are the interventions implemented alongside with TLE/TVL education?

METHODOLOGY

The study utilized descriptive research design because the study tried to find out the competencies of teachers in teaching Agricultural Crop Production NC II under the Special Program for Technical Vocational Education (SPTVE) among the grade 8 and 10 students.

Descriptive research is used to describe characteristics of a population or phenomenon being studied. The main idea behind using this type of research is to better define an opinion, attitude, or behavior held by a group of people on a given subject. Consider your everyday multiple-choice questions.

Since there are predefined categories, a respondent must choose from, it is considered descriptive research. These questions will not give the unique insights on the issues like exploratory research would. Instead, grouping the responses into predetermined choices will provide statistically inferable data.

The study used a set of questionnaires that asks about the perception of the respondents on the competencies of teachers in Agricultural Crop Production NC II under the Special Program for Technical Vocational Education (SPTVE) at San Mateo Vocational and Industrial High School.

The questionnaire asks the respondents focusing on the level of competency in terms of knowledge, skills, attitude, validity of training module level of functionality and acceptability of the training module in teaching SPTVE – Agricultural Crop Production NC II.

Keeping in mind the end goal to acquire related information for this study, the specialist will use the poll as the real instrument and meetings as exploration procedures.

The researcher adopted survey questionnaires based on the purpose of the study.

The study was subjected to certain ethical issues. Prior to the conduct of the study, a request letter was given to the Schools Division Superintendent where the study was conducted. Participants were informed regarding the objectives of this study and reassured that their identity would be confidential and that the result will be used only for academic purposes. More importantly, informed consent was obtained from all the participants, this is meant for clinical studies only.

Then upon approval, the researcher administered the questionnaire to the respondents. Each respondent was be given enough time to accomplish the questionnaire.

After administering the survey questionnaire, the researcher retrieved the questionnaire. After which, the researcher tallied, computed, and analyzed the results.

Further, from the accomplished questionnaires, the data were be tallied, classified, organized, and presented in a tabular form to facilitate in-depth analysis and interpretation of data.

The following statistical tools are employed to answer the specific questions in the study. For problem 1 Frequency and percentage was used. For problem 2, 3, and 4, weighted mean, ranking was utilized.

RESULTS and DISCUSSION

The presentation of the result of the study presented in table forms and were treated comprehensively.

Table 1 presents the Extent of Realization of the General Objectives of Teaching Agricultural Crop Production NC II.

Table 1
Respondent's Perception on the Extent of Realization of the General Objectives of Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. The teacher demonstrates an understanding of basic concepts and underlying theories in agricultural crop production.	3.77	R	6
2.The teacher demonstrates common competencies in agricultural crop production as prescribed by TESDA Training Regulations.	4.15	R	1
3.The teacher demonstrates recognizes his/her Personal Competencies and Skills (PeCS) and is able to compare these with the PeCS of a practicing entrepreneur/ employee involved in agricultural crop production.	4.13	R	2
4.The teacher demonstrates an understanding of concepts, underlying theories and principles in the use of farm tools and equipment.	3.97	R	5
5.The teacher demonstrates an understanding of estimation and basic calculation.	3.77	R	6

6.The teacher demonstrates an understanding of interpreting plans and drawings.	4.03	R	4
7.The teacher demonstrates an understanding of applying safety measures in the farm.	4.10	R	3
Average Weighted Mean	3.99	Realized	

The respondent's perception on the extent of realization of the general objectives of teaching Agricultural Crop Production NC II garnered an average weighted mean of 3.99 or "Realized." First in rank is "The teacher demonstrates common competencies in agricultural crop production as prescribed by TESDA Training Regulations" with a weighted mean of 4.15 or "Realized." Second is "The teacher demonstrates recognizes his/her Personal Competencies and Skills (PeCS) and is able to compare these with the PeCS of a practicing entrepreneur/ employee involved in Agricultural Crop Production NC II." with a weighted mean of 4.13 or "Realized." Last in rank are "The teacher demonstrates an understanding of basic concepts and underlying theories in agricultural crop production." and "The teacher demonstrates an understanding of estimation and basic calculation." with a weighted mean of 3.77 or "Realized."

This table realized that the teacher demonstrates common competencies in agricultural crop production as prescribed by TESDA Training Regulations.

Table 2

Respondent's Perception on Methods Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Deductive Method	3.97	E	4
2. Inductive Method	4.10	E	2
3. Project Method	4.03	E	3
4. Lecture Method	4.13	E	1
Average Weighted Mean	4.06	Effective	

The respondent's perception on the effects of methods used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 4.06 or "Effective." First in rank is "Lecture Method" with a weighted mean of 4.13 or "Effective." Second is "Inductive Method." with a weighted mean of 4.10 or "Effective." Last in rank is "Deductive Method." with a weighted mean of 3.97 or "Effective."

It is evident that Lecture method is most effective used in teaching Agricultural crop production NC II.

Table 3

Respondent's Perception on the Techniques Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Activities suit learners' mental ability	3.97	E	5
2. Teacher with appropriate materials	3.97	E	5
3. Praises students for giving the correct response	4.18	E	2
4. Check learner's assignment	4.23	VE	1
5. Disciplines students in private	4.18	E	2
6. Conducts home visitation	4.10	E	4
Average Weighted Mean	4.11	Effective	

The respondent's perception on the effects of strategies used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 4.11 or "Effective." First in rank is "Check learner's assignment" with a weighted mean of 4.15 or "Realized." Second is "Praises students for giving the correct response." with a weighted mean of 4.13 or "Realized." Last in rank are "Activities suit learners' mental ability" and "Teacher with appropriate materials." with a weighted mean of 3.97 or "Effective."

Table 4

Respondent's Perception on Strategies Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Uses appropriate materials	4.49	VE	1
2. Demonstrations	4.10	E	3
3. Classroom contests	3.97	E	4
4. Educational Tour	1.97	SWE	6
5. Viewing	3.77	E	5
6. Exploration	4.23	VE	2
Average Weighted Mean	3.76	Effective	

The respondent's perception on the effects of strategies used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 3.76 or "Effective." First in rank is "Uses appropriate materials" with a weighted mean of 4.49 or "Very Effective." Second is "Exploration." with a weighted mean of 4.23 or "Very Effective." Last in rank is "Educational Tour." with a weighted mean of 3.76 or "Effective."

The result from the table shows that uses appropriate materials is the most effective Strategies Used in Teaching Agricultural Crop Production NC II

Table 5
Respondent's Perception on Approaches Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Link Approach	4.07	E	3
2. Integrative Approach	4.03	E	4
3. Learning by doing	4.08	E	2
4. Activity	4.13	E	1
5. Guided Discovery Approach	4.03	E	4
Average Weighted Mean	4.07	Effective	

The respondent's perception on the extent of approaches of the instructional materials used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 4.07 or "Effective." First in rank is "Activity" with a weighted mean of 4.13 or "Effective." Second is "Learning by doing." with a weighted mean of 4.08 or "Effective." Last in rank are "Integrative Approach." and "Guided Discovery Approach." with a weighted mean of 4.03 or "Effective."

The data shows that the respondents believe that the best approach in teaching Agricultural Crop Production NC II is through activities and learning by doing which ensures that the knowledge their learned is well established into their minds.

Table 6
Respondent's Perception on the Extent of Effect of the Instructional Materials Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Learning Competencies (LCs)	4.23	VE	2
2. Teachers' Manual	4.10	E	3
3. Agri-Crop Reference Books	4.26	VE	1
4. Dictionary	3.74	E	5
5. Charts	3.26	E	9
6. Pocket Chart	3.49	E	8
7. Posters	3.51	E	6

8. Television	3.51	E	6
9. Overhead Projector	3.77	E	4
10. Computer	3.26	E	9
Average Weighted Mean	3.71	Effective	

The respondent's perception on the extent of effect of the instructional materials used in teaching Agri-Crop Production garnered an average weighted mean of 3.71 or "Effective." First in rank is "Agricultural Crop Production NC II Reference Books" with a weighted mean of 4.26 or "Very Effective." Second is "Learning Competencies (LCs)" with a weighted mean of 4.23 or "Very Effective." Last in rank are "Charts." and "Computer" with a weighted mean of 3.26 or "Effective."

The result shows that books are still the most important instructional material in learning Agricultural Crop Production NC II, due to activities being performed on the field which a computer is not always available to use. This coincides with the result of the computer being last on the respondent's choice.

Table 7

Respondent's Perception on the Extent of Effect of the Equipment Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. School Farm	4.23	VE	1
2. Garden Tools	4.10	E	2
3. Field Tools	3.97	E	3
4. Apparatus	3.77	E	5
5. Models	3.85	E	4
Average Weighted Mean	3.98	Effective	

The respondent's perception on the extent of effect of the equipment used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 3.98 or "Effective." First in rank is "School Farm" with a weighted mean of 4.23 or "Very Effective." This result is not surprising since the respondents are being given firsthand experience on what they will encounter doing actual work. Second is "Garden Tools." with a weighted mean of 4.10 or "Effective." Having ample time to practice skills in using garden tools is of importance for the respondents' skill to develop. Last in rank is "Apparatus." with a weighted mean of 3.77 or "Effective."

The data shows that the School farm in San Mateo Vocational and Industrial High School is the effective Equipment Used in Teaching Agricultural Crop Production NC II.

Table 8

Respondent's Perception on the Extent of Effect of the Facilities Used in Teaching Agricultural Crop Production NC II

Particulars	MEAN	QD	Rank
1. Storage Cabinet	4.22	VE	3
2. Computer Laboratory	3.85	E	4
3. Industrial Arts Room	4.23	VE	1
4. Agricultural Arts Room	4.23	VE	1
Average Weighted Mean	4.13	Effective	

The respondent's perception on the extent of effect of the facilities used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 4.13 or "Effective." First in ranks are "Industrial Arts Room" and "Agricultural Arts Room" with a weighted mean of 4.23 or "Very Effective." Last in rank is "Computer Laboratory." with a weighted mean of 3.85 or "Effective."

IA room and AA rooms are the most effective way of learning Agricultural Crop Production NC II according to the respondents.

It is evident that here is where they can hone their skills into becoming professional crop producers after they graduate. Not surprising is the computer laboratory being last. Although it is still last, it still has a high rating of 3.85 but because the respondents can't really practice Agricultural Crop Production NC II in the computer lab, hence the relatively low score.

Table 9

Respondent's Perception on the Extent of Problems Encountered in Teaching Agricultural Crop Production NC II Along Student Variables

Particulars	MEAN	QD	Rank
1. Poor foundation on the four macro skills	4.28	VS	1
2. Poor study habits	2.77	MS	6
3. Absenteeism	3.36	S	3
4. Discipline	3.23	S	4
5. Comes to school unprepared	3.15	MS	5
6. Failure to submit projects on time	3.72	S	2
7. Cutting classes	2.72	MS	7
8. Vandalism	1.72	NS	9

9. Negative Attitude towards the subject	1.92	SWS	8
10. Health	1.36	NS	10
Average Weighted Mean	2.82	Moderately Serious	

The respondent's perception on the extent of problems encountered in teaching Agricultural Crop Production NC II along student variables garnered an average weighted mean of 2.82 or "Moderately Serious." First in rank is "Poor foundation on the four macro skills" with a weighted mean of 4.28 or "Very Serious." The result maybe because most of the respondents come from low-income families and can't really guide their children through their early years of education. Second is "Failure to submit projects on time." with a weighted mean of 3.72 or "Serious" The latter result is related to the first problem since projects often require certain number of resources to accomplish. Being in low-income families restricts the ability of the learners to accomplish the task. Last in rank is "Health" with a weighted mean of 3.77 or "Serious." Being raised in a low-income family also affects the health of the learner, not being able to eat nutritious food and being able to afford medicine when it is needed pose a huge problem for the learner.

Table 10

Respondent's Perception on the Extent of Problems Encountered in Teaching Agricultural Crop Production NC II Along Home Variables

Particulars	MEAN	QD	Rank
1. Dearth of reading materials	1.97	SWS	8
2. Inability of parents to pay school obligations	2.28	SWS	6
3. Parents have no time to assist their children in school activities	2.90	MS	3
4. Negative attitude of parents in attending school meetings	2.72	MS	5
5. Lukewarm attitude of parents to support programs and activities of the school	2.08	SWS	7
6. Misconception on DEPED Orders, rules and policies	1.85	SWS	10
7. Overprotective parents	1.97	SWS	8
8. Low Income Family	3.03	MS	1
9. Parents Guidance	2.90	MS	3
10. Motivation/Encouragement	2.97	MS	2
Average Weighted Mean	2.47	SWS	

The respondent's extent of problems encountered in teaching Agricultural Crop Production NC II along home variables garnered an average weighted mean of 2.47 or

"Somewhat Serious." First in rank is "Low Income Family" with a weighted mean of 3.03 or "Moderately Serious." Second is "Motivation/Encouragement." with a weighted mean of 2.97 with a qualitative description of "Moderately Serious." Last is "Misconception on DEPED Orders, rules and policies" with a weighted mean of 1.85 or "Somewhat Serious."

The result of this table coincides with the data on the previous table in which the top problems that arise are in connection with low-income families. This may be due to the fact that San Mateo Industrial and Vocational School is a public school that caters mostly to children of farmers in which San Mateo has plenty of.

Table 11

Respondent's Perception on the Extent of Problems Encountered in Teaching Agricultural Crop Production NC II Along School Variables

Particulars	MEAN	QD	Rank
1. Dearth of instructional materials	2.03	SWS	2
2. Poor school potable water system	1.36	NS	10
3. Dearth of supplementary reading materials	1.72	NS	5
4. Inadequate modern facilities	1.72	NS	5
5. Inadequate reference books	1.87	SWS	4
6. Seldom does the teacher explain use behind such method	1.46	NS	8
7. Financial constraints	1.97	SWS	3
8. Activities given to students are often confined within the classroom	1.46	NS	8
9. Methods used by teachers at times are inconsistent with lesson objectives	2.23	SWS	1
10. Assignment given to students are left unchecked by teachers	1.67	NS	7
Average Weighted Mean	1.75	Not Serious	

The respondent's perception on the extent of problems encountered in teaching Agricultural Crop Production NC II along school variables garnered an average weighted mean of 1.75 or "Not Serious." First in rank is "Methods used by teachers at times are inconsistent with lesson objectives" with a weighted mean of 2.23 or "Somewhat Serious." Second is "Dearth of instructional materials" with a weighted mean of 2.03 with a qualitative description of "Somewhat Serious." Last is "Poor school potable water system." with a weighted mean of 1.36 or "Not Serious."

Table 12

Respondent's Perception on the Extent of Problems Encountered in Teaching Agricultural Crop Production NC II Along Community Variables

Particulars	MEAN	QD	Rank
1. Negative attitude of barangay officials to support the programs of the school	1.51	NS	8
2. Robbery	1.36	NS	10
3. Lukewarm attitude of constituents in attending school meetings and other gatherings	2.41	SWS	1
4. Unpleasant relationships between school personnel and the people	1.77	NS	5
5. Lack of modern facilities	1.79	NS	4
6. Cultural diversity	2.08	SWS	3
7. Vandalism	1.59	NS	6
8. Political interventions	1.59	NS	6
9. Religious beliefs	1.41	NS	9
10. Value of education	2.23	SWS	2
Average Weighted Mean	1.77	Not Serious	

The respondent's perception on the extent of problems encountered in teaching Agricultural Crop Production NC II along community variables garnered an average weighted mean of 1.77 or "Not Serious." First in rank is "Lukewarm attitude of constituents in attending school meetings and other gatherings." with a weighted mean of 2.41 or "Somewhat Serious." Second is "Value of education." with a weighted mean of 2.23 with a qualitative description of "Somewhat Serious." Last is "Robbery" with a weighted mean of 1.36 or "Not Serious."

Table 13

Respondent's Perception on the Interventions used in Teaching Agri-Crop

Particulars	MEAN	QD	Rank
1. Innovation on materials to be used by the teachers	4.23	SA	1
2. Localization of immersion among the students	3.90	A	5
3. Establishment of goals among the students	3.92	A	4
4. The Local Government Unit strongly supports the school	4.03	A	2
5. The administration is working closely to the teachers	4.03	A	2

6. There is an extensive training	3.23	A	7
7. Students are highly encouraged to this field	3.67	A	6
Average Weighted Mean	3.86	Agree	

The respondent's perception on the interventions used in teaching Agricultural Crop Production NC II garnered an average weighted mean of 3.86 or "Agree." First in rank is "Innovation on materials to be used by the teachers." with a weighted mean of 4.23 or "Strongly Agree." Second are "The Local Government Unit strongly supports the school" and "The administration is working closely to the teachers" with a weighted mean of 4.03 with a qualitative description of "Agree." Last is "There is an extensive training." with a weighted mean of 3.23 or "Not Serious."

The data clearly coincides with previous data on administrative support and government support of the learners of San Mateo Vocational and Industrial High School

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. The researcher conclude that the realization of the General Objectives of Teaching Agricultural Crop Production NC II is based on the common competencies that is prescribed by TESDA Training Regulations.

2. The data gathered of the study showed that San Mateo Vocational and Industrial High School clearly adhere to the highest standards possible in developing its learners to be an effective part of society. It is evident from the high regard of the respondents to the school in terms of adequacy and effectivity of its facilities and its teaching staff as well as the high regard to its administration.

3. The researcher conclude that the respondents believe that learning by doing approach using actual Agricultural Crop Production NC II tools is the most effective way of learning Agricultural Crop Production NC II.

4. The results also revealed that it was identified and examined interventions implemented alongside Technical Livelihood education (TLE) in the context of Agricultural

Crop Production NC II. The findings shed light on effective strategies and measures taken to address challenges within the educational framework.

Recommendations

From the foregoing findings and conclusions drawn, the following recommendations are offered:

1. The school administrators should continue doing their programs in lifting the quality of life of its learners. They should continue their efforts in providing adequate learning resources for their students to ensure their readiness in facing real-life situations.

2. The teachers should explore other learning methods and develop more learning materials for their students.

3. Parents/Guardians should ensure that their children have adequate financial and moral support.

4. Future researchers should expound on this study by focusing on the problems encountered and find out interventions to limit or lessen the problem.

Compliance with Ethical Standards

The researcher's unwavering commitment to ethical standards is evident in the meticulous adherence to principles of integrity, respect, and responsibility towards participants. Prior to the study, informed consent was obtained, ensuring participants' understanding of the research purpose and procedures, while maintaining confidentiality and anonymity throughout. By avoiding conflicts of interest, plagiarism, and bias, the researcher upheld the study's credibility and trustworthiness and ensured that the findings were used solely for research purposes, reflecting a dedication to ethical research conduct.

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MODULAR TEACHING: EXPERIENCES OF JUNIOR HIGH SCHOOL TEACHERS

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ABSTRACT

This qualitative study was conducted to further understand the junior high school teachers' experiences in teaching using modular teaching modalities. A modality that requires teachers' great efforts including its formulation, production, and implementation. Looking into the different experiences of teachers in their use of modular teaching modality may suggest certain realizations that may lead to further development in the teaching and learning process. This study aimed to explore the different experiences of junior high school public teachers in Catbalogan City in their use of the modular teaching modality. This study is determined to know the positive and the negative experiences of the teachers, describe their preparations employed, and their aspirations in improving the said modality. The study utilized sixteen (16) junior high school public teachers from the ten (10) district schools in Catbalogan City Division. The themes created were: *Teaching with a Heart, Learning Independently, Developing Family Link, Healthy Teaching, Motivated and Inspired, Deteriorating Motivation for Learning, Unprogressive Result for Learning, Risk-taking for the Sake of Learning, Earning over Learning, Losing Trust among Parents, Exhausting Resources for Learning, Reliability of Students Learning*, *All efforts are Exhausted for Learning, Modifying Teaching and Learning using Modules for Learning, Demanding yet Rewarding, Mens Sana in Corpore Sano (A Sound Mind in a Sound Body), The Commitment to Continuous Learning, Assurance of Human Interactive Modules, Empowering for Alternative Learning Modality, Innovating Quality Amidst Flexibility, Modules with a Heart for Learners' Well-being, Focusing Further on the Essential, and Flexing the Curriculum for Quality.* The findings and recommendations were used to further understand modular teaching modality. Moreover, the realizations taken from the experiences of the teacher-respondents suggest innovation in the

formulation, production, and implementation of modules which are vital to the said modality.

Keywords: *Modular Teaching Modality, New Normal Education, Learning Modules, Experiences of teachers, Aspirations of teachers*

INTRODUCTION

There has recently been a growing interest in developing learning modules for self-paced learning, which is essential and practical in the pandemic. Many pieces of evidence show that learners learn best when they do it themselves, focusing on a specific learning task and succeeding at it, as indicated in the educational principles. In designing modules, teachers must remember that it is a great privilege and, at the same time, a responsibility. It can be found to be problematic in the beginning when designing, especially when identifying where things should begin (Burge, 2019).

The necessity of using blended learning specifically on the use of modular distance learning has led many researchers to talk about different learning modules and their effectiveness for learning. These studies, however, have never addressed the issues and challenges experienced in crafting and implementing the use of learning modules. A few pieces of literature speak about these issues.

In the Philippines, the educational system has adapted the new blended learning, which includes the modular distance learning modality in all public schools in the country. In this modality, learners are expected to complete the tasks in the module, after which they have to submit their outputs at the end of the week. Moreover, Mean-Chin (2020) enumerated some of the disadvantages seen in the implementation of the said modality. This includes the availability of the materials. Considering the number of students, the budget available, and the equipment to use in crafting and implementing these modules, teachers may not have it all together, which consequently results in the lack of modules produced, hence the unavailability of materials.

Furthermore, there have been a lot of issues regarding the sense of authority, which focuses on the pressure of studying among learners. Consequently, the pressure of learning is greater for them in modular distance learning than it is during face-to-face or in an online class, considering that learning of topics is solely given to them and their teachers are too far away to offer them help. Aside from this, there are also issues of focus and concentration among learners; the confusion brought about by unclear and incomprehensible instructions; the confusion brought about by the different subjects; and the confusion with their situations at home. Most importantly, the question of the parent's or guardian's educational background is one that teachers and educational institutions are considering, not because they don't have the ability, but because they don't have the confidence to help their students. Thus, students are then again left on their own in

accomplishing their modules, usually seeking the help of their peers and taking refuge in the information found on the internet.

The need for exploration in this area is necessary for the educational system to make the necessary interventions in making it more effective. And looking into this through the perspective of the teachers, make it more reasonable, given that they are the craftsperson and implementer of modules. In the desire to become a part of this intervention and being one of the many teachers who is experiencing such an endeavor, the researcher made the necessary move to be part of it. The skills and competence in conducting the research study make the intervention more effective given that the necessary research design is applied, and coming up with an effective training design that is research-based will help those who are in the administrative position to develop, design, and implement an effective one.

Furthermore, although the primary goal of developing a learning module is to have successful self-paced learning among learners in this pandemic, we can never deny the persons behind the development of learning modules. Thus, this study aims to explore the experiences of junior high school teachers in Catbalogan City Division in the modular distance learning modality. Thus, this study assumes that there are significant experiences that can be identified as they adapt to the modular distance learning modality and can be used for necessary intervention for a more effective teaching and learning process.

Research Questions

This study explored the experiences of Junior High School Teachers in modular teaching modality, Catbalogan City Division, Catbalogan City, Samar, School Year 2021-2022:

Specifically, the study sought to answer the following queries:

1. What are the positive and negative experiences the informants encountered in modular teaching modality?
2. How would the informants describe their preparation in the modular learning modality?
3. What are the aspirations of informants to improve the modular teaching modality?

METHODOLOGY

This study is a qualitative research design employing the single case study design. A single case study is an in-depth investigation of a person, a group of people, or a unit to generalize across multiple units. An extensive, systematic analysis of a single individual, group, community, or other unit in which the researcher investigates in-depth data relating to multiple factors is also known as a case study. Furthermore, by outlining the actions followed while employing a case study technique, the researcher is able to narrow down a complicated and broad topic, or phenomenon, into a manageable research issue (s). The researcher acquires a more in-depth understanding of the

phenomenon by gathering qualitative and quantitative datasets about it than if they only used one sort of data (Heale and Twycross, 2017).
Moreover, it is a detailed examination of a single person, group, or event. A case study examines practically every aspect of a person's life and background to find patterns and reasons for their behavior. Also, it is useful in many domains, including psychology, medicine, education, anthropology, political science, and social work (Cherry, 2019).

The study was conducted in all public junior high schools in the Catbalogan City Division. There are a total of eight (8) public junior high schools under the ten (10) district schools of the division. The following schools are: Samar National School, Eastern Visayas Regional Science High School, Catbalogan City Agro-Industrial School, Guinsorongan National High School, Silanga National High School, Pangdan National High School, Antonio G. Tuazon National High School, Catbalogan National Comprehensive High School. All of the schools cater to students coming from the city and the neighboring municipalities.

The Samar National School (SNS) is the mother school of the province of Samar, formerly known as Samar High School. It is located on San Francisco Street, Catbalogan City, Samar. It consists of four thousand one hundred sixty-four (4,164) junior high school students. Presently, one hundred ninety-four (194) junior high school teachers serve at Samar National School.

The Eastern Visayas Regional Science High School is the only science high school in the division. It is located in San Roque, Catbalogan City, Samar along Arteche Boulevard. It consists of three hundred fourteen (314) junior high school students. There are fifteen (15) teachers serving the school.

The Catbalogan City Agro-Industrial School is located on the 9 hectares of city-owned agricultural property in Brgy. San Vicente, Catbalogan City, Samar. The school is a training institution for giving Catbaloganons, particularly youngsters, the information, skills, and attitudes necessary to become producers and/or agripreneurs in response to the city government's food security and greening projects. The school is composed of one hundred fifty-eight (158) students and five (5) teachers.

The Guinsorongan National High School is located in Brgy. Guinsorongan, Catbalogan City, Samar formerly known as Guinsorongan Integrated High School. It has six hundred seventy-one (671) junior high school students with twenty-nine (29) teachers serving them.

The Silanga National High School is located in Brgy. Silanga, Catbalogan City, Samar. It is composed of one thousand four hundred twenty-six (1,426) junior high school students and fifty-seven (57) teachers.

The Pangdan National High School is situated on a hilly portion of Brgy.Pangdan, 8 kilometers away from the city. It consists of three hundred and six (306) junior high school students with sixteen (16) teachers.

The Antonio G. Tuazon National High School is the only secondary school in the Sierra Islands, located between Barangay Rama and Barangay Cinco in Catbalogan City, Samar. It consists of six hundred eleven (611) junior high school students with twenty-four (24) teachers serving them.

The Catbalogan National Comprehensive High School, formerly known as the Samar Regional School of Fisheries, is located in Brgy. Mercedes, Catbalogan City, Samar. It consists of one thousand two hundred four (1,204) junior high school students with fifty-two (52) teachers serving them.

To successfully come up with a centralized and effective gathering of narratives, participants in the study must have the following characteristics:(1) must be a legitimate faculty member or teacher at the institution; (2) must hold a teacher III or Master teaching position; and (3) must have experience crafting modules in the division.

There were sixteen (16) informants for this study. Eight of these informants were utilized for the Individual Interview (IDI) and eight informants for the Focus Group Discussion (FGD). There was one (1) informant from each of the eight (8) public junior high schools in the division who was utilized for the Individual Interview (IDI) and an additional (1) informant from each of the eight (8) public junior high schools was utilized for the Focus Group Discussion (FGD).

The research instrument that was used in the conduct of the study is the researcher-made interview questionnaire. The instrument was used to gather the needed data and ideas from the target informants. The research instrument contained open-ended questions which were answered by the informants. The open-ended questions determined the common patterns or themes of the answers that were provided by the informants. The answers to the open-ended questions were verified through focus group discussion. The research instrument was checked by experts. The purpose of this is to determine the reliability and validity of the instrument in collecting the desired information, time allocation to answer the questionnaire and format and sequencing of the questions.

There was an approval letter in the conduct of the data gathering given to different schools and the Schools Division Superintendent. The adviser has approved this letter from the researcher before distribution. Upon approval of the letter, the respondents were chosen from among the faculty members using the inclusion criteria presented and approved by the adviser. Subsequently, the researcher asked the respondents for a scheduled individual interview and a focused group discussion (FGD), with consideration to a particular health protocol and with much consideration to their availability. Moreover, ethical considerations were read and explained to the respondents to highlight the confidentiality of the interview.

The data collection process was conducted through an individual interview and a focused group discussion. Individual interviews were done in person over the months of October and November 2021, lasting around half an hour each or an average of 27.75 minutes, to elicit relevant experiences from the informants. The interview schedule was set accordingly. Moreover, FGD was conducted on November 19, 2021 at 4:10 in the afternoon and lasted for forty-five minutes through an in-person discussion. This discussion was conducted for an in-depth validation of the data gathered. The data was recorded using notes and audio recordings, which were then analyzed.
In the data analysis, the researcher utilized the phenomenological data analysis by Colaizzi, employing the following steps.

First, the transcripts were read several times to gain a sense of the full content. This stage adds the respondents' thoughts, feelings, and ideas to the bracketing diary. This helped to explore the phenomenon experienced by themselves.

Second, the respondents' significant statements were noted in each transcript. These statements were written on separate sheets and coded based on their transcript, page, and line numbers.

Third, at this stage, the collected statements were given significant meaning. Subsequently, the underlying meanings of each statement were coded into one category as they are reflected in the detailed description.

Fourth, after having an agreement towards all formulated meanings, grouping and acquired implications were taken from each category to reflect the themes' unique structure. Each cluster of the theme was in a code to include all formulated meanings related to that group of definitions. After that, groups of clustered themes were under code to have all acquired implications related to that group of purposes. After that, groups of clusters of themes that reflect a particular vision issue were incorporated together to form a distinctive construct of themes. Indeed, all these themes are internally convergent and externally divergent, meaning that each formulated meaning falls only in one theme cluster that is unique from other structures (Mason, 2002).

Fifth, the themes were arranged into a detailed description at this analysis stage. After merging all the pieces, the whole structure of the phenomenon was coded and noted, then an expert was asked to review on the findings in terms of richness and completeness to provide sufficient and detailed descriptions. Finally, the results were presented to the adviser for thorough explanation.

Sixth, this step is similar to the previous step, but there are no specific meanings involved. In this step, the reduction of findings was redundant, and eradicating misused or overestimated descriptions from the overall structure is repetitive. Hence, this endeavor was meant to emphasize the fundamental design. Some amendments were made to apply to generate transparent relationships between theme clusters and their extracted

themes, which includes eliminating some ambiguous structures that weaken the description.

Seventh, this step aimed to validate the study findings using the checking technique. The researcher got approval from the participants in advance for the conduct of the study.

RESULTS

This qualitative study used a thorough understanding of the transcribed responses of each key informant by reading and re-reading the transcripts to determine the general sense of the whole coverage of its content. The significant statements from the transcript of the interview and focus group discussions were extracted, recorded, and coded using Excel and manual coding. The significant statements were properly coded, noting the informant number and the response number for easy tracking.

There was a total of one hundred eighty-one (181) significant statements that reflected the positive and negative experiences of the informants in modular education in teaching in the new normal as well as the aspiration of the informants to improve modular education in teaching in the new normal.

From the one hundred eighty-one (181) significant statements extracted from the transcripts, the researcher developed Formulated Meanings from the significant statements gathered. There were one hundred twelve (112) Formulated Meanings developed from the significant statements. Of the one hundred twelve (112) Formulated Meanings, there were twenty-three (23) clustered themes and three (3) Emergent Themes. The emergent themes and Theme Clustered are as follows:

I. Positive and Negative Experiences in Modular Teaching Modality

A. Positive Experiences the Informants Encountered in Modular Teaching Modality

1. Teaching with a Heart
2. Learning Independently
3. Developing Family Link
4. Healthy Teaching
5. Motivated and Inspired

B. Negative Experiences the Informants Encountered in Modular Teaching Modality

1. Deteriorating Motivation for Learning
2. Unprogressive Result for Learning
3. Risk-taking for the Sake of Learning
4. Earning Over Learning
5. Losing Trust among Parents
6. Exhausting Resources for Learning

7. Undependable Students Learning

II. Descriptions of the Informants in the Preparation in Modular Teaching Modality

1. All Efforts are Exhausted for Learning
2. Modifying Teaching and Learning Using Modules for Learning
3. Demanding yet Rewarding
4. Mens Sana in Corpore Sano (A Sound Mind in a Sound Body)

III. Aspirations of the Informants in Improving the Modular Teaching Modality

1. The Commitment for Continuous Learning
2. Assurance of Human Interactive Modules
3. Empowering for Alternative Learning Modality
4. Innovating Quality Amidst Flexibility
5. Modules with a Heart for Learners' Well-being
6. Focusing Further on the Essential
7. Flexing the Curriculum for Quality Education

The emergent themes that were created were developed to describe the phenomenological narratives to describe the answers to the problem statement identified. The three (3) emerging themes with different theme clusters each are discussed below.

I. Positive and Negative Experiences in Modular Teaching Modality

A. Positive Experiences the Informants Encountered in Modular Teaching Modality

1. Teaching with a Heart. The theme that was developed from the phenomenological narratives expressed by the informants leads to a deeper meaning of teaching in this modular learning modality giving a chance of knowing learners better.

During the one-on-one interview, Informants 1 and 3 expressed their positive experience in the modular learning modality. They said:

I have known my students better and acknowledge their weaknesses, background, and status (IDI 3-1).

I was able to know my students very well, their status at home and the struggles that they are facing (IDI 1-1).

Knowing better my students not just merely their names but their lives at home (IDI 1-1.2).

In addition, six (6) Informants in the FGD expressed the same sentiments that were felt by the informants in the one-on-one interview. They expressed:

I have more time to study my topic and deliver it more accurately to the students (FGDI 1-1).

I have learned and explored other ways of teaching aside from the usual face-to-face classes. Aside from that, I have also allotted more time in monitoring students which I seldom do during the normal set-up (FGDI 1-1.2).

Getting to know better the background and personality of our learners is a positive experience for me (FGD1 4-1.2).

There is a realization that we need to be considerate to our students for every learner have their own struggles in life (FGDI 5-1).

Teachers became more creative and resourceful. With less resources we can be able to provide education to the students (FGDI 6-1).

Teachers were made to think out of the box and be creative to still ensure the delivery of quality education despite the challenges of the pandemic (FGDI 6-1.2).

The distribution and retrieval of modules, as well as providing guidance on how to use the modules, have been great experiences for me (FGDI 7-1).

2. Learning Independently. The said theme is derived from the responses of the informants describing the effect of modular learning among learners which can be considered a good sign for the process of learning.

Informants 2 and 5 during the one-on-one interview expressed how the modular mode of learning affected the performance of the learners. They mentioned:

They were able to become more independent in terms of comprehension, but the different lessons and at the same time working on several tasks both for every learning area and also managing their skills in time management to comply with needed outputs for a particular week, thus grooming them to be very flexible individuals (IDI 2-1.2).

I find it helpful on the part of the students because they will be knowledgeable on the different subjects while they are at home and safe to be infected by the virus. With this, they developed a kind of bond with their parents and guardians while answering the module (IDI 5-1).

When I checked my student's output. Their creativity is so amazing. Despite the fact that the teacher is not around physically to guide them at home, still they manage to expand their horizons. With this, I can say that they are learning (IDI 5-1.2).

Moreover, this was also supported by informant 5 in the FGD. The informant said:

It helps students to hone their time management. Children are safe from the pandemic for they are not allowed to go outside unless they are vaccinated (FGDI 5-1).

3. Developing Family Link. The theme is derived from the responses of the informants, expressing how the learning modules developed the link between family members, most of whom are parents making time to teach their children.

Seven (7) of the informants shared their experiences with the support and the link development of the families. They said:

There is a strong collaboration and partnership between the teachers and parents to make this distance learning a success. Parents reinforce the students at home. They also contact me to ask about the topic which is complex especially in my subject, Math (IDI 2-1.2).

Parents collaborate with me as a teacher in the learning process. I tutor the parent in school and the parent will tutor her child at home. The parents are happy to share to their children the learnings they gained from me as their child's teacher (IDI 5-1.2).

Its optimism is exemplified by parents who are never weary of picking up and returning school modules (IDI 6-1).

I can personally have a conversation with the parents/ guardians since I do the home visitation or monitoring (IDI 6-1.2).

We had a chance to talk to our learners and parents and we see their situation (IDI 8-1).

This sort of pedagogy encourages teacher-parent collaboration and partnership. Parents are already visible, and we can always talk about how to improve a child's performance or how to urge and inspire their child or children to accomplish more and be more in spite of their circumstances (IDI 7-1.2).

Teachers have not stressed-out disciplining directly the learners because they are at home. It is their parents or guardians who discipline them, remind them about the things to accomplish especially the deadlines of the modules and other learning tasks. In this situation, the parents can bond with their children. They can also tutor their children about the lesson intended for a particular week (IDI 7-1).

In addition, three (3) of the informants in the FGD expressed the same observation during visitation and follow-up of modular learning of the learners. They expressed:

I had been learning continues and the willingness to accept change. Learning continues with the shared responsibilities with the parents who guided and tutored their children at home. Learners also value and learn how to manage time effectively (FGDI 2-1).

It allows parents to tutor their kids at home and identify their kids' strengths as well as areas in which they are weak or unable to understand. This is their bonding moment also (FGD1 7-1.2).

On how to teach the lesson or topic at home, parents and guardians collaborate with us, the teachers. We collaborate for the benefit of the student. They also provided their children more time because some of them had lost work due to the pandemic (FGD1 8-1).

4. **Healthy Teaching.** The theme that has been developed comes from the phenomenological narratives expressed by the informants, expressing how light the process of teaching and learning is today in this pandemic because there are informants who see it as an avenue to stay healthy amidst the pandemic.

Four (4) informants mentioned how the pandemic has helped them improve their health. They mentioned:

I am not under as much time pressure in class, and less stress in terms of classroom management and discipline since no students are in the classroom but honestly speaking, I miss their noise and presence (IDI 3-1.2)

Teachers became more open-minded and more patient considering the delays of the materials needed in printing the modules. There is no room for "me" but "we" as us teachers in this school helped one another in printing, and sorting the modules just to meet the deadline and the schedule of the distribution of the modules (IDI 4-1.2).

I was able to reinvent myself and adjust to the circumstances as a result of these experiences (IDI 6-1).

The education system today, helps me to relax my vocal cords especially that I have a thyroid problem (IDI 8-1).

5. **Motivated and Inspired.** The theme generated from the phenomenological narratives expressed by the informants expresses the brighter side of the pandemic, where even if modular learning is quite demanding they can find the light of motivation and inspiration along with the modular learning modality.

Informant 4 expressed during the one-on-one interview the motivation for teaching despite the challenge of the pandemic. The informant mentioned:

I was able to teach despite this pandemic and education continues. Limited interaction during monitoring or distribution of modules but it is worth it. The fact that I can see their smiles holding and reading the contents of the module made me feel happy (IDI 4-1).

Seeing the students' real-life situations at home motivated me to strive harder. Despite living in an uncomfortable house and facing financial difficulties, they were able to continue their studies through this modality. Regular student monitoring serves as a wake-up call to all teachers to continue working with compassion and empathy (FGDI 8-1.2).

I can personally visit the learners and I can see the real situation of the learners at home. Some of them are really struggling financially and economically. The situation at home is very poor. Then I came to realize that there is a really a purpose of the monitoring and having this kind of learning modality (FGD1 4-1).

B. Negative Experiences the Informants Encountered in Modular Teaching Modality

1. **Deteriorating Motivation for Learning.** The theme that was generated from the narratives given by the informants expressed the opposite of the light of motivation and inspiration because some informants have deteriorating motivation for learning due to the other side of the modular learning modality.

Five (5) of the informants in the one-on-one interview expressed how their motivation deteriorated. They said:

I am saddened with the fact that despite of the teachers' efforts in printing the modules, sleeping late at night, and everything, some students does not care. They failed to comply the activities stated in the module (IDI 1-1).

There are some learners who encounters difficulty in understanding and completing these outputs for the lessons at hand resulting to non-submission of the completed module or submitting it without answers (IDI 2-1.4).

It is quite stressful preparing the modules for the students especially if you have a large number of students (IDI 3-1.4).

The returned modules, on the other hand, are either incomplete or contain no responses. It tainted the entire experience (IDI 6-1).

With this type of modality, there is no guarantee that the students are actually learning (IDI 7-1).

The five (5) informants' narrative during the one-on-one interview was supported also by Informants 2 and 3 during the FGD interview. They said:

The most challenging part as a teacher while on modular teaching modality is how I could help my students to comprehend well on the lessons reflected on the modules (FGDI 2-1.4).

The learner the way I see it cannot grasp the totality of the concept (FGDI 3-1.4).

2. Unprogressive Result for Learning. The theme was derived from the narratives of the informants expressing their frustration relative to the negative effect of the modular learning modality on the progress of students' learning in this pandemic.

Nine (9) of the informants expressed in their narrative the negative effect of the modular learning among learners. They said:

I found out that some of the learners really needs help from the teachers not only to develop their knowledge, but rather how to understand their situation, you know their… family background (IDI 1-1).

They rather not answer those things because they don't understand the content of the module especially in Math, Science, and English subjects (IDI 1-1).

The activities on the module shall really suit the needs and interests of the students because no two individuals are alike. Some of the activities are too hard for the learners to understand. Slow learners cannot easily grasp the content of the modules since it is standard and suited for fast learners. It is frustrating on the part of the slow learners especially when they have no parent or somebody at home to act as a tutor (IDI 4-3.2).

Some of my students cannot understand the content of the modules, especially in AP modules (IDI 6-1.4).

The challenge here is how to handle the 'SLOW LEARNERS' they can read but they cannot comprehend well... sometimes I allowed them to answer the modules in Waray- Waray language for them to express their thoughts and ideas (IDI 6-1.4).

There are learners who submitted their activities or answer sheets incomplete or no answer at all (IDI 8-1.4).

There are submitted activities/ answer sheet with no names and it is difficult for me to guess and check who is the owner of those submitted activities (IDI 8-1.4).

In addition, three (3) of the informants in the FGD shared the same sentiments with what the nine (9) other informants during the one-on-one interview. The FGD informants said:

Ensuring that students learn with the use of modules/LAS only, reaching out students who live on far flung barangays and municipalities, giving remediation to students especially those who got low scores in tests, printing of modules and other additional tasks such as distribution and retrieval of modules and output (FGDI 1-1.4).

There is a lack of social interaction between the teacher and students. Students didn't understand much what is in the module for some topics are hard to understand without further explanations (FGDI 5-1).

Challenges in printing the modules, challenges in writing the modules, challenges also in the delivery because the modular delivery hindered the 'teacher's touch' (FGDI 6-1.4).

The printing and sorting of modules are the drawbacks. It is not simple for teachers. Teachers cannot directly explain to the students; instead, parents do it. But because some of them lack education, parents cannot explain well the topic (FGDI 7-1).

Students who are having trouble understanding the lessons, particularly in Math, English, and Science. They are overburdened by the module's many activities. Some

students have already considered dropping out because they are too exhausted to complete the modules (FGDI 8-1.4).

3. **Risk-taking for the Sake of Learning.** The themes that were generated from the responses of the informants sharing the risks made by informants to continue the learning process.

The delivery of modules to the learners it is quite risky (IDI 2-1.4).

I feel bad knowing that the schedule of the distribution was not followed correctly (IDI 3-1).

The fare is expensive and aside from the fact that it is too dangerous for me to travel because I might be infected with the virus but I have no choice (IDI 5-1.4).

This was also supported by the informant during the FGD relative to the risks taken by the informants for continuous learning:

The delivery of the modules also we encounter delays. Time management is a challenge also (FGD1 4-1).

4. **Earning over Learning.** The theme generated from the narratives stated by the informants expresses the frustration of the informants towards some learners who choose to earn rather than invest in their academic performance.

With this frustration, informant shared the sentiments during the one-on-one interview supported with the narratives of informants from the FGD. They said:

They lack answers or performance tasks in my subject because they also lack resources at home and even hard to feed their hungry stomachs (IDI 3-1).

There is an instance that I came to my students' house and they are not around for they went to fishing. This is also one of the reasons why they cannot submit the modules on time because they prioritized fishing and other work to earn a living (IDI 4-1.4).

There are students who get their modules late than the given schedule (IDI 8-1.4).

During monitoring, some learners are not in their homes (IDI 8-1.4).

There are learners who are not at home during the scheduled monitoring because they are doing a job such as fishing, house helpers, and other child labor things (FGD1 4-1).

Students to be monitored were not around for they are doing some errands like plowing the field to support their daily needs. It made me feel bad (FGD1 6-1).

The risk and distance in the monitoring of students is one of the challenges. There is an instance wherein the dog is about to bite me. It really scares me. Rain or shine monitoring is a threat to my health. But I have to keep doing it because my students need me (FGD1 8-1.4).

5. **Losing Trust among Parents.** The theme-driven responses of the informants expressed another negative aspect seen in the modular learning modality, which is the participation of parents in the academic performance of their children and the demotivation brought by less cooperation.

From the one-on-one interview conducted it was clearly expressed by informants as to the behavior and actions done by parents. They said:

Some parents or guardians do not get the modules on the scheduled date and time, thus delaying the process. As a result, the completed modules will be returned late also (IDI 1-1.4).

Parents who fail to assist and give support to students, procrastination of students, mental health problems, late distribution and retrieval of modules, complex content on the modules, to name a few (IDI 1-3.1).

Despite various announcements and communications through text or messenger regarding the schedule of the distribution of modules, many of the students and parents do not even care. They shall wait that the said modules will be delivered to their respective homes (IDI 4-1).

When parents or guardians don't go to school on the schedule given to get the modules of their children (IDI 5-1.4).

The said experience was seconded by those informants from the FGD. They said:

Not all parents have the ability to teach their children, and other parents, and some of them also lacks time to do so since they are too busy working to provide for their children's fundamental needs (FGD1 7-1.4).

Some parents are unable to effectively teach at home because some of the topics are unfamiliar to them and difficult for them to comprehend due to their poor knowledge (FGD1 8-1).

6. **Exhausting Resources for Learning.** The theme driven from the narrative expressed by informants described another negative impact of the modular learning modality on the informants where they have insufficient materials for the production of modules.

There were seven (7) informants during the one-on-one interview expressed a narrative response that developed the theme. They said:

There are delays in the printing of the modules because of technical problems. Sometimes the printer is not working because of the volumes of prints produced (IDI 1-1.4).

Well, sometimes we run out of papers, ink, couple with a malfunctioning printer. The delays are intolerable (IDI 2-1.4).

There are more expenses and time consumed in the production and reproduction of modules. I even use my personal equipment and money just to meet the deadline and schedule of the distribution of learning materials (IDI 7-1).

I have difficulties retrieving the necessary output. I have to go to the students' house to check what is the reason for the delays. I have 30 advisees and it is difficult for me to reach them due to some clerical work to do. The number that they wrote on the enrollment form is not reachable also (IDI 7-1.4).

Teachers have so much paperwork mandated by DepEd. Instead of focusing on the preparation of learning materials, our time is consumed by the urgent deadlines of the documents needed (IDI 8-1.4).

Because of paper works or clerical works, checking of learners' output is too limited (IDI 8-1.4).

It takes time in printing of modules. Sometimes, printers are not working well because of over usage. It is hard to reproduce modules due to scarcity of bond paper and ink (IDI 8-1.4).

Moreover, Informants 1 and 7 in the FGD conducted share narratives with their experiences relative to this.

While the negative experience that I had in modular teaching is it is more tiring because teachers are bombarded with more paper works (FGDI 1-1).

It's also difficult to manage our limited time because we're constantly besieged with heaps of paper work, all of which is urgent. All I can do is just sigh (FGDI 7-1.4).

7. **Undependable Students Learning.** The theme is driven by the narrative responses describing their experience with the learner's learning authenticity and reliability.

Assessment and intervention are delayed since they return the modules after a week or longer, you know... ahmmm not all are religiously and taking the modular distance learning seriously (IDI 1-1.4).

The results of the assessment are not that credible anymore especially on the students' answers on the modules (IDI 1-1.4).

We give recognition to top students in Grade 10 but how can we be sure if the said student is really the person completing and answering the modules and performance tasks? See, the learning output is a question and I as a teacher is quite doubtful on that (IDI 2-1.4).

We cannot immediately provide immediate feedback to the students' performance. It takes time to provide feedback since I have to wait for the modules to be submitted to me (IDI 3-1.4).

Another challenge is checking if the students really answer the module. I have doubts that some of my students let somebody answer the module (IDI 5-1.4).

It is also a challenge checking the modules with no answer or parents returning the module without checking if it has answers or not (IDI 5-1.4).

The students are not performing well on their learning tasks. They submit a poor-quality product that does not adhere to the rubrics and requirements. They have this ingrained view that submitting an output, regardless of quality, is preferable than not submitting at all (IDI 7-1).

It is difficult to validate learners' performance because since there are some who have tutors, while some do not learn by themselves. Because of this system, you will not know, if the student/learner is really learning or just submitting the modules for grades specially so that at the last page of the modules, there are answers key (IDI 8-1.4).

Learners do not answer their modules seriously. Parents are the ones who answer the modules instead of the students and students tend to copy the answers of their classmates to the activities in the modules. They don't read the modules. They prefer to call a friend and ask for answers (FGD1 2-1).

Another challenge pose by the distance learning modality specifically on the modular teaching modality is the authenticity of the assessment. Although teachers are monitoring the learners at a regular basis at the back of the door, teachers are not so sure who answers some of these tests given to learners (FGDI 3-1.4).

Assessing the student is also a challenge because some of the activities are answered by the parents or tutors (FGD1 8-1.4).

II. Descriptions of the Informants in the Preparation in Modular Teaching Modality

1. All Efforts are Exhausted for Learning. The theme describes how, through the manifested effort, learning continues despite the challenge of the pandemic.

When the researcher inquired, there were six (6) informants on one-on-one interview shared about their experiences on the exhausting preparation of the modules, they confided:

Well, it's not new to all that the preparation in the modular teaching modality is quite tedious. (IDI 1-2).

The preparation demands the completeness of materials-bond paper, printer, ink, manpower, and etc. (IDI 3-2.2).

I see to it that the printer is working, with ink, and I have an adequate supply of bond papers so that there will be no delays during the printing. I also prepare some learning activity sheets and summative test questionnaires for the students to assess the level of knowledge and understanding they gained (IDI 5-2.1).

The preparation is time-consuming considering the number of pages to be printed and we only have limited resources like a printer. Though this is our job sometimes it is exhausting also and it saddened me to know that we have bashers because they are telling us that we are not doing a lot of work or not working and yet we receive a salary (IDI 4-2.2).

It takes a lot of effort to get everything ready. You need a lot of energy, time, and patience considering the volume of pages to be printed, students to be monitored, parents to deal with, etc. (IDI 7-2).

It is tiring but we have to follow what is being mandated to us (IDI 8-2.2).

Moreover, informants from the FGD added how they describe the preparation of the learning modules. They said:

Preparation in modular teaching modality is very tedious and difficult especially because of lack of resources such as printers, bond papers, etc. (FGDI 1-2).

The delivery of the modules is also a challenge. It is an added cost for we have to hire a banca to deliver those modules (FGDI 4-1.4).

All of these preparations are very time and energy-consuming because I spend almost 3 days just for printing alone (FGDI 1-2.2).

I download the modules, print, sort and distribute the modules. I sometimes deliver it to the students' respective homes for some of the parents do not get it from school (FGDI 7-2.1).

Internet connectivity since we are located in an island barangay. It is difficult for us to download the materials. We have to wait for Friday of Saturday to download everything (FGDI 4-1.4).

Time is a challenge too. We have limited time because printing alone takes much of our time (FGDI 4-1.4).

Reaching out to the learners with no cellphone or messenger account is also a challenge. What we did in the school is that the classmate with phones or messenger accounts will be the one to relay the message (FGDI 4-1.4).

2. Modifying Teaching and Learning Using Modules for Learning. The theme-driven describes the ways made by the informants to modify the teaching and learning with the use of the modules. This also gives an avenue where the informants become the innovators in order to make the teaching and learning process simpler and more understandable as they prepare the learning modules.

Informants 1, 2, and 3 during the one-on-one interview expressed that aside from the usual routine that they are doing, they also prepare materials that would reinforce the Learning Modules. They said:

I download the module, print it, segregate, and inform the parents to get it in school. I also contextualize the downloaded module for easy understanding of the students (IDI 1-2.1).

I also prepare Learning Activity Sheets as required following the Most Essential Learning Competencies. I also prepare materials that I will use during the monitoring or home visitation (IDI 1-2.1).

We have to download the SLM then we have to print them, then design additional tasks or exercises for enhancement and remediation for the lessons (IDI 2-2.1).

I download and print the modules. Segregate it and distribute it to the students whether through his parents or deliver it at home. I also prepare Learning Activity Sheets for remediation and enrichment activities (IDI 3-2.1).

Six (6) informants of the FGD seconded of the efforts being done in simplifying and reinforcing the learning of learners through the use of the modules. They added:

I prepare Work Home Learning Plan, learning activity sheets, gather soft copy of learning activity sheets, sort them and prepare for the distribution (FGDI 1-2.1).

I study the MELC or the Most essential learning competencies. Prepare the Weekly Home Learning Plan together with the Learning Activity Sheets, prepare, sort, and distribute modules (FGDI 2-2.1).

I prepare a weekly home learning plan, learning activity sheets, summative tests and of course print, sort, and distribute modules (FGDI 4-2.1).

A combination of trial-and-error mechanism that up to now it is still subject for perfection. Printers sometimes doesn't work. My body and mind need relaxation but because of so much work to do, coordinator ship, and all I can't (FGDI 6-2).

I also prepare a weekly home learning plan and activity sheets based on the MELCs (FGDI 7-2.1).

I download the modules, print, sort, and distribute it. I prepare weekly home learning plan. Learning activity sheets and the monitoring schedule (FGDI 8-2.1).

3. Demanding yet rewarding. The developed theme describes the demands that the modules require, which becomes for them a rewarding task. Along the way of the development of learning modules, informants mentioned the challenging tasks of doing

modules, but seeing the appreciation expressed by parents and learners, the feeling of exhaustion is carefully paid off.

In the one-on-one interview with the informants, Informants 3, 5 and 6 mentioned:

I can say that the preparation is quite exciting now. Yes, it is tedious and requires a lot of time and energy but seeing the students and parents appreciate your efforts is a good feeling (IDI 3-2).

The preparation is both exhausting and rewarding. It is exhausting since there are numerous pages per subject to print, and it is rewarding when I see all of the modules stapled, piled, and ready for release (IDI 5-2).

We have so many clerical works and it demands so much of our time (IDI 6-2.2).

On the contrary, Informants 4 and 8 in the FGD expressed the challenges of the preparation of modules. They said:

Assessing students is also a challenge. Authenticity of the result is a big question (FGD1 4-1.4).

The preparation is challenging (FGDI 8-2).

4. **Mens Sana in Corpore Sano (A Sound Mind in a Sound Body).** The quest for continuous learning in this pandemic has been challenging among the informants because they have to consider their health conditions, which will affect the effectiveness of learning in a way that is structured and planned in a learning condition just like in this pandemic.

Informants 4 and 7 expressed that the time that the pandemic caused an avenue for physical health restoration and adjustment for another mode of learning. They expressed:

I also prepare myself to be physically healthy (FGDI 4-2.1).

Challenging compared to face-to-face instruction and still adjusting on the situation (FGDI 7-2).

The emergent and clustered themes transpired from the phenomenological narratives expressed by the informants showed how they describe the preparation of the learning modules used in this time of pandemic.

III. Aspirations of the Informants in Improving the Modular Teaching modality

1. **The Commitment to Continuous Learning.** The theme is driven by the narratives given by the informants describing their commitment to continue learning through the use of learning modules.

There were three (3) informants that expressed their experiences and commitment to continue learning amidst the pandemic. They said:

Since it's our job we have to, and we have to double our effort. Just for the students to have this quality of education (IDI 1-2).

The preparations are self-fulfilling and gratifying knowing that despite the pandemic learning continues (IDI 1-2.2).

I also aspire for more supportive parents and guardians who will really support, guide, and collaborate with the teachers for a common goal (IDI 4-3).

2. Assurance of Human Interactive Modules. The theme is driven by the narratives given by the informants to describe the need for adjusting the modules for learners to have a sound understanding of the modules where they can interact through the answers expressed in their modules.

Informants 2 and 7 during the one-on-one interview expressed by saying:

The learning materials were one of the things I wanted to improve in modular distance teaching modality (IDI 2-3).

Every school must be supported and adequately funded because we run out of resources and it causes headaches and stress to the teachers (IDI 7-3).

Moreover, six (6) of the informants shared the same with the previous informants during the FGD. They said:

Choose materials, objective and content of modules that is relative to the students' real-life experiences. Incorporate mindfulness. Always get connected to the parents to monitor the students (FGD1 5-3.2).

The implementation of modular teaching modality gives great adjustment to teachers and learners. On the point of improving the modality. I would like to mention about the SLM write up where there are a number of errors on the modules. These must be corrected during home visitations and interventions must be done directly telling the learners about these productions (FGD1 3-3).

Reduced module activities, more examples for each subject, weekly home visits, limited face-to-face classes or Blended Learning, provision of colored printed modules, immediate information from teachers on what to answer in the modules, and teachers' leniency in the submission of students' outputs are all things that should be done to improve the modular teaching modality (FGD1 4-3.2).

Limited face-to-face instruction is what I aspire for. Modular teaching alone cannot suffice what the learners really need. Also, a unified modular textbook. No more printing because it is a waste of time. In this way, I or we can focus more with the teaching and learning rather than printing and sorting (FGD1 6-3).

The school/department should make mechanisms on how the teacher will incorporate teacher's touch and learner's feel even if through a modular delivery. Blended modality is still the ideal approach (FGD1 6-3.1).

Pair modular teaching with other modalities (FGD1 6-3.2).

3. Empowering for Alternative Learning Modality. The theme is driven by the narratives given by the informants that described their aspiration for the better implementation of the learning modules through capacity building and mentoring. Informants during the one-on-one interview narrated and said:

I attended webinars on how to deliver education using this type of modality, the modular distance teaching modality but the application is quite different (IDI 3-2.1).

Teachers should be trained effectively on how to deliver this type of modality (IDI 3-3).

Attend series of DepEd webinars that can help me gain new knowledge to cope up the new normal set-up (IDI 6-3).

Informants 1 and 8 during the FGD also added:

There should be at least one day in a week allocated for mentoring of students to clarify confusions, give instructions, and answer queries from the students. Technical assistance, trainings and seminars, should be provided to teachers (FGDI 1-3.2).

Teachers should be given the opportunity to attend seminars and workshops to improve their skills in delivering lessons in this type of modality. Prior to the implementation, we attended webinars, but I believe this was insufficient (FGD1 8-3).

4. Innovating Quality Amidst Flexibility. The theme is driven by the narratives shared by informants during the interview describing their aspiration to create innovations to make the teaching and learning process in this pandemic effective.

Informants during the individual interview shared and said:

Aside from teachers' seminars, modules should be error-free. Quality education is synonymous with error-free learning material. Limit or minimize the number of pages and activities in every module in all subject areas. (IDI 3-3.2).

All school teachers have autonomy and freedom to design their own modules. The modules, however, must be evaluated for quality assurance, and progress will be tracked and monitored (IDI 7-3).

We are all aware that errors are unavoidable at times. Teachers should reassess the modules and ensure that all learning activities are appropriate for the learners' needs (IDI 7-3.2).

Also, informants during the FGD shared same sentiments and said:

The content of the modules. It should be error-free (FGDI 3-3.1).

Limit the number of activities which some are already a duplication (FGDI 4-3).

The content of the modules should double check by the curriculum specialists (FGDI 5-3).

Modules that are free of errors and have been quality-assured by curriculum experts (FGD1 7-3).

Less activities for the students (FGD1 7-3).

Keep the activities in the modules to a minimum because it will be too much for the students (FGD1 7-3.2)

Minimize the activities in the modules because it will be a burden for the students (FGD1 8-3.2).

5. Modules with a Heart for Learners' Well-being. This theme was driven by the narratives shared by the informants describing their sentiments on the continual improvement of the modules, especially on the aspect of further polishing the modules, simplifying the content, and those that are error-free.

The informants from the individual interview said:

Yes of course, because the modular teaching modality is not perfect or even close to perfection. First, the curriculum itself, though the competencies have been lessened still we have a lot of competencies to be covered. I think DepEd shall look into this. Second, the learning activities to be answered or completed are too many. Students complain about this and they don't find it healthy and just for them. The activities are intended for everybody not considering the level of interest and knowledge of the students (IDI 4-3.1).

I aspire to an error-free module in a book-type format same with the private schools one modular textbook only every quarter. I believe we can reduce the cost of the printing if we can have this one. Also, reduce the activities in the module. Students are not happy with so many activities anymore. They are stressed out on this (IDI 5-3).

For me the modules alone, some content had a grammar error, blurry pic and the likes and it should be improved in order not to create any confusion on the part of the learner (IDI 6-3.2).

The contents of the modules must be simplified, and teachers must simplify the lessons. The teachers shall provide more examples. For easy description and identification of students, do not use black ink if the photo needs to be printed in color (IDI 7-3.1).

Module in a book style or format and with lesser activities but still adheres to the standards (IDI 8-3).

The content of the modules should be improved. There are so many activities that learners do not understand and difficult for them to answer (IDI 8-3.1).

The content of the modules should be improved. The DepEd should prepare books because printing of modules takes time and additional workload for teachers (IDI 8-3.2).

This was further supported by the informants from the FGD, describing the aspiration on the further development of the modules. They said:

One of these is on the materials necessary for the production of modules. Another is in terms of content of the modules. The content should be reduced to avoid wastage of resources without sacrificing the skills that the students should learn (FGDI 1-3.1).

Modules that are really suited to the needs of the individual learners for some of the activities are too complex and hard for the slow learners to comprehend (FGDI 7-3).

The content of the modules should be limited but is aligned with the standards. Avoid duplication of activities (FGDI 8-3).

6. Focusing Further on the Essential. The theme is driven by the researcher from the narratives shared by the informants describing their aspirations to improve the focus of modular learning which is to continue learning and to ensure that learners are learning. Informants from the FGD shared their aspirations on this aspect. They said:

I aspire for more organize process in printing and distribution of modules, and availability of resources to maximize time (FGDI 1-3).

DepEd shall limit the clerical works to teachers so that they can give more time and attention to teaching and learning and improving themselves so that they can really provide quality education to the learners (FGDI 4-3).

Provide a unified Self-learning module and no more printing anymore for it takes time to prepare the modules. Instead of focusing on the learners, monitoring, our time is already focused on the printing alone (FGDI 4-3.2).

A sort of modular textbook ready for distribution and the teacher will just distribute it. No need to print anymore volumes of pages and copies (FGDI 7-3).

Limit clerical works for teachers to have more time in the preparation and delivery of modular instruction (FGDI 7-3.2).

Limit clerical works for teachers to have more time in the preparation and delivery of modular instruction (FGDI 7-3.2).

Modules will be converted into modular textbooks, and I'll be able to distribute them as soon as I get them. Printing is no longer a chore. The days and time spent printing the module will be used in monitoring, home visits, and tutoring as a result (FGDI 8-3).

7. **Flexing the Curriculum for Quality Education.** The theme is driven by the researcher from the narratives shared by the informants describing their aspiration for changing or flexing the curriculum for the quality of education in this time of the pandemic.

Some of the MELC Competencies shall not be included because some competencies duplicate from other competencies and it is no longer necessary (IDI 6-3.1).

Curriculum decongestion (FGDI 4-3.1).

DISCUSSION

As presented by Shosha (2012), Colaizzi's phenomenological data analysis approach revealed an active strategy for achieving the depiction of those people's life experiences. It entails deciphering the data and determining key assertions, which are then translated into formed meanings. Following that, groupings of topic clusters were created to form the final thematic construct.

To accomplish each method effectively, several tactics and strategies were used to ensure the research outcomes were trustworthy. The correct implementation of Colaizzi's descriptive phenomenology approach would produce a comprehensive account of the corpus of knowledge about human experience, and hence would be a successful technique for laying the groundwork for future study (Shosha, 2012).

This case study that explored the different experiences and aspirations of the selected Junior High School teachers of Catbalogan City Division in Modular Distance Teaching Modality is anchored on the Transactional Distance Theory by Michael Moore (1997), Constructivist Theory by John Dewey (1938), and the Theory of Distance Education by Borje Holmberg (1995).

The main theory used was the Transactional Distance Theory of Michael Moore (1997). The idea distinguishes physical or temporal distance between learners and teachers during a transaction between them. Three elements must be considered while developing transactions between professors and students in distance learning. One is conversation, another is its structure and the learner’s autonomy as the third element. This theory assumes that distance learning is considered “transactional” if these three elements are present.

The constructivist theory of John Dewey (1938) is also a supporting theory of this research endeavor. John Dewey's Constructivist theory of education can be adapted to apply to the museum setting. The concepts are in line with our current understandings of learning

and knowledge, yet they are in opposition to traditional museum operations. In order to apply these ideas to our work, we must reflect on our own practices.

In this theory, what is being presented in the classroom makes a difference from what is encountered by every learner in day-to-day activities. That is why he would always speak of making teachers expert learners who can guide students into adapting cognitive strategies highlighting self-testing, articulating and understanding, asking probing questions, and reflection.

This study was also supported by the Theory of Distance Education of Borje Holmberg (1995), which focuses on how distance affects learning and how distance professors should engage with students. Borje Holmberg coiled the Guided Didactic Communication, which can be done in two ways: one-sided Simulated Conversations or two-sided Real Conversation.

In essence, Holmberg believes that fostering empathy between learning and tutoring parties through appropriate one- and two-way interactions motivates and encourages students to engage personally in their studies. "True learning is essentially an individual activity that can only be completed via an internalization process," it also implies. This is a reasonable assumption to make in favor of the concept of distance education.

Other related studies were also cited to support the findings of this study. Shown below are the emergent themes derived from the responses of the informants based on the sub-problems of the study.

I. Positive and Negative Experiences in Modular Teaching Modality

A. Positive Experiences the Informants Encountered in Modular Teaching Modality

This overarching theme depicts the sub-problem of the study what are the positive and negative experiences of the informants encountered in modular distance teaching modality. From the responses of the key informants, there are twelve (12) emergent themes were generated. There are five (5) emergent themes for the positive experiences encountered by the informants in the modular distance teaching modality and seven (7) emergent themes for the negative experiences encountered by the informants in the modular distance teaching modality. The emergent themes for the positive experiences encountered by the informants in the modular distance teaching modality are as follows:

1. Teaching with a Heart. The theme that was developed from the phenomenological narratives expressed by the informants leads to a deeper meaning of teaching in this modular distance learning modality, giving a chance to know learners better.

The informants' responses revealed that teachers prepare materials for self-paced learning that motivate both the academic and mental aspects of learners. They provide hands-on monitoring and innovative learning. Face-to-face monitoring allows them to gain a deeper understanding of the learners' and students' life. They also develop

resourcefulness in the preparation of learning modules. They imply innovation to ensure that learners receive quality education.

This emergent theme is greatly supported by the theory of Distance Education by Holmberg, which emphasizes that there is a big impact of distance education where the teachers must communicate with students to ensure real learning in the implementation of self-paced learning materials.

This was further supported by the study of Baysinger (2020), who mentioned that experts can devise tutorials even though they are in different institutions. Relatively, Willmot and Perkin (2016) highlight that the makers of modules experienced a good relationship with their students compared to before.

2. **Learning Independently.** The said theme is derived from the responses of the informants describing the effect of modular learning among learners, which can be considered a good sign for the process of learning.
The informants' responses tell us that students generate creative outputs with minimum supervision, develop independent learning submit outputs on time, and learn at their own pace at home.

This is well supported by the Constructivist Theory of John Dewey which emphasizes that education should be based on real-life experiences.In addition, Sejpal (2013) sees that modules enable learners to have control over their learning and accept greater responsibility for learning. This was also supported by Nadas and Vidal (2018) when they mentioned that modularization gives learners the chance to choose an appropriate learning approach and gives learners the chance to reset a unit rather than repeat the whole process of assessment. Also, Clover (2017) identifies that modular instruction gives the utmost convenience, which teaches learners to be independent learners.

3. **Developing Family Link.** The theme is derived from the responses of the informants expressing how the learning modules developed the link between family members at most are parents making time to teach their children.

This is supported greatly by the theory of Constructivism of John Dewey which highlights those students participating in real-world scenarios also could demonstrate their knowledge via creativity and teamwork.
It also reflects the study of Nadas and Vidal (2018) where they highlight those modules give a link between family and peers to prepare students for the future phase of their education.

4. **Healthy Teaching.** The theme that has been developed comes from the phenomenological narratives expressed by the informants, expressing how light the process of teaching and learning is today in this pandemic because there are informants who see it as an avenue to stay healthy amidst the pandemic.

This theme clustered is in line with the theory of Transactional Distance Theory of Moore (1997) which speaks of the second factor giving emphasis on the structure, specifically on the course's ability to accommodate individual students' needs which is part of the development of the learning modules.

Moreover, Hilmi et al. (2016) highlighted in their study that those teachers who were satisfied with the hygiene factors which include the relationship with the administration or supervisor, with their colleagues, pay factor, or salary, and also their satisfaction in terms of the motivation factor on both the fulfillment of the hygiene and motivation factors towards their job satisfaction.

5. **Motivated and Inspired.** The theme generated from the phenomenological narratives expressed by the informants expresses the brighter side of the pandemic where even if modular learning is quite demanding, they can find the light of motivation and inspiration along with the modular distance teaching modality.

This is supported by the Theory of Distance Education by Holmberg (Seville, 2019) which emphasizes that learners and teachers are motivated and encouraged to participate personally in the teaching and learning process through developing empathy between learning and tutoring parties through proper one- and two-way exchanges.
It was also supported by Wilmot and Perkin (2016) who found in their study that the makers of modules experienced a good relationship with their students compared to before.

B. Negative Experiences the Informants Encountered in Modular Teaching Modality

1. Deteriorating Motivation for Learning. The theme that was generated from the narrative given by the informants expressed the opposite of the light of motivation and inspiration because some informants have deteriorating motivation for learning due to the other side of the modular distance teaching modality.

The informants are disappointed with the unanswered activities in the module, a comprehension issue that leads to non-submission of outputs, exhaustion in the preparation of modules with a large number of students, and the modules submitted are incomplete in terms of activities.

This emergent theme is supported by the Theory of Distance Education formulated by Holmberg when he highlighted that another pervasive characteristic of distance education is the sense of personal connection between the teaching and learning parties that encourages enjoyment and motivation in the classroom. This is further supported by the study of Fox (2020) when she mentioned that strong motivation is required in the implementation of distance education.

2. Unprogressive Result for Learning. The theme was derived from the narratives of the informants expressing their frustration relative to the negative effect of the modular

distance teaching modality on the progress of students' learning in this pandemic. The informants revealed that modules in Math, Science, and English are not comprehensible, learners with intellectual capacity and no parental guidance and supervision cannot catch up with the activities, and learners lack the fundamental skills needed for learning the subject.

This is greatly supported by the Theory of Distance Education of Holmberg (Seville, 2019) which gives emphasis on the achievement of such goals and the implementation of precise study processes and approaches are aided by intellectual enjoyment and study motivation.

This was also supported by the study of Fox (2020) when she identified that in doing modular instruction in a distant learning approach, there is a need for strong motivation which has willpower, responsibility, and self-control.

3. Risk-taking for the Sake of Learning. This theme described the risks made by informants to continue the learning process. The informants revealed that they have to deliver the modules even if the fare is expensive and there is a risk of being infected by the virus. They are also dissatisfied with the lack of adherence to the module distribution schedule. This emergent theme is supported by the Transactional Distance Theory of Moore (1997) which highlights in the second factor that flexibility includes aspects like the extent to which course goals and objectives are pre-determined, the pedagogical model used in teaching the subject, the nature of course assessment, and the course's ability to accommodate individual students' needs.

Furthermore, this is also supported by the study of Kalantzis and Cope (2020) who highlighted that the teacher's task is to commit their learning design to the digital record and take the risk in the delivery of the module.

4. Earning over Learning. The theme generated from the narrative stated by the informants expresses the frustration of informants towards some learners who choose to earn rather than invest in their academic performance.
The informants affirmed that students prioritize work above school, which delays output submissions, there is a lack of learning owing to socioeconomic constraints, and students submit modules late.

This emergent theme is supported by the Theory of Distance Education of Holmberg (Seville, 2019) which highlights that distance education provides an avenue for learners to set a central concept of motivation in every decision made.
Moreover, this theory is also supported by the study of Nadas and Vidal (2018) who added that modularization affected the learning of learners because there will be a creation of danger, destruction, and inconsistency in the learning programs because of the delivery method and assessment practices in the curriculum; and the diversion of priority rather than focusing on learning.

5. Losing Trust among Parents. The theme-driven responses of the informants express another negative aspect seen in the modular learning modality, which is the participation of parents in the academic performance of their children and the demotivation brought about by lack of cooperation.
The informants expressed that some parents are not cooperating with the modular delivery instruction. They do not receive the modules on time. Owing to a lack of time, parents are unable to fully implement effective learning, and parents are unable to teach their children due to a lack of subject expertise.

This emergent theme is supported by the Theory of Distance Education of Holmberg which assumes that distance education involves the participation of stakeholders and parents. As a result, his idea aims to encourage personalized learning.

Moreover, the study by Fox (2020) highlights the need for strong motivation from the stakeholders and parents in order to fully implement the modules and their products. Also, Mak and Georges (2017) added that the satisfactory completion of the self-paced modules depends on having access to parents' guidance.

6. Exhausting Resources for Learning. The theme-driven from the narrative expressed by informants describes another negative impact of modular learning modality on the informants, where they have insufficient materials for the production of modules.
The informants revealed that producing modules consumes more time and personal resources. The lack of resources causes the delay of the module production.

This emergent theme, therefore, is supported by this emergent theme is supported by the Theory of Distance Education of Holmberg (Seville, 2019) which highlights that another characteristic that can be identified for distance education is a well-developed instructional material.

In relation to this, the study of Baysinger (2020) shared that a teacher who would consider in engaging in modular learning should be well-provided with equipment and materials and should be given an emphasis for the use of delivering it properly.

7. Undependable Students Learning. The theme is driven by the narrative responses describing their experiences on the aspect of the learner's learning authenticity and reliability. Furthermore, the originality of students' performance made during this time of pandemic is at stake. Since it's difficult to identify who made the work.
The informants revealed that the assessment is delayed due to late submissions, which causes feedback to be delayed, that the assessment results are unreliable, that there is uncertainty about the performance of the students in terms of their outputs and assessment, that the checking of the modules is difficult due to unanswered parts and doubts about their completion, and that the quality of outputs submitted by the learners is poor and does not meet the standards reflected on the rubric.

This emergent theme is supported by the Constructivist Learning Theory (Miranda, 2012) because it gives emphasis on the opposition to the idea of schools focusing on memorization and offered a technique of directed living which should be done in this pandemic.

This is true when Tedla and Desta (2015) highlight that the modules' ineffective results are because of the students' poor performance. The approach of instruction made in the modules makes students feel the teacher-centered approach. That is why instructors change their way of teaching to more teacher-centered education. In terms of assessment, instructors feel that their students don't grasp the required skill if they administer assessments frequently. Furthermore, it becomes a burden to them every time they assess because it only addresses the students' content understanding and not the skills developed. As an alternative, they suggested an interactive assessment, allowing learners to practice or apply what developed skills are after a module. And lastly, they found out the ineffectively of the module after seeing these problems.

II. Descriptions of the Informants in the Preparation of Modular Teaching Modality
There are four (4) emergent themes under this overarching theme that describe the responses of the key informants to the description of their experiences in the preparation of the learning modules.

1. All Efforts Are Exhausted for Learning. The theme describes the manifested effort done to continue learning despite the challenge of the pandemic. The key informants' direct experiences responded that their experiences in exerting all best efforts to make the teaching and learning effective using the learning modules.

The informants' responses revealed that the preparation of the learning modules is tedious and requires complete materials to avoid delay in the module production and makes the learning process effective in the temporal absence of the teacher.

This description presented by the informants is in consonance with the theory of Distance Education by Holmberg (Seville, 2019) which highlights that it is important that the structure should be clear which is referred to as the pedagogical model or means used for the teaching and learning process. Having mentioned this difficulty experienced by informants in the preparation of the learning modules, Baysinger (2020) affirms that teachers have to do more extensive labor in order to execute modular instruction.

2. Modifying Teaching and Learning Using Modules for Learning. The theme-driven describes the ways made by the informants to modify the teaching and learning with the use of the modules. This also gives an avenue where the informants become the innovator in order to make the teaching and learning process simpler and more understandable as they prepare the learning modules.

This finding supports the theory of Distance Education by Holmberg (Seville, 2019) which says that one of the pervasive characteristics of distance education is that there is well-developed self-instructional material.

This theme of giving an avenue for teachers to become a designer of their modules is supported by the study of the University Association for Contemporary European Studies (2020) which highlight that designing a learning module is a privilege and at the same time a responsibility for they have to develop it with a clear purpose, constructive alignment, and a contextualized course.

3. Demanding Yet Rewarding. The developed theme describes the demands that the modules require which becomes for them a rewarding task. Along the way of the development of learning modules, informants mentioned the challenging tasks of doing modules but seeing the appreciation expressed by parents and learners, the feeling of exhaustion is carefully paid off.

This theme clustered is in line with the theory of Transactional Distance Theory of Moore (1997) which speaks of the second factor giving emphasis on the structure specifically on the course's ability to accommodate individual students' needs which is part of the development of the learning modules.

Moreover, Kalantzis and Cope (2020) highlights that the teacher's task is to commit to their learning design and greatly relevant to the needs of the community which is greatly appreciated by students which becomes a fulfilling part for teachers.

4. Mens Sana in Corpore Sano (A Sound Mind in a Sound Body). The quest for continuous learning in this pandemic has been challenging among the informants that they have to consider their health conditions which will be catering the effectiveness of learning in a way that is structured and planned in a learning condition just like in this pandemic.

This is evident relatively with what the theory of Transactional Distance Theory of Moore (1997) which speaks of the temporal distance that separates learners from the teacher in the transaction between them and is occurring in this structured or planned learning situation.

This was also supported by the study of Fox (2020) when the study conducted identified that the implementation of distance education is an advantage on the part of the teacher for it provides convenience in any unexpected event.

III. Aspirations of the Informants in Improving the Modular Teaching Modality

This overarching theme depicts the sub-problem of the study what are the different aspirations of the teachers towards the implementation of the modular learning modality relative to the responses given by the informants of the study. From the responses of the

key informants, there are seven (7) emergent themes identified by the researcher. They are as follows:

1. The Commitment for Continuous Learning. The theme is driven by the narratives given by the informant describing their commitment to continue learning through the use of learning modules. The informants revealed that providing quality education to learners must continue despite the pandemic as part of the work.

This is consistent and supported by the Transactional Distance Theory of Moore (1997) when he highlights that distance does not mean that learning won't continue because it is just a temporal distance that separates learners from the teacher in the transaction between them and is occurring in the structured or planned learning situation.
This continuation of learning using modules that gives chance for learners to continue learning this pandemic is supported by the study of Dejene and Chen (2019) stating in his study that faculties and teachers have a problem to the point that they violate professional ethics caused by inadequacy of time, preparing modules for bulk or big size of classes.

2. Assurance of Human Interactive Modules. The theme is driven by the narratives given by the informants to describe the need for adjusting the modules for learners to have a sound understanding of the modules where they can interact through the answers expressed in their modules.

The informants revealed that contextualization of module content is required for easy comprehension. There is also a requirement to provide a feedback mechanism that may be used to change the teaching and learning process. To innovate the learning process, live interaction between the teacher and students will be utilized.

This is supported by the Transactional Distance Theory of Moore (1997) which mentions that there is a factor that let learners develop autonomy. They participate in the course the autonomy of the learner is inextricably linked. This can interfere with a learner's feeling of self-direction or self-determination. That is why the need for more humane interactive modules are developed the tendency for autonomy has big chances.

This was also supported by the study of Burge (2019) where it was described that three things should be considered in the preparation of the modules which includes; clarity of the purpose and aspirations of the modules for student participants and communicate these to students. It is essential that in creating a learning module, it is necessary to have clear, achievable goals or outcomes to increase every learner's learning gradually.

3. Empowering for Alternative Learning Modality. The theme is driven by the narrative given by the informants that describe their aspiration to have a better implementation of the learning modules through capacity building and mentoring. The informants revealed that there is a need for upskilling of teachers' talents and skills especially on the conduct of modular distance teaching modality.

This is supported by the Transactional Distance Theory of Moore (1997) under the second factor which is more on the structure which describes the rigidity or flexibility of the course. This factor also includes aspects like the extent to which course goals and objectives are pre-determined, the pedagogical model used in teaching the subject, the nature of course assessment, and the course's ability to accommodate individual students' needs.

This is also supported by the study conducted by Burge (2019) highlighting that the module is constructively aligned, meaning the learners can actively construct their understanding and all necessary alignment with the teaching and assessment with the intended learning outcomes. Therefore, it is necessary to consider the type of course handled, resources available, disciplinary context, and, of course, the national and legal requirements.

4. Innovating Quality Amidst Flexibility. The theme is driven by the narratives shared by informants during the interview describing their aspiration of creating innovations to make the teaching and learning process in this pandemic effective.

The informants agreed that developing a quality assurance framework and identifying content experts is essential. Quality certified modules encourage successful learning.
This is supported by the Transactional Distance Theory of Moore (1997) under the third factor which is more on the structure where the learners will be able to develop autonomy. As they participate in the course the autonomy of the learner is inextricably linked. This can interfere with a learner's feeling of self-direction or self-determination.

This is also true in the study of Pappas (2015) when he said that to create perfect learning which caters to the student-centered learning unit and these are the following: there must be an advanced and specified learning objective.

5. Modules with a Heart for Learner's Well-being. This theme was driven by the narratives shared by the informants describing their sentiments on the continual improvement of the modules, especially on the aspect of further polishing the modules, simplifying the content, and that which is error-free.

This is supported by the Theory of Distance Education of Holmberg (Seville, 2019) which highlights that one of the characteristics of Distance Education is that well-developed self-instructional material and two-way dialogue can generate such feelings.
This is further supported by the study of Pappas (2015) when he said that Learners must have feedback; when they made an error in answering scenarios or any question, it is essential to note that they will know how to improve moving forward.

6. Focusing Further on the Essential. The theme is driven by the researcher from the narratives shared by the informants describing their aspiration on changing or flexing the curriculum for the quality of education at this time of the pandemic. The informants stressed the importance of a defined method in module production and that centralized printing is advantageous.

This is supported by the Constructivist theory of Dewey (Lamon, 2020) which highlights that to present it in a clear way, what is being presented in the classroom makes a difference from what is encountered by every learner in day-to-day activities. That is why he would always speak of making teachers an expert learner who can guide students into adapting cognitive strategies highlighting self-testing, articulating and understanding, asking probing questions, and reflection.

This is supported by the study of Acuram (2015) when he mentioned that in Duldulao's Model, it is highlighted that modules should have the things to be known, things that are nice to be known, things that are less nice to be known, things that are barely relevant, and things that might be used someday. Accordingly, the structure and the content are equal, and the arrangement of materials is simple to complex.

7. Flexing the Curriculum for Quality Education. The theme is driven by the researcher from the narratives shared by the informants describing their aspiration on changing or flexing the curriculum for the quality of education this time of the pandemic. The informants highlighted that the curriculum should be revisited as some of the competencies are repeated.

This emergent theme is supported by Theory of Distance Learning by Holmberg (Seville, 2019) that highlight the need the implementation of correct study processes and approaches are aided by intellectual enjoyment and study motivation.

Further, this is supported by the study of Gupta (2017) when it was highlighted also that most of the 21st century learners would always want relevant, mobile, self-paced, and personalized content learning. And this need is fulfilled with the creation of learning modules. Also, Mutiara, Zuhairi and Kurniati (2007), added that in creating a learning module it must be remembered that it serves as a major learning resource for distance learners. The design, development and product of learning materials should carefully consider, the systematic and scientific principles of instructional design. Quality learning materials are very dependent upon consistent implementation of quality assurance principles.

Conclusions

This study explored the experiences of Junior High School Teachers in modular teaching modality, Catbalogan City Division, Catbalogan City, Samar, the School Year 2021-2022: Specifically, the study sought out answers to the following queries:

1. What are the positive and negative experiences of the informants encountered in the modular teaching modality?
2. How would the informants describe their preparation in the modular learning modality?
3. What are the aspirations of informants to improve the modular teaching modality?

This study employed the qualitative research design utilizing the single case-study approach to explore the narratives of junior high school teachers in the modular teaching modality. The study was conducted on all junior high school teachers in the Schools Division of Catbalogan City. Using the inclusion criteria identified by the researcher, sixteen (16) informants were identified to participate in the data gathering. Eight (8) of them participated in the individual interview (IDI). On the other hand, the remaining eight (8) participated in the Focus Group Discussion (FGD). An interview guide was utilized to gather data from the informants. This interview guide was validated by experts to establish the validity of its content. The data was analyzed using the Colaizzi method. Based on the result and findings of the study, three (3) emergent themes were identified. The first emergent theme with twelve (12) subthemes described the experiences of the junior high school in the modular learning modalities; the second emergent theme with four (4) subthemes described the preparation of the learning modules, and the third with seven (7) subthemes described the aspirations of the junior high school teachers on modular teaching modality.

For the positive experiences of the junior high school teachers in the modular teaching modality, the following subthemes were clustered: *Teaching with a Heart, Learning Independently, Developing Family Link, Healthy Teaching, Motivated and Inspired.* For the negative experiences of the junior high school teachers, the following subthemes were clustered: *Deteriorating Motivation for Learning, Unprogressive Result for Learning, Risk-taking for the Sake of Learning, Earning over Learning, Losing Trust Among Parents, Exhausting Resources for Learning, and Reliability of Students Learning*.

For the preparation of the learning modules, the following subthemes emerged: *All Efforts are Exhausted for Learning, Modifying Teaching and Learning Using Modules for Learning, Demanding yet Rewarding, and Mens Sana in Corpore Sano (A Sound Mind in a Sound Body).*

For the aspirations of the Junior High School Teachers on modular teaching modality, the following subthemes were clustered: *The Commitment to Continuous Learning, Assurance of Humane Interactive Modules, Empowering for Alternative Learning Modality, Innovating Quality Amidst Flexibility, Modules with a Heart for Learners' Well-being, Focusing Further on the Essential, and Flexing the Curriculum for Quality.*

Recommendations

Anchored on the findings of this study, the following recommendations are proposed:

1. **Revisiting the Most Essential Learning Competencies (MELCs).** The need for revisiting this is necessary to have a clear content alignment in the modules made. Capacitating teachers with these MELCs is important to further put inputs that would help the content be contextualized for easier understanding and learning among learners. The Department of Education must empower division offices for the successful implementation of the MELCs in their respective places. By doing this, the simplification

of content would be easier given that divisions will have a team of experts who would help in the development and contextualization of learning in this time of crisis.

2. **Module development and quality assurance by a team of experts.** In the development of the module, content writers and developers must have the necessary skills and knowledge to develop learning modules that would have to consider the mental condition of learners, especially those who are below-average learners. When modules are done, there must be a group of specialists who have to check the alignment of the activities in the module with the assessment, content, teaching, and learning tasks given, and what is in the MELCs.

3. **Provision of sufficient supplies and materials for mass production of modules to be used for modular teaching.** It is very important that materials are well provided so that the production will not stop. There must be a group in charge to focus on the production of modules so that teachers will have to focus on the follow-up and interventions so that competencies will be achieved despite the pandemic. This is also to free teachers from spending their personal resources on the production of modules. It is important that the group in charge of the production must innovate and build linkages that would help in providing supplies needed for the production of the modules.

4. **Minimizing the activities of the modules to cater to other interventions for better retention.** The teaching and learning activities in the module should be minimized so that the acquisition of skills among learners will have a spiral progression. Doing a student inventory would help teachers know how to craft modules having great consideration of the findings found from the student inventory and home visitations. The need for professional mentoring and skills-based training is needed by faculty so that the selection of assessment tasks and activities will be trimmed to the most essential activities that will only be added to the modules.

5. **SDO, Schools, and districts must provide frequent opportunities for continuing professional development for teachers.** Professional development activities should be appropriately supported and accessible to all teachers at all stages of their employment. Continuous education is required of teachers to maintain and develop their knowledge throughout time. Teachers' subject-specific pedagogical knowledge and skills should be developed so that they can provide proper technical assistance to learners and parents. Professional development should emphasize a deep understanding of content and discipline-based methods of inquiry, provide multiple perspectives on students as learners, and develop teachers' subject-specific pedagogical knowledge and skills.

Recommendations for Future Study

The researcher recommends the following research topics for future study:

1. Quantitative and qualitative study on the impact of modular teaching in skills-based subjects.
2. Quantitative study on the evaluation of learning modules on the study habits among learners.

3. Qualitative study on the attitude and perception of teachers on the use of modules in teaching laboratory subjects.

Compliance with Ethical Standards

The researcher received authorization from the OIC Schools Division Superintendent to conduct interviews at the respondents' schools and the respondents in the city division. The interview guide questions were validated by panel experts. Moreover, informed consent was given to the participants of the study. The objectives, beneficiaries, and potential risks of the study were explained, and the gathered data was utilized for research purposes. Participants were informed that their involvement was voluntary, and their confidentiality was preserved.

Interview data was kept confidential, with no responses or participant details disclosed without written consent. Confidentiality was maintained through informed consent and a detailed letter. Participants were assigned code numbers and access to identifying information was limited to a select few. Data was disposed of promptly after collection.

The researcher committed to maintaining data confidentiality within legal limits, ensuring that any identifiable information would remain confidential except to protect participants' privacy, rights, and welfare. Published or presented research results would not disclose any respondents' identities. Participation was voluntary, with no penalties or loss of benefits for refusal to participate. Respondents could withdraw consent and discontinue participation without any liability, and their legal rights and claims were not waived by participating in the study.

The study safeguarded data by securely storing all collected information. Only the researcher had access, with hard copies kept in a locked cabinet and digital files on a password-protected Data disposal included shredding hard copies of transcriptions, deleting digital files, and destroying the informed consent forms.

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MULTIFACETED OF BAMBOO: ITS IMPACT ON HUMAN WELL-BEING, LIVELIHOOD AND THE ENVIRONMENT IN BARANGAY TANGKUAN, OMAR SULU

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ABSTRACT

This study explores the impact of bamboo on human well-being, livelihood, and the environment in barangay Tangkuan, Omar Sulu. Bamboo's sustainability benefits human health, promotes sustainable livelihoods, and creates a better environment. The main objective of this study is to investigate the ways in which bamboo can contribute to improving the quality of life and reducing poverty for small-scale farmers. The reviewed literature highlights the significant importance of bamboo in promoting human well-being, livelihood, and environmental sustainability. Bamboo offers versatile economic opportunities, contributes to climate change mitigation, and supports biodiversity conservation. A mixed qualitative and quantitative study involved 110 respondents, with 100 surveyed quantitatively and 10 interviewed qualitatively. The findings showed that bamboo positively impacts the well-being of the respondents as it promotes a better quality of life. It revealed that bamboo highly impacted the respondent's livelihoods as it served as a source of income. It also shows that bamboo also benefits the environment by serving as a natural water filter, improving water quality, and generating oxygen. The study recommends the government have training regarding bamboo in terms of livelihood, promoting bamboo-based livelihood opportunities within the community. Additionally, encouraging the residents to grow more bamboo in the barangay and providing training on proper planting, care, and maintenance. Furthermore, teaching and implementing for the class the significant effects of bamboo on human well-being, livelihood, and environment. Lastly, to encourage future researchers to further expand the study about the interconnectedness of human well-being, livelihood, and environment with regards to the impact of bamboo.

Keywords: *Bamboo, impact, well-being, livelihood, environment, MSU-Sulu*

INTRODUCTION

As far as grass goes, bamboo is the tallest grass on earth. As everyone knows, bamboo's sustainability has made it advantageous for human health. It is sustainable and can be used to construct homes and bamboo chairs, among other necessities for human habitation. According to (Kamiński, et. Al 2016) bamboo is a robust, quickly growing, and incredibly sustainable material. It is employed structurally in various regions of the world and can grow up to 25 meters in six months. A bamboo shoot or sprout (Dabung in Bahasa sug) is a portion of the plant that can be consumed. This exceptional growth rate allows for quick and efficient utilization of bamboo resources.

Bamboo has many possible applications, making it a vital resource for those in developing nations who are impoverished (Paudyal & Gurung, 2019). Its fibers are utilized in handicrafts, industry, and clothing manufacturing. Its shoots and sprouts are also used as food. It is a commonly used raw material. The most significant non-wood plant is bamboo, which grows widely over most of the tropical and subtropical regions. It has emerged as an especially important and superior replacement for produced wood composites, including veneer, plywood, particleboard, fiberboard, pulp and paper, and stripboards and matboards (Chaowana, 2013). Outside of forests, bamboo can be found extensively in agricultural regions, along riversides, alongside highways, and in urban settings. Since bamboo is a multipurpose, quickly growing, and renewable plant, it was thought to be a good substitute for forest-derived lumber. Its many uses as wood and wood products have substantially boosted the agricultural economy by giving the rural poor who cultivate it jobs and income, as well as by fostering community development and generating income for governments (Akwada, 2016).

Moreover, bamboo has several health benefits in addition to its positive effects on the environment. Bamboo, the Tausug term "Dabung," refers to the plant's edible shoots, which provide nutritive value and adaptability in the kitchen. These shoots are a nutritious food because they are high in fiber, vitamins, and minerals. In addition to a healthy diet, meals prepared with bamboo shoots can result in enhanced immunity, better digestion, and general health. The woody ringed stems, known as culms, are typically hollow between the rings (nodes) and grow in branching clusters from a thick rhizome (underground stem).

Additionally, bamboo is highly versatile. It is capable growing in a variety of soils derived from different parent rocks, within its climatic habitats. Bamboo has also been planted on a scale along roadsides and canals. It is also planted in degraded forest areas particularly near habitations.

The study aims to explore the context of Barangay Tangkuan Omar Sulu, to understand the unique and diverse way in which bamboo influences human living and the surrounding ecosystem. Located in the province of Barangay Tangkuan Omar Sulu, is known as for its Rich natural resources and cultural heritage. Bamboo a prominent natural resource in the area, hold immense potential for improving the lives of the locale community and contributing to the environmental sustainability. This study seeks to

provide valuable insights into the opportunities and challenges associated with bamboo utilization, in furthermore, this research will delve into the environmental conservation aspect of bamboo.

Through a comprehensive analysis of existing literature, field observation and community engagement, this study seeks to provide a clear understanding of the Multifaceted Impact of bamboo on human well-being, livelihood and the environment in Barangay Tangkuan Omar Sulu

On the other hand, the local name of bamboo is called PATUNG in Bahasa sug term, KAWAYAN in Tagalog (Filipino) and the scientific name of bamboo, BAMBUSOIDEAE. It is a subfamily of flowering perennial plants in the grass family POACEAE. There are various genera and species of bamboo. Each with its own scientific name, some common genera of bamboo include PHYLLOSTACHYS, DENDROCALAMUS, and BAMBUSA. The finding of the research will contribute to the knowledge base on bamboo utilization, inform local stakeholders and policymakers, and guide sustainable development initiative that harness the potential of bamboo for the benefits of the community and the preservation of the environment.

The main objective of this study is to investigate the ways in which bamboo can contribute to improving the quality of life and reducing poverty for small-scale farmers. It also examines the role of bamboo in preserving ecosystems, conserving soil, and providing benefits. Additionally, the study explores how bamboo cooperatives can positively impact soil conservation efforts. Furthermore, it explores the potential for rehabilitating lands

On review literature of the researchers, it becomes evidence that there is a lack of local study focusing on the multifaceted impacts of bamboo on human well-being, livelihood and environment. The interaction of these factors provides researchers with insights into potential trade-offs or synergies, as well as strategies to improve well-being, encourage sustainable livelihoods, and reduce negative environmental impacts.

To achieve sustainable environmental interventions, it is crucial to understand how well-being, livelihoods, and environments interact with each other.

Research Questions:

The primary goal of this study is to determine the multifaceted impact of bamboo on human well-being, livelihood, and environment in Barangay Tangkuan, Omar Sulu. The following are the questions to achieve the goal of the study:

1. What is the impact of bamboo on well-being?
2. What is the impact of bamboo on the Livelihood?
3. What is the impact of bamboo on the environment?
4. In what ways does bamboo become multifaceted on the human live

METHODOLOGY

Research Design

The study utilized a mixed methods approach, combining qualitative interviews and quantitative surveys to gain a comprehensive understanding of the multifaceted impact of bamboo on the specified aspects in the mentioned Barangay. The qualitative interviews provided in-depth insights, while the quantitative surveys offered statistical data to support the findings. This process aimed to capture a holistic understanding of the impact of bamboo on human well-being, livelihood, and the environment of Barangay Tangkuan Omar, Sulu.

Mixed methods research is a sort of study where researchers integrate components of qualitative and quantitative research procedures for the general goals of understanding and corroboration (Johnson et. al., 2007). It involved using questionnaires to gather specific types of information about a particular subject. Furthermore, this method helped the researchers investigate the Multifaceted of bamboo: its impact on human well-being, livelihood and the environment in Barangay Tangkuan Omar, Sulu.

Research site

This study was conducted at Omar, Luuk Sulu North East, Philippine, a seaside area in the province of Sulu. The researchers chose the place of implementation due to its convenience when it comes to gathering the data. This study was connected at barangay Tangkuan Omar, Sulu which under the care of Barangay chairman, Radjabon S. Abun.

The barangay Tangkuan is located at Omar, Sulu. Its population as determined by the census 2020 was 2,608. This presented 9.29% of the total population of Omar, Sulu. Elevation at these coordinates is estimated at 25.5 meters or 83.7 feet above mean sea level. From Jolo to Omar are 56 km by road.



Participants

The participants for this study were the residents of Barangay Tangkuan Omar, Sulu, Philippines. The selection process involved engaging with community leaders and members to ensure a diverse representation of individuals involved in various aspects of bamboo-related activities, including bamboo farming, crafts, and conservation efforts. By targeting individuals with knowledge and experience in these areas, the researchers used purposive sampling to ensure that the participants could provide valuable insights and data relevant to the study objectives. With a total of 2,608 residents in the said Barangay as determined by the census 2020, 10 residents were selected for interviews (Qualitative), while 100 residents were surveyed (Quantitative). The reason for the selection of these participants is because they are the bamboo experts in the barangay and have experience in bamboo cultivation and utilization.

Instrumentation

A survey questionnaire was used as a research tool. In survey research, questions are usually closed-ended or include rating scales to collect uniform data. The survey questions were designed by the researchers based on the various information collected and consisted of a series of questions for respondents. Quantitative survey data was obtained using a 4-point Likert scale as follows: 4-Strongly Agree (SA); 3-Agree (A); 2-

Disagree (D); 1-Strongly disagree (SD). The survey questionnaires are divided into three parts. 1. Multifaceted of Bamboo: Its Impact on Human Well-being, 2. Multifaceted of Bamboo: Its Impact on Livelihood, 3. Multifaceted of Bamboo: Its Impact on the Environment in Barangay Tangkuan Omar, Sulu. The fourth part is the last part of the research and is conducting interviews. Guiding questions for the interview portion included exploring personal experiences and perspectives on the diverse impacts of bamboo on human well-being, livelihood, and the environment in the community of Barangay Tangkuan Omar, Sulu.

Data Collections

Due to the off-campus nature of the study, the researchers wrote a letter to the school director, Dr. Norman A. Abdurahman, to request permission. The researchers have also prepared a letter for the Barangay chairman of the Barangay Tangkuan Omar, Sulu, Radjabon S. Abun to seek their approval for conducting the research in their area, Barangay Tangkuan Omar, Sulu. This is to ensure that the research is legal, correct, and follows the proper process without violating any regulations in gathering the information needed. Each member of the group has sought permission from their respective parents to avoid any misunderstandings. Aside from going through the legal process, the researchers thoroughly planned their research as it is located far from the school. They made sure that their safety is prioritized and far from any potential hazards.

Statistical techniques

To study the impact of bamboo in Omar Sulu, descriptive statistics helped the researchers summarize the collected data. The tool that was employed was only the weighted arithmetic mean to assess the over research questions "What is the impact of bamboo on human well-being", "What is the impact of bamboo on livelihood", "What is the impact of bamboo on environment"

The researchers used thematic analysis to assess the research question "In what ways does bamboo become multifaceted on human lives”. By using this statistical tool, the researchers aimed to gain valuable insights into the multifaceted nature of bamboo, its impact on human well-being, livelihood, and the environment in Barangay Tangkuan Omar, Sulu.

RESULTS AND DISCUSSION

Table 4.1 Impact of Bamboo on Human Well-being

Statements	Mean	SD	Description
1. I believe that using bamboo products makes my life better.	3.6	0.5	Strongly Agree
2. I believe that incorporating bamboo-based materials in my home décor contributes to a healthier living.	3.3	0.5	Strongly Agree
3. I believe that supporting the use of bamboo positively impacts my overall well-being by contributing to a more sustainable and eco-friendly world.	3.2	0.5	Agree
4. I believe that supporting the bamboo industry contributes to the well-being of local communities and economies, which in turn affects my own well-being.	3.2	0.5	Agree
5. I believe that practicing sustainable living through the use of bamboo products positively impacts my overall well-being.	3.2	0.5	Agree
6. I believe that using bamboo as a natural, organic material positively impacts my	3.1	0.4	Agree
7. I believe that using bamboo products such as bamboo clothing and bedding, positively impacts my physical and mental well-being.	3.1	0.7	Agree
8. I believe that using bamboo kitchenware and utensils will reduce exposure to harmful chemicals.	3.0	0.7	Agree
9. I believe that bamboo-based skincare and beauty products help maintain my skin healthier.	2.5	1	Disagree
10. I believe that utilizing bamboo-based healthcare products, such as bamboo charcoal, is good for the health.	2.5	1	Disagree
Total	**3.1**	**0.6**	**Agree**

Legend: 1.00-1.75=SD; 1.76-2.50=D; 2.51-3.25=A; 3.26-4.00=SA

The overall weighted mean of the impact of bamboo on human well-being in barangay Tangkuan Omar Sulu is 3.1 and interpreted as "agree". This means that the residents in the said barangay "agree" that the presence of bamboo has highly impacted

their well-being, and this also means that the majority of the respondents were likely to match their experience with how bamboo helps their well-being. Among the questionnaire items, the statement "I believe that using bamboo products makes my life better" ranks highest with an average weighted mean of 3.6 and interpreted as strongly agree, while the statement "I believe that utilizing bamboo-based healthcare products, such as bamboo charcoal is good for the health" ranks lowest with an average weighted mean of 2.5 and interpreted as disagree.

Bamboo has been shown to have a good impact on wellbeing. Research shows that using wind to swing kinetic facades made of bamboo can provide background noise that supports the user's well-being and minimizes glare from sunlight, boosting the overall atmosphere and quality of rest in an apartment. (Ongkojoyo et. al., 2023). The findings of our study were likely reveals that bamboo plays a significant role in the practices of the local community, contributing to their overall well-being and sense of identity.

Table 4.2 Impact of Bamboo on Livelihood

Statements	Mean	SD	Description
1. Bamboo cultivation provides me with a sustainable source of income.	3.5	0.6	Strongly Agree
2. Bamboo weaving and handicrafts preserve traditional skills and cultural heritage for me.	3.5	0.6	Strongly Agree
3. Bamboo products have a beautiful and natural look, perfect for home design.	3.5	0.5	Strongly Agree
4. The production of bamboo crafts and bamboo products generates additional income for me	3.5	0.5	Strongly Agree
5. Bamboo plantations provide me with a renewable source of construction materials.	3.4	0.5	Strongly Agree
6. I believe bamboo cultivation helps the local economy	3.4	0.5	Strongly Agree
7. Bamboo weaving and handicrafts preserve traditional skills and cultural heritage for me.	3.4	0.5	Strongly Agree
8. Bamboo products are durable and eco-friendly, making them a great choice for sustainable living.	3.3	0.5	Strongly Agree
9. Bamboo harvesting and processing generate jobs, while bamboo-based products present a wide range of business opportunities	3.3	0.5	Strongly Agree

10. Bamboo- based livelihoods contribute to poverty alleviation in my community.	3.2	0.5	Agree
Total	**3.4**	**0.5**	**Strongly Agree**

Legend: 1.00-1.75=SD; 1.76-2.50=D; 2.51-3.25=A; 3.26-4.00=SA

Overall, the impact of bamboo on livelihood as perceived by the residents of barangay Tangkuan Omar Sulu gained a "strongly agree" with an overall weighted mean of 3.4 and was interpreted as "strongly agree." Among each situational/action statement or item given, the item "bamboo cultivation provides me a sustainable source of income" ranked first with an average weighted mean of 3.5, but the item "bamboo-based livelihood contributes to poverty alleviation in my community" ranked the lowest with an average weighted mean of 3.2 in the study on the impact of bamboo on livelihood in barangay Tangkuan Omar Sulu, and 3.4 is the overall average weighted mean.

Bamboo has a tremendous impact on livelihoods, delivering numerous socioeconomic benefits to communities. It is used for construction, handicrafts, fencing, musical instruments, and ceremonies, among other things, contributing to the income and livelihoods of people in many places. The findings of (Ayer et. al., 2023), underscore the importance of sustainable management and utilization of bamboo resources to ensure the long-term viability of livelihood opportunities and the preservation of cultural practices linked to bamboo. Based on the results and the literature, it has been proven that bamboo makes a significant contribution to society and the lives of individuals.

Table 4.3 Impact of Bamboo on the Environment

Statements	Mean	SD	Description
1. I saw that bamboo acts as a natural water filter, improving water quality.	3.6	0.6	Strongly Agree
2. 1. I believe that growing bamboo helps reduce deforestation	3.4	0.6	Strongly Agree
3. I believe that bamboo products are good for the environment as they are biodegradable and help reduce waste. Examples of these products include beddings, kitchen utensils, and furnitures made out of bamboo.	3.4	0.6	Strongly Agree
4. I understand that bamboo forests provide habitats for various plants and animal species and support the balance of ecosystems.	3.4	0.5	Strongly Agree

5. I appreciate bamboo as a renewable resource that grows quickly, making it an environmentally friendly choice.	3.4	0.6	Strongly Agree
6. I understand how growing bamboo promotes soil conservation and prevents erosion.	3.3	0.5	Strongly Agree
7. I believe that growing bamboo can help save other trees.	3.3	0.4	Strongly Agree
8. I believe that growing bamboo helps reduces the carbon in the air.	3.3	0.5	Strongly Agree
9. I recognized the use of bamboo as a sustainable alternative to wood that reduces deforestation.	3.2	0.6	Agree
10. I am aware that growing bamboo requires minimal use of pesticides and fertilizers, which reduces chemical pollution.	3.1	0.5	Agree
Total	**3.3**	**0.5**	**Strongly Agree**

Legend: 1.00-1.75=SD; 1.76-2.50=D; 2.51-3.25=A; 3.26-4.00=SA

Table 3 presents the result of the computation of the impact of bamboo on the environment. The statement "I saw that bamboo acts as a natural water filter, improving water quality" has the highest average weighted mean of 3.6 among the ten items and is interpreted as "strongly agree" and the item "I am aware that growing bamboo requires minimal use of pesticides and fertilizers, which reduces chemical pollution" got the lowest rank with an average weighted mean of 3.1 and is interpreted as "Agree". The overall average weighted mean is 3.3 and interpreted as "Strongly Agree". This means that the environment in barangay Tangkuan Omar Sulu has highly impacted by the presence of bamboo as it served as their natural water filter, improves their water quality, and it produced large amount of oxygen.

The use of bamboo in construction can help reduce carbon emissions and promote sustainable building practices. Overall, bamboo has the potential to be a sustainable and environmentally benign resource used in a variety of applications, including construction and pollution control (Shiwani and Thanganami, 2023). It was similar to the article constructed that the utilization of bamboo in construction offers a sustainable alternative to traditional building materials. Incorporating bamboo in construction can help reduce carbon.

4.4 In your own opinion, how did you define bamboo as a useful material base on your experience?

T1 Bamboo utilization for constructing houses

R1: I will tell you about the importance of bamboo here in the countryside. The bamboo here is necessary for us to construct a house. (Excerpt 1).

R2: It can also be used to construct a house. (Excerpt 2).

R3: Bamboo holds great significance for us humans because it can be utilized to build a house. (Excerpt 3).

R5: Most people here use bamboo to make a house. (Excerpt 4).

R5: As I said we use it to make a house. That's the only importance of bamboo, it can help people and can be used for livelihood. (Excerpt 5).

R6: Bamboo here in our province is used to make houses. (Excerpt 6).

R7: For me, based on what I have experienced, the use of bamboo is used to make lodgings such as floors (lantay in Bahasa sug term) and bamboo blinds (tiyadtad in Bahasa sug term). (Excerpt 7).

R8: The important thing that bamboo gives to our livelihood is like the house we can make from bamboo. (Excerpt 8).

R10: When it's big, it can be made into a complete house, it can be made into floors, walls and can be made into a roof. That's all I can say about bamboo. (Excerpt 9).

R10: As they say, you can make a house that is all made of bamboo, you just have to make a knot, then make a hole in the bamboo and fasten it. (Excerpt 10).

The participants emphasized the utilization of bamboo as a sustainable constructing material for constructing houses and contributing to a sustainable living. According to (Madhushan et. al., 2023), bamboo is a multipurpose material that can be utilized to make fences, floors, walls and chairs.

T2 Bamboo utilization for making handicrafts

R1: It can be used for making floors, for making fences, for making walls, and we also used it to make bamboo chairs beside our house. (Excerpt 11).

R2: It can be utilized to make bamboo fish traps (bubuhan in bahasa sug term), which are used to catch fish and lobster, and it can also be used to make a fence like what the old folks do. (Excerpt 12).

R2: It can be utilized to make bamboo baskets (ambung in bahasa sug term), bamboo nets (ligu in bahasa sug term), bamboo closets (paradul in bahasa sug term), and also bamboo chairs. (Excerpt 13).

R3: It can create fish nets (called bungsud in Bahasa Sug), as well as crab traps (called tutung in Bahasa Sug). This implies that it will facilitate our way of life. (Excerpt 14).

R4: Bamboo can be utilized into various ways like for making floors, making bamboo baskets (ambung in bahasa sug term), bamboo fish dryer (siklat in bahasa sug term) and bamboo shelf (paga-paga in bahasa sug term). (Excerpt 15).

R4: You can make fish traps (bubuh in Bahasa sug term), make crab traps (tugung in Bahasa sug term) if in the sea. (Excerpt 16).

R5: Bamboo can be made in different ways such as flat bamboo baskets (ligu in bahasa sug term) the flat bamboo basket is necessary to separate the rice and its skin called winnowing, and then it can be made into a strainer. Many things can be done with bamboo, we are making this bamboo xylophone. That's all I can say that I experienced working with bamboo. (Excerpt 17).

R5: Firstly here in barangay Tangkuan, it will be good for us, bamboo is a big help because it provides livelihood as well if there are projects, the teachers are in need and then the young people bring them to make projects made of bamboo such as glasses, that is the importance of bamboo. (Excerpt 18).

R6: Bamboo here in our province is used to make a crab traps (panggal in Bahasa Sug terms), and fish traps (tugung in Bahasa Sug terms). The "panggal" is used to catch crabs, and the "tugung" is used to catch fish. The bamboo is also used to make a hook for catching shrimp and to make a bow. Here we have bamboo, which is used for fencing and also for carrying dead people (Janaja in Bahasa Sug term). (Excerpt 19).

R6: Bamboo is helpful in our barangay because it can be used to make things and utensils like glasses, ladles, mugs, and so on. And it also gives us a living. (Excerpt 20).

R7: Apart from using it to construct a house, it is made into bamboo nets (ligu in bahasa sug term) it is a traditional strainer. Additionally, bamboo can serve as an alternative rice cooker which is called (lut in bahasa sug term), it can also be made into bamboo poles to get coconuts, cover for machete (taguban in bahasa sug term), fish nets (bungsud in bahasa sug term) to catch fish and crabs. Furthermore, it can also be used as a stick to penetrate roasted bananas. It can give convenience to people, just like chairs. (Excerpt 21).

R8: I make this as a fence and bamboo roof, that's all I can do made of bamboo. (Excerpt 22).

R8: We make it a wall and a grille, because this is where bamboo can provide comfort. (Excerpt 23).

R8: What bamboo can do is fish traps (bubuh in bahasa sug term), crab traps (panggal in bahasa sug term) and bed. (Excerpt 24).

R8: The importance of bamboo is that I make it into chicken coop and shelf. (Excerpt 25).

R9: The first thing here is to cut the bamboo into pieces, then bend the bamboo to make a fish trap (tugung in tausug term). The purpose of this is to catch some crabs and palu palu fish; you just have to submerge the trap in the river. (Excerpt 26).

R9: Fish trap (tugung in bahasa sug term) is hard to make because I am the one who knows how to make it here in our province. The process of making the fish trap is that you have to bend it first, then cut it into thin sticks, then weave the thin sticks to make the fish trap (tugung in bahasa sug term). (Excerpt 27).

R9: The people here will harvest it because they need it to make bamboo fish traps (tugung in bahasa sug term). (Excerpt 28).

R9: The only importance of bamboo is utilized to make fish traps (tugung in Bahasa Sug terms). (Excerpt 29).

Additionally, it appears that even bamboo can be used to utilize fish, crabs and lobster traps making it beneficial for the individuals in the said barangay as they can be used it as an alternative fish net. In addition, it reveals that bamboo can be used to make various types of handicrafts that are necessary to them and can make their lives less difficult. Bamboo is becoming more widely recognized as a sustainable and adaptable resource for human usage. It is a renewable material that may be used in numerous lifestyle goods like construction, fumiture, handicrafts and even foods (Prasad and Muthusamy, 2023). Bamboo can be utilized to make fish traps, offering a less expensive option than conventional materials and possibly bringing in money for rural communities (Li and Haolle, 2015).

4.5 In bamboo cultivation, in what way did you make bamboo as a source of income?

T1 Utilizing bamboo coracles to plant sea moss

R2: The bamboo here in the countryside means that after we harvest it, we will cut it, bring it to the seaside, and use it to make coracles (alul in bahasa sug term) to plant our sea moss. (Excerpt 30).

R4: It can be made into coracles, it can be used when planting sea moss, it can be a source of income. (Excerpt 31).

R5: Then what we do is we bring it to the seaside to sell it to those who plant sea moss for them to use in planting. (Excerpt 32).

R7: For making coracles (alul in bahasa sug term) to plant sea moss to sell. (Excerpt 33).

R8: There are also other bamboos brought to the beach to be used in planting sea moss. (Excerpt 34).

The participants highlight the use of bamboo; they bring it to the coast to make coracles that are used to plant sea moss. A bamboo-based planting apparatus can be used to cultivate sea moss. This unique system incorporates perforations in bamboo joints where a culture unit is put, allowing plants to grow without soil and preventing

contamination from soil heavy metals (Qin et. al., 2019). Furthermore, a fully automated floating refuse removal boat equipped with a hydraulic large item grabbing machine can help maintain sea moss cultivation areas by efficiently removing debris and trash from the water (Huang et. al., 2015). Furthermore, a bamboo fungus planting method can increase sea moss yield by using a particular fungous material mixture and implanting it in appropriate habitats, hence boosting sea moss quality while conserving land (Yan et. al, 2015).

T2 Bamboo as a source of income

R2: As a source of income, I only used bamboo to catch crabs. (Excerpt 35).

R3: The bamboo will be turned into a bamboo roof; all that has to be done by stitching it, and customers will purchase it from us. Second, since our area has bamboo plantations, the people who live by the sea will need bamboo to catch fish, which they will then purchase. (Excerpt 36).

R3: If you are good at making decorations, you can also make it a source of income, making beds and chairs, you can make it a source of income. (Excerpt 37).

R3: Our experience in our province indicates that bamboo is important because in order to obtain coconuts, people will first pick small bamboo and use them to create a pole with a small machete on top and make it as a source of revenue. (Excerpt 38).

R4: If bamboo is sold, it can help with living such as bamboo shoots (dabung in bahasa sug term) can also be sliced and made into vegetables to eat. (Excerpt 39).

R6: This bamboo helps to provide another livelihood, like selling a lot. The plant can be made into vegetables and eaten, and bamboo is worth fifty, so bamboo can provide a livelihood. (Excerpt 40).

R6: The plants are cut to eat, and then you can sell them in the market because they can provide a source of income. (Excerpt 41).

R6: If the use of bamboo can make a chair to be used for sitting and resting, then there is a chance that it can be sold like what is sold in the town. (Excerpt 42).

R7: For me, bamboo can be a source of income, dig the soil just like how bamboo is planted, and then after that we have something to make a living. Why? When you harvest it, you can make a fence for crops such as sweet potatoes and pineapples, you will have to earn money and i can spend it on myself and my children. (Excerpt 43).

R7: Like a fish trap (panggal in Bahasa sug term) it is one of our incomes, meaning this fish trap is a big help for me because it is my livelihood. (Excerpt 44).

R8: As we are used to, lobster traps (tugung in bahasa sug term), fish traps (panggal in bahasa sug term) and what so called "bugyas in bahasa sug term" become the source of income. (Excerpt 45).

R9: The purpose of bamboo for our livelihood is to make fish traps (tugung in bahasa sug term) to catch some fish called palu-palu and crabs. Fish trap making and catching fish can be a source of income by selling the fish for 50 pesos. By doing that, the fisherman will have money by selling what they catch. (Excerpt 46).

R10: Bamboo is expensive because everyone needs it and many need it. (Excerpt 47).

Based on the participant's narratives, bamboo is a very useful material for human needs. It can generate revenue in a number of ways. Bamboo is particularly advantageous since it enables the locals to earn money for a variety of uses, such as a profitable source of revenue. This money may be used to pay for their daily essentials. For rural communities, bamboo has the potential to generate income that would allow them to purchase necessities (Ekwe et. al., 2022). Bamboo is essential for socioeconomic benefits in places like Ethiopia, where it is used as building material.

4.6 Can you share any personal experiences or stories about how bamboo cultivation or utilization has improved livelihood opportunities in your barangay?

T1 Bamboo as fences to protect the crops

R1: Our experience in cultivating bamboo is that we will take small ones, like the size of our arm, and after that, we will plant them and put up a fence so that the cows don't eat them and the bamboo will grow freely. (Excerpt 48).

R1: In our experience, we can use bamboo to make fences, and we will use it to fence our crops such as bananas and sweet potatoes (Excerpt 49).

R3: As for bamboo, from what we've seen so far, it's getting a little scarcer because the cattle have already eaten some of it. This makes it harder for us to make a living because we want to be able to sell something, but the animals eat the bamboo. (Excerpt 50).

R3: Initially, we can prioritize things like fencing our vegetable and banana plantations if we haven't been provided an iron fence. That is why we value bamboo so much (Excerpt 51).

R5: Bamboo should be appreciated as well as those to be planted, because as we say here in the countryside, the planting of bamboo is a big help in our lives because, without bamboo, our life here is difficult. (Excerpt 52).

R6: To plant bamboo, you also need to build a yard so that cows and goats don't eat the plants. (Excerpt 53).

R7: Here with us, the bamboo must be fenced because it is eaten by wild cattle, so it must have a fence to protect the bamboo and grow properly. The bamboo is fenced with the bamboo itself so that it cannot be eaten by the animals. (Excerpt 54).

The participants claim that bamboo in their area is becoming scarcer since cows have already eaten it. They also advised that when growing bamboo, you should fence it to prevent cattle from eating it. Livestock grazing can have a substantial impact on

bamboo production. Furthermore, cultivation practices can influence carbon storage in bamboo ecosystems, with grazing causing soil carbon reduction and necessitating the use of sustainable management practices to maintain harmony between environmental improvement and soil productivity (Caf and Beijing, 1994).

4.7 As a user of bamboo, aside from building houses what materials can you produce from bamboo?

T1 Bamboo durability

R7: Besides building a house, there are many things you can make furniture or materials out of bamboo, first here among people like you who live in the city. The things you use are hollow blocks and they need money to buy, but I am guaranteed bamboo rather than iron. If the iron will last for 30 years, then bamboo will last 50 years. (Excerpt 55).

R10: Bamboo can be mixed with cement if the sand is new, bamboo is stronger because we tried it. That is the only importance of bamboo. (Excerpt 56).

The participants reported that bamboo's durability can last longer than iron. They also emphasized that bamboo is able to be mixed with cement if the sand is new. According to the research findings, bamboo can survive longer than iron in some applications. Bamboo has been found to have lower life cycle costs than corrugated galvanized iron sheets, making it a more environmentally friendly roofing material (Hailu et. al., 2022).

T2 Bamboo as an alternative fire lighter

R7: Bamboo can be utilized in many things like for making fire because it can serve as an alternative lighter according to the old folks. The step in doing it is you just have to get the part of the coconut which is the mesocarp (bunut in bahasa sug term) and after that, put the dry mesocarp into the bamboo and start to massage it hard with force for a minute then if it starts to smoke, it means the fire is ready. (Excerpt 57).

R7: Bamboo can light a fire by putting it into the skin of bamboo. Here with us even without everything, if there is no match, we can light up the fire by using the bamboo and mesocarp (bunut in Bahasa sug term). (Excerpt 58).

The participants assert that bamboo can be utilized to light up fire by just using its node and coconut mesocarp. Bamboo generates heat when burned through its mesocarp due to a sequence of occurrences caused by various heat fluxes. Heating bamboo perpendicular or parallel to the grain produces a variety of effects, including moisture movement, pyrolysis, oxidation, and flame (Ian et. al., 2021).

4.8 For you how has the use of bamboo as a construction material provided sustainable and eco-friendly housing solutions in Barangay Tangkuan Omar, Sulu?

T1 *Bamboo as a sustainable building material and environmentally beneficial housing option*

R1: After we harvest the bamboo, we will cut it, and then measure the size of the house that we will be constructing. After that, we will split it to make bamboo floors from the porch down to the kitchen. (Excerpt 59).

R2: The purpose of constructing bamboo materials is for convenience, like utilizing chairs for resting, which are made out of bamboo; making walls; and making floors, which are where I sleep. (Excerpt 60).

R3: First, if they don't have a metal roof, it will simply be sewed into a bamboo roof (atup sani in Bahasa Sug). Next, it will be fashioned into a wall and, finally, a floor. That's all building a house entails. (Excerpt 61).

R4: Firstly, the bamboo must be matured before it can be used, if it is not yet ripe, it cannot be used, it will withered. The bamboo, if it is very old you will know it too, you just have to slam it or by just looking at it you will know it. If it makes a sound, it means the bamboo is very old. (Excerpt 62).

R5: Making a house, when you harvest bamboo you cut it and then you measure how many lengths you need to make the walls and then make the floors of the house to be used here in the barangay tangkuan. (Excerpt 63).

R6: Planting bamboo and using it gives us good things because, first of all, we build a house; it provides fresh air and coolness near our house; and we can provide livelihoods made of bamboo. (Excerpt 64).

The participants emphasize the utilities of bamboo in building materials after you harvest it they assert that the purpose of bamboo is for their convenience which they likely used and their eco-friendly constructions material. Traditional bamboo construction techniques have been widely used in rural areas for decades and are frequently associated with vernacular architecture (Xiuyuan and Zhang, 2023). Bamboo is gaining popularity as a sustainable building material due to its biodegradability, Bamboo is undoubtedly a substantial source of income for many people. Bamboo plays an important role in rural areas such as Bhadrak district, Odisha, India, where it is used for construction, handicrafts, and feed, adding to the local population's economic well-being.

T2

R7: Safe living for us, apart from providing our needs, we can make tools that we don't need to buy anymore. In addition, it is used or made into a table to put different foods which are called (dulang in bahasa sug term) it is primarily served during weddings which is why bamboo should be taken care of because it can give convenience to the people. (Excerpt 65).

The interviews highlight that bamboo can be used to construct many different items that they don't need to buy. They also mentioned that it can be fashioned into tables where dishes are given during weddings. Bamboo is historically significant in Southeast Asian civilizations, particularly in ceremonies and daily life. Bamboo from five genera and

thirteen species is used for a variety of purposes in northeastern Thailand, including food, medicine, equipment, building materials, and attractive plants (Surapon et. al., 2023).

T3

R7: Additionally, it has something special because its water can serve as a medicine for many types of diseases. (Excerpt 66).

Participants underlined that water from the bamboo can serve as a remedy for ailments. Bamboo water, obtained from bamboo plants, has long been utilized in Asian medicine for its therapeutic effects. According to research, bamboo plants contain bioactive chemicals such as phenols, flavonoids, and phytosterols, all of which contribute to a variety of health advantages. Furthermore, studies have shown that an aqueous extract from the Guadua paniculata rhizome has anti-inflammatory and antinociceptive properties, indicating its potential for treating pain and inflammation. Overall, bamboo water and extracts show promise in preventing diseases such as diabetes, cancer, and cardiovascular issues, making them valuable in medicinal applications (Abir et al., 2015).

4.9 Have you witnessed any positive impacts of bamboo farming on sustainable agriculture practices or food security in your Barangay (Tangkuan Omar, Sulu)?

T1 Importance of bamboo

R1: The importance of bamboo is that if you want it to grow healthy, it should have a tree beside it so that the bamboo can lean underneath the tree. If it grows, the bamboo won't fall down in the air because it has a tree to lean on. (Excerpt 67).

R4: The importance of bamboo, is for the convenience of all if we don't weed it. For the relatives if they need bamboos, they can get them here. (Excerpt 68).

R10: It must be planted under a big tree if you want it to be big and tall. However, when it gets too big, the tree next to it will die. (Excerpt 69).

The interviews emphasize the necessity of planting bamboo. They said that if you want your bamboo to grow healthily and longer, you should place it beneath the tree. Bamboo can cause tree death owing to a variety of circumstances.

T2 Bamboo as a food

R2: The importance brought by bamboo cultivation is that when it's still growing, we will harvest it, and it can be eaten cooked as bamboo shoots (dabung in Bahasa Sug). (Excerpt 70).

R7: Secondly, bamboo shoots can be vegetables (Dabung in Bahasa sug term) and it is delicious to make vegetables, you can get more vitamins. (Excerpt 71).

R10: There are many things that can be done from bamboo, first of all bamboo shoots can be made intovegetables and it's delicious, it's even tastier than noodles. (Excerpt 72).

Participants appreciated bamboo shoots' originality, as well as their nutritious value in comparison to other cuisines. They claim that bamboo is tasty and nutritious.

4.10 At present, are bamboos being continuously planted or grown in your Barangay (Tangkuan Omar Sulu)?

T1

R1: For cultivating bamboo, like us we continue to cultivate bamboo and grow it. However, right now, it is not possible to grow it when it is planted if it does not have a fence because there are already many cattle here with us. That's the only thing that can't grow bamboo. (Excerpt 73).

R2: Yes, we continue to plant bamboo here. We are taking care of it now because it is a big help to us since we can use it to make floors for our house, or maybe use it to make bamboo chairs, and we can also eat it as a vegetable, which is the bamboo shoots. (Excerpt 74).

R3: There hasn't been much bamboo planted here since the animals in our province have eaten it. The bamboo should be gated but there isn't an iron fence, so even if it is, the animals would still nibble on some of it. (Excerpt 75).

R4: Regarding the planting of bamboo, nothing is being planted, but there is still bamboo growing here and being planted. (Excerpt 76).

R5: Yes, there is more, the cultivation of bamboo here is continuously growing, but are fences being built now, before the fence was made of bamboo, now the fence is protected by bamboo. Because if it is not fenced, animals such as cattle will eat it so it will not grow again. So here with us, we fence individually so that more bamboo can grow. (Excerpt 77).

R6: Anyway, there are still people who plant bamboo in our province because it is necessary to use fencing because the bamboo shoots are for cattle to eat. (Excerpt 78).

R7: As for me, yes the bamboo is still growing here because I clean it daily and I take care of it because this is what I use to meet my needs. (Excerpt 79).

R8: If like before, very few people take care of bamboo because the cattle eat it, but there are also those who are planted and it has a fence. (Excerpt 80).

R9: People here are still working, but if the bamboo doesn't fence here in our province, the cattle will eat the bamboo, but the plantations are still working. (Excerpt 81).

R10: It's just a little because the cows have eaten it. (Excerpt 82).

Participants emphasized the cultivation of bamboo in their area. According to them, the number of bamboo plants has decreased owing to cows eating them, but there are still a few planted. Bamboo can be a useful fencing material for protecting crops from harm caused by stray/wild animals such as cattle. According to research, bamboo bio-

fencing is a cost-effective and long-term animal deterrent that dramatically reduces crop losses (Sandeep et. al., 2022). Bamboo must be cultivated in local regions due to its numerous benefits. According to research, bamboo is good at restoring riverbanks, increasing soil fertility, and reducing soil erosion. Furthermore, bamboo is a sustainable alternative to lumber in construction, greatly enhancing structural performance while being renewable and locally available (S and Rittironk, 2022).

Conclusions

The main objective of this study is to investigate the ways in which bamboo can contribute to improving the quality of life and reducing poverty for small-scale farmers. It also examines the role of bamboo in preserving ecosystems, conserving soil, and providing benefits. Additionally, the findings highlighted the importance of bamboo for human well-being, livelihood, and the environment in barangay Tangkuan, Omar Sulu.

The results showed that the majority of the respondents were likely to agree with their own experience of how bamboo promotes a better health.

Furthermore, bamboo had a favorable impact on their livelihood because it was regarded as "strongly agree," implying that bamboo would most likely help them construct a sustainable lifestyle and serve as their potential income generator.

On the other hand, bamboo also greatly benefited them environmentally because it served as a natural water filter, improving water quality and producing a large amount of oxygen.

The interviews revealed that bamboo is used for a variety of purposes, including creating fences for crops such as sweet potatoes and bananas, which help the community's livelihood. Bamboo is recognized for its usefulness in supplying nutrition and revenue, particularly in locations where other food supplies may be scarce. Bamboo farming is seen as critical for livelihoods since it supplies materials for house constructions, fencing, home decorations and additional money through market sales. The uniqueness and importance of bamboo handicraft are recognized, emphasizing the specialized knowledge required for proper use and upkeep. The impact of bamboo growth on adjacent vegetation, such as trees, is discussed, emphasizing the importance of smart planting to avoid harmful outcomes.

Overall, people have asked that more bamboo be planted and cared for because it is a source of income, should be kept healthy, and improves the environment and general quality of life. After all, the more bamboo there is the more positive vibe it creates in society. Their well-being would increase with the amount of bamboo and a pleasant atmosphere in their surroundings, as this would have a positive impact on their livelihood and society. These three elements are related to one another because of this.

Recommendations

After conducting this study, the following recommendations are formulated.

To the LGU

The researchers recommends to have a training regarding bamboo in terms of livelihood, promoting bamboo-based livelihood opportunities within the community, the way on how bamboo served as a source of income and construction materials. Additionally the Barangay needs to motivate the inhabitants to organize and grow more bamboo in the Barangay.

To the residents of Barangay Tangkuan Omar Sulu

The researchers encourages the residents to plant more bamboo in their area as it is used in their daily living in order to provide more sources of bamboo to promote much good environment, livelihood and as well as a healthy well-being.

To the future researchers

Due to the lack of local study, the researchers encourage the future researchers to further more expand the study about the interconnectedness of well-being, livelihood and the environment, and explore more about the importance and uses of bamboo.

To encourage growth, the barangay needs to motivate the inhabitants to organize and grow bamboo in the barangay. The provision of training along with advice on proper planting, care, and maintenance enables successful growth. Promoting bamboo-based livelihood opportunities within the community is important. Encouraging community members to plant more bamboo and establish bamboo plantations in suitable areas within the barangay is essential. Providing training and support on proper planting techniques, maintenance, and care will ensure successful growth. Since bamboo has a lot of usage and being used by the residents in various ways, the following recommendations have been formulated. Firstly, the people in the society well instructed to plant more bamboo, as it is use in their daily living, and will be compelled to produce various ways on how bamboo become more sub profitable. Secondly, conducting practices on the livelihood in terms of bamboo-based initiatives, such as demo farming, on how to plant bamboo properly. Thirdly, understanding the significance between the well-being, livelihood and environment, while these three factors are interconnected, these factors' interplay, give insights to researchers about possible trade-offs or synergies as well as how to enhance well-being, promote sustainable livelihoods and mitigate negative environmental impacts.

Compliance with Ethical Standards

This study on the multifaceted impact of Bamboo on Human well-being, livelihood, and the environment is guided by a strong commitment to ethical principles. The researchers were obtained, informed consent from all participants, ensuring a clear understanding on the study's purpose and procedures. Participants was assured that their

information is treated with the utmost confidentiality and handled securely. Participation in the study is entirely voluntary, and participants reserved the right to withdraw at any point without facing negative consequences.

The researchers pledged to uphold ethical principle throughout the research process. Confidentially and privacy was rigorously maintained during data analysis, and results was presented in an unbiased manner.

Research finding was disseminated through appropriate channels with a paramount focus on protecting participant's privacy and confidentiality.

The researchers were dedicated to continuously assessing and addressing any ethical issues that aroused during the study. The protocol ensures that the research is conducted with the utmost respect for ethical standards and the individual who generously contributed to the study.

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MULTIVARIATE SUCCESS INDICATORS OF PROBLEM-SOLVING SKILLS PERFORMANCE IN SCIENCE AMONG GRADE 8 STUDENTS IN MOGPOG, MARINDUQUE

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ABSTRACT

One dimension to helping students is to find comparatively better way of teaching; that is the way Science is presented to students. This study aims to investigate the multivariate success indicators of problem-solving performance in science among grade eight students towards the development of proposed Science activities. Specifically, it aims to determine the problem solving performance of grade 8 students in Science; establish any significant relationship between science beliefs, Science attitudes, Science self-efficacy and metacognitive skills on science problem-solving performance among grade eight students; identify any multivariate success indicators in problem solving performance in science among grade eight students in terms of Science Beliefs; Attitudes towards Science; Science Self-Efficacy; and Metacognitive Skills and propose a framework with activities integrated relevant to structured problem-solving approach. The independent variables in this study are the multivariate indicators while the dependent variable is the performance of the students. Descriptive-correlational was used as the research design of the study to determine the multivariate success indicators of problem-solving performance in science among 140 grade eight students. The analysis revealed a concerning picture of Grade 8 students' science problem-solving performance. A significant portion (47.14%) failed to meet expectations, with no students reaching the "Outstanding" level. This highlights a pressing need for intervention and improvement. The research found a critical link between students' science beliefs and their problem-solving abilities. Those with strong convictions about the nature and value of science demonstrated significantly better performance. This underscores the importance of fostering such beliefs, potentially through activities exploring the nature of science and its real-world applications. While attitudes towards science, science self-efficacy, and metacognitive skills did not directly correlate with problem-solving performance, they may

still play indirect roles or require further investigation in specific contexts. Exploring domain-specific confidence and strategic thinking skills in science could yield valuable insights for future research and intervention strategies. Based on these findings, several activities could be integrated into a structured problem-solving approach. Cultivating science beliefs through case studies, debates, and field trips, introducing domain-specific metacognitive strategies, and promoting collaborative learning through peer discussions and shared problem-solving tasks could empower students to become confident and effective science problem-solvers.

Keywords: *education; problem-solving, skill performance, success indicator, science, grade 8 students, structured problem-solving*

INTRODUCTION

Effective problem-solving lies at the heart of scientific inquiry and is a crucial component of scientific literacy (Chin & Osborne, 2010; NRC, 2012). Beyond mere knowledge acquisition, students need to develop the skills to analyze information, formulate hypotheses, design experiments, interpret data, and draw conclusions—a complex cognitive repertoire essential for navigating the dynamic landscape of scientific exploration (Scardamalia & Bereiter, 2006).

However, research suggests that many students struggle with scientific problem-solving (OECD, 2019). Studies indicate that while students may possess basic factual knowledge, they often lack the ability to apply this knowledge effectively to novel situations or solve complex problems (Bell et al., 2003; Tai et al., 2006). This gap between knowledge and application raises concerns about the adequacy of current science education approaches and underscores the need for deeper understanding of factors that influence successful problem-solving in science.

Identifying the key psychological constructs that underpin successful problem-solving in science necessitates a multifaceted approach that moves beyond solely examining cognitive skills. Recent research highlights the critical role of non-cognitive factors such as science beliefs, attitudes, self-efficacy, and metacognitive skills in influencing students' engagement with, and mastery of, scientific inquiry (Osborne et al., 2003; Schraw & Moshman, 2002).

Science beliefs: Studies suggest that strong, positive beliefs about the nature and value of science are associated with increased engagement, motivation, and perseverance in problem-solving tasks (Kuhn et al., 2010; Sinatra & Pintrich, 2003). Students who view science as an open-ended, collaborative effort of inquiry are more likely to approach problems with curiosity and persistence compared to those who hold more static or utilitarian views (Dawson & Scardamalia, 2001).

Attitudes towards science: While not directly correlated with performance in all studies (e.g., Osborne et al., 2003), positive attitudes towards science can foster interest, enjoyment, and willingness to engage in challenging tasks, creating a conducive environment for problem-solving (Aiken, 1970; Fraser, 1986).

Science self-efficacy: Students' beliefs in their own ability to succeed in science are vital for tackling challenging problems. High self-efficacy leads to increased engagement, persistence, and willingness to take risks, all of which contribute to effective problem-solving (Bong & Bandura, 2002; Zimmerman & Martinez, 1992).

Metacognitive skills: The ability to monitor, regulate, and adapt one's thinking processes (e.g., planning, evaluating, troubleshooting) is a crucial metacognitive skill essential for effective problem-solving in any domain, including science (Schraw & Moshman, 2002).

While belief and attitude are parallelly defined in most context, beliefs are mental representations of how something is or should be. They are cognitive in nature, meaning they represent knowledge and understanding. Beliefs can be based on personal experiences, cultural influences, education, or even faith. They are often implicit, meaning individuals may not be consciously aware of holding them. For example, a student may believe that science is all about memorizing facts. On the other hand, attitudes are evaluations or feelings towards something. They are affective in nature, meaning they reflect emotions and preferences. Attitudes are influenced by beliefs, but they also involve emotional responses and can be more explicit than beliefs. For instance, a student may hold the belief that science is difficult (cognitive) and feel discouraged or uninterested in learning science (affective).

In discussing success indicators in science for Grade 8 students, these are the key factors emerge. Firstly, students' beliefs about the nature and value of science play a pivotal role. Research suggests that those who perceive science as an open-ended, collaborative process are more inclined to approach problems with curiosity and persistence, essential traits for effective problem-solving (Kuhn et al., 2010; Sinatra & Pintrich, 2003). Secondly, positive attitudes towards science, although not always directly correlated with performance, can foster interest, enjoyment, and a readiness to tackle challenging tasks, thus creating an environment conducive to problem-solving (Aiken, 2009; Fraser, 1986). Thirdly, science self-efficacy, or one's belief in their ability to succeed in science, significantly influences engagement, persistence, and risk-taking behavior, all of which are critical for effective problem-solving (Bong & Bandura, 2002; Zimmerman & Martinez, 1992). Lastly, the development of metacognitive skills, such as the ability to monitor, regulate, and adapt one's thinking, is indispensable for problem-solving across various domains, including science (Schraw & Moshman, 2002). Understanding and nurturing these indicators can significantly enhance students' problem-solving capabilities in science, ultimately fostering their success in the subject.

Despite growing recognition of the multifaceted nature of successful scientific problem-solving, important research gaps remain. First, many studies have adopted a univariate approach, focusing on individual factors in isolation. A nuanced understanding,

however, requires investigating the complex interplay between various cognitive and non-cognitive factors as they contribute to problem-solving outcomes. Second, existing research often focuses on older student populations, leaving a gap in our understanding of these factors' influence on the development of problem-solving skills in middle school, a critical period for laying the foundation for future scientific success. Third, limited research has explored the practical implications of these findings for curriculum development and instructional design. Identifying the specific constructs that predict successful problem-solving can inform the creation of targeted interventions and engaging science activities that support students' ability to think critically, solve problems, and thrive in the dynamic world of scientific inquiry.

The previous discussion underscores a significant challenge in science education: the inability of many students to apply their scientific knowledge to real-world problems. This issue is exemplified by various factors, including low PISA scores among Filipino students, evident performance gaps across different demographics, and an educational emphasis on rote memorization rather than critical thinking and problem-solving skills. The root cause of this problem is attributed to the prevalent approach in science education, which prioritizes memorization over practical application. Additionally, the problem is exacerbated by the neglect of non-cognitive factors, insufficient research focusing on middle school students, and a disconnect between research findings and educational practice. To address these challenges, the study aims to delve into the complexities of successful problem-solving in science, proposing a framework to better equip students with the essential skills needed for success in the field.

This study aims to address these gaps by investigating the multivariate success indicators of problem-solving performance in science among Grade 8 students. By examining the relationships between science beliefs, attitudes, self-efficacy, metacognitive skills, and actual problem-solving performance, the researcher aim to gain a deeper understanding of the complex factors that contribute to success in this domain. Furthermore, by identifying these key indicators, the researcher hopes to inform the development of a structured problem-solving framework with integrated activities that can be readily implemented in science classrooms, empowering Grade 8 students to become confident and adept problem-solvers in the context of scientific inquiry.

Research Objectives

This study aims to investigate the multivariate success indicators of problem solving performance in Science among grade eight students towards the development of proposed Science activities.

The specific objectives of the study are the following:

1. Determine the problem-solving performance of grade 8 students in Science;

2. Establish any significant relationship between science beliefs, science attitudes, Science self-efficacy and metacognitive skills on science problem-solving performance among grade eight students;
3. Identify any multivariate success indicators in problem solving performance in science among grade eight students in terms of Science Beliefs; Attitudes towards Science; Science Self-Efficacy; and Metacognitive Skills; and
4. Propose a framework with activities integrated relevant to structured problem-solving approach

METHODOLOGY

The research design employed in this study was quantitative-descriptive particularly descriptive correlational, aiming to identify the multivariate success indicators of problem-solving performance in Science among eighth-grade students.

This research is correlational as it involves measuring two or more related variables and examining the relationships among them. The descriptive-correlational design is employed as a fact-finding approach, focusing on accurate interpretation based on the study's findings. It is utilized to ascertain the extent of variation caused by the variables under consideration. Additionally, this research method emphasizes the current prevailing conditions (Creswell, 2012). In this study, the independent variables consist of the multivariate indicators, while the dependent variable is the students' performance.

The study involved a total of 140 Grade 8 students from Mogpog National Comprehensive School for the school year 2023-2024. The selection of students was conducted through non-random or complete population enumeration, representing a non-probability sample. This sampling method was chosen based on the characteristics of the population and the study's specific objectives, emphasizing a full appreciation of each respondent's account.

Data gathering was executed as respondents answered the survey questionnaire. Then, responses were tallied, and the data analysis phase commenced. Following the questionnaire retrieval, the researcher conducted a follow-up with the respondents to validate their responses.

The researcher employed a survey questionnaire for data collection, comprising two parts. The first part addressed the ethical considerations of the study, encompassing permits and consent forms. The second part comprised the materials of the study, including a survey with two sub-parts. The first sub-part focused on assessing the problem-solving performance of grade 8 students in Science.

This instrument was adapted from Orongan (2007). Structural model of cognitive, affective and demographic factors on tertiary student’s performance in introductory statistical at Central Mindanao University, Bukidnon Philippines. Central Mindanao University, Bukidnon Philippines. – (Cronbach - 0.821) and from Salvan, E. (2016). Demographic Characteristics, Socio-Psychological Attributes, and Performance of

College Students in Statistics. Central Mindanao University, Bukidnon Philippines (Cronbach - 0.91)

To ensure the validity of the research instruments, the results underwent review, scheme, and validation by experts. Five research instrument validators, including a three Master Teachers in Science, a Science Head Teacher, and an Education Program Supervisor in Science, cross-examined the instrument and its items to assess validity.

RESULTS

Problem-Solving Skills of Grade 8 Students in Science

The problem-solving skills of Grade 8 students were measured using the Policy Guidelines on Classroom Assessment for the K-to-12 Basic Education Program. The results of the data are presented in the succeeding Table.

Table 1. Performance of Grade 8 Students in Science

Performance Classification	**Passed**		**Failed**	**Percentage**
Outstanding	0	66		0.00%
Very Satisfactory	21			15.00%
Satisfactory	23			16.43%
Fairly Satisfactory	22			15.71%
Did not meet expectations			74	52.86%
		Total	**140**	100.00%

Based on the Transmutation Table of Department of Education on Policy Guidelines on Classroom Management

Table 1 reveals the problem-solving performance of Grade 8 students in science, as assessed using the DepEd's Policy Guidelines on Classroom Assessment, it reveals a worrying trend of high failure rates and a near absence of outstanding achievement.

Less than half (47.14%) of students failed to meet expectations in problem-solving, highlighting a critical need for improvement. None achieved the "Outstanding" classification, showcasing a lack of top performers. The majority (52.86%) fell within the "Failed" category, further emphasizing the concerning performance levels. While 16.43% achieved satisfactory or above performance ("Very Satisfactory," "Satisfactory," and "Fairly Satisfactory"), there is still significant room for improvement.

These findings can be pointed out to various factors that is not within the scope of this study. Overreliance on traditional approaches may not cultivate higher-order thinking skills needed for problem-solving (Hmelo-Silver & Barrows, 2006). Traditional assessments might not fully capture the complexities of problem-solving abilities (Popham, 2008). Individual differences in prior knowledge, motivation, and learning styles

can influence performance (Hattie, 2008). The curriculum might lack opportunities for students to practice and develop problem-solving skills in relevant contexts (Saif, 2014).

Several studies pointed out to utilize inquiry-based and problem-based learning to promote active engagement and deeper understanding (Hmelo-Silver & Barrows, 2006). Employ a variety of tools to capture the full range of problem-solving skills (Popham, 2008). Provide differentiated instruction and support to cater to diverse learning needs and styles (Hattie, 2008) and ensure the curriculum provides ample opportunities for practicing and applying problem-solving skills in meaningful contexts (Saif, 2014).

Relationship between Science Beliefs, Science Attitudes, Science Self-Efficacy and Metacognitive Skills on Science Problem-Solving Performance Among Grade Eight Students

The relationship between the problem-solving performance of the students and the other variables in this study were computed using Pearson Correlation Coefficient. Table 2 summarizes these relationships.

Table 2. *Relationship between Science Beliefs, Science Attitudes, Science Self-Efficacy And Metacognitive Skills On Science Problem-Solving Performance*

Indicators	Problem Solving Performance of the Students				
	p-Value	**Decision**	**R^2 Value**	**Correlation Coefficient (3)**	**Interpretation**
Science Based Beliefs	< 0.0001	Reject Null Hypothesis	0.5392	0.7343	There is a significant high-positive relationship
Attitude Towards Science	0.329002	Accept Null Hypothesis	0.0069	0.0831	There is no significant relationship
Science Self Efficacy	<0.00001	Reject Null Hypothesis	0.4612	0.6791	There is a significant moderate-relationship
Metacognitive Skills	0.64985	Accept Null Hypothesis	0.0387	-0.1966	There is no significant relationship

Alpha Value: 0.05 ; Computed using Pearson Correlation
Null Hypothesis: There is no significant relationship
Alternate Hypothesis: There is a significant relationship

Table 2 shows the interplay between various factors and students' proficiency in solving science problems. It utilizes Pearson correlation and significance tests to scrutinize the potential influence of science beliefs, attitudes, self-efficacy, and metacognitive skills on this crucial academic ability.

A robust positive correlation ($R^2 = 0.5392$, $r = 0.7343$; $p < 0.0001$) emerges between holding strong science-based beliefs and excelling in problem-solving tasks. This aligns with the notion that students who internalize scientific concepts and principles are better equipped to navigate complex problems within the discipline (Abd-El-Khalick, 2005; Osborne, 2014).

Likewise, a moderate-positive association ($R^2 = 0.4612$, $r = 0.6791$; $p < 0.00001$) is observed between students' confidence in their science abilities and their problem-solving prowess. This finding corroborates Bandura's (1997) social cognitive theory, which emphasizes the significance of self-efficacy in shaping individuals' engagement with challenging tasks and their ultimate success.

Interestingly, the table reveals no statistically significant association ($R^2 = 0.0069$, $r = 0.0831$; $p = 0.3290$) between students' overall fondness for science and their problem-solving performance. This finding may suggest that while positive attitudes can foster interest and engagement in the subject, they may not directly translate into enhanced problem-solving skills (Fraser, 1998).

Similarly, no statistically significant link ($R^2 = 0.0387$, $r = -0.1966$; $p = 0.64985$) is found between students' metacognitive skills, their ability to reflect on their own thinking processes, and their problem-solving capabilities. While this may seem surprising, it warrants further research to explore potential indirect or moderating effects of metacognition on problem-solving, particularly within specific problem-solving contexts or strategies (Tschirgi, 2000).

Table 2 offers valuable insights for educators seeking to cultivate effective problem-solvers in science. The significant influence of science beliefs and self-efficacy highlights the importance of fostering these qualities in students. This can be achieved through various strategies, such as inquiry-based learning approaches that promote active engagement with scientific concepts, and activities that explicitly build students' confidence in their ability to tackle scientific challenges (Hattie, 2008).

While attitude and metacognition don't directly impact problem-solving performance, exploring their potential moderating roles and designing interventions that address them holistically can further enhance students' problem-solving abilities in science.

Multivariate Success Indicators in Problem-Solving Performance in Science

The variables studied in this research were correlated to each other to identify whether the indicators can predict the success in problem solving skills. This is presented in Table 3.

Table 3. *Relationship of the Indicators and Problem-Solving Performance*

	Problem Solving Performance of the Students	**Science Based Beliefs**	**Attitude Towards Science**	**Science Self Efficacy**	**Metacognitive Skills**
Parameters	**Coefficient of Correlation**				
Problem Solving Performance of the Students	1	0.73509	0.0823	0.679	-0.1973
Science Based Beliefs	0.73509	1	0.0121934	0.738129	-0.291934
Attitude Towards Science	0.0823	0.0121934	1	0.118818	-0.0789034
Science Self Efficacy	0.679	0.738129	0.118818	1	-0.267584
Metacognitive Skills	-0.1973	-0.291934	-0.0789034	-0.267584	1

. Table 3 presents the relationship between various indicators and problem-solving performance in science, as studied in a research context. The table displays the coefficients of correlation between each pair of variables. The correlation coefficient measures the strength and direction of the linear relationship between two variables (Mukhopadhyay, 2021). Here's how to interpret the correlation coefficient values:

Problem Solving Performance of the Students has a strong positive correlation with Science Based Beliefs (0.73509) and Science Self-Efficacy (0.679) (author, year). This aligns with research suggesting that students with stronger beliefs in science and higher self-efficacy tend to perform better in problem-solving tasks (Schunk & Pintrich, 2004).

There is a weaker positive correlation between Problem Solving Performance of the Students and Attitude Towards Science (0.0823) suggesting a relatively minor influence of attitude on problem-solving performance.

Problem Solving Performance of the Students has a weak negative correlation with Metacognitive Skills (-0.1973) (author, year), implying that higher levels of metacognitive skills might not necessarily correlate with better problem-solving performance.

Strong positive correlations exist between Science Based Beliefs and both PSPS (0.73509) and Science Self-Efficacy (0.738129) (author, year). This suggests that beliefs

in science are closely related to problem-solving performance and self-efficacy in scientific tasks.

The correlation between Attitude Towards Science and Problem Solving Performance of the Students is weak (0.0823) (author, year), indicating that attitude has minimal direct influence on problem-solving performance in science.

Similar to Science Based Beliefs, Science Self-Efficacy shows a strong positive correlation with PSPS (0.679) and a very strong positive correlation with Science Based Beliefs (0.738129). This suggests that students who perceive themselves as capable in scientific tasks tend to perform better in problem-solving.

Metacognitive Skills show a weak negative correlation with PSPS (-0.1973). This suggests that there might be a slight inverse relationship between metacognitive skills and problem-solving performance in science, though it's not a strong correlation.

Overall, the table suggests that beliefs in science and self-efficacy are strongly associated with problem-solving performance in science, while attitudes towards science and metacognitive skills have weaker correlations.

Activities for Structured Problem-Solving Approach

This study investigated the potential influence of four key variables on students' problem-solving performance in science where:

Science-based beliefs: The analysis found a statistically significant relationship between students' general science-based beliefs and their problem-solving abilities.

Attitude towards science: Unlike the science-based beliefs, no statistically significant link was found between students' overall attitude towards science and their problem-solving performance. This reinforces the notion that other factors likely hold greater sway in influencing problem-solving outcomes.

Science self-efficacy: Similar to the previous variable, the study did not reveal a statistically significant direct relationship between students' general science self-efficacy and their problem-solving abilities. This suggests that confidence in scientific skills alone might not be enough to directly drive problem-solving success.

Metacognitive skills: Again, the analysis did not identify a statistically significant direct relationship between students' overall metacognitive skills and their problem-solving performance. This indicates that general metacognitive abilities, such as planning and monitoring thinking, might not directly influence problem-solving outcomes in science.

The findings of the study highlighting the absence of single predictors for science problem-solving performance emphasize the need for multifaceted frameworks that

address cognitive, motivational, and contextual factors (National Research Council, 2012). The following frameworks with the suggested activities are provided in the succeeding Figure.

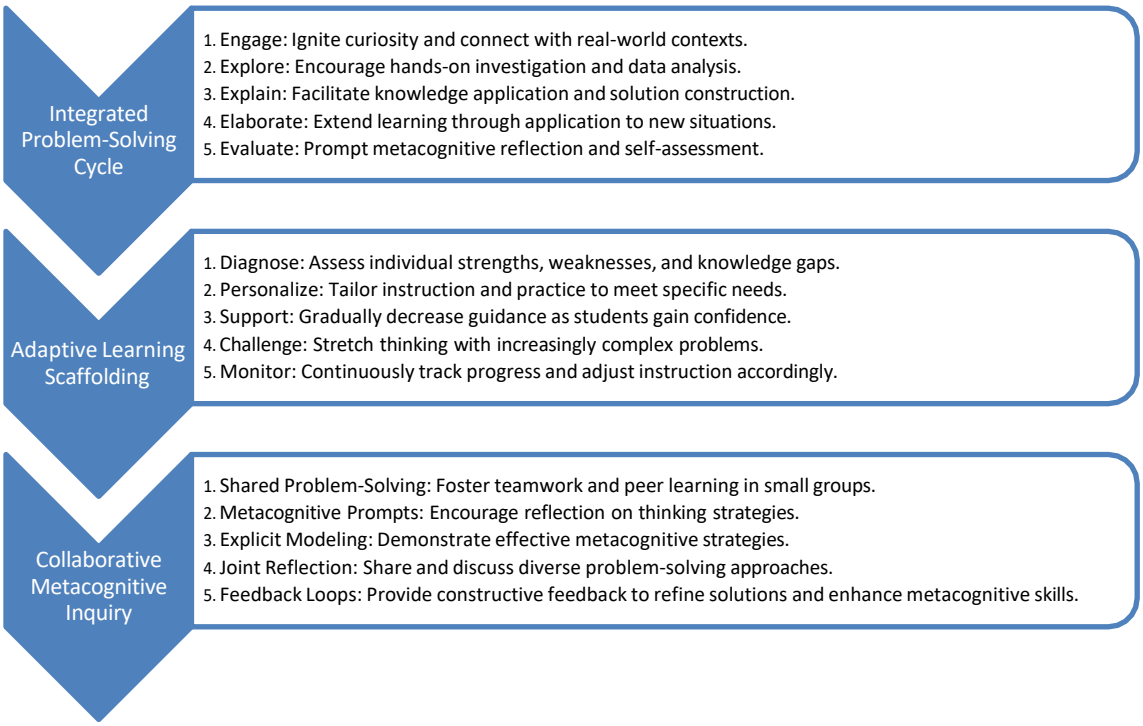


Figure 1: Suggested Framework and Activities for Structured Problem-Solving Approach

As shown in Figure 1, the framework is composed of three phases such as the integrated problem-solving cycle, adaptive learning scaffolding and the collaborative metacognitive inquiry. This framework builds upon established models like the 5E Instructional Model (Bybee, 2014) to guide students through a structured problem-solving process (Krajcik & Blumenfeld, 2006). The Engage phase sparks curiosity and connects to real-world contexts, leveraging interest as a motivational driver (Schraw & Moshman, 2005). Explore encourages active engagement with data and investigation, aligning with inquiry-based learning principles (Pedaste et al., 2015).

Explain supports hypothesis generation and solution construction, promoting knowledge application and deeper understanding (Hmelo-Silver & Barab, 2006). Elaborate extends learning through application to new situations, nurturing flexibility and transfer of knowledge (Greeno, 2009). Finally, evaluate prompts metacognitive reflection and self-assessment, fostering self-regulation and continuous improvement (Hattie & Zierer, 2017).

Further, Adaptive Learning Scaffolding recognizes individual differences and leverages technology to personalize instruction (Shute & Collins, 2017). Diagnose utilizes adaptive assessments to pinpoint individual strengths and weaknesses, drawing on formative assessment principles (Black & Wiliam, 1998). Personalize tailors' instruction

and practice opportunities based on specific needs, aligning with differentiated instruction strategies (Tomlinson, 2001). Support gradually decreases support as students gain confidence, implementing scaffolding techniques (Collins et al., 1989). Challenge provides opportunities for intellectual growth through increasingly complex problems, drawing on scaffolding theory to extend learning (Van Meter & Pressley, 2002). Monitor continuously collects data to inform adjustments, emphasizing the critical role of formative assessment in adaptive learning.

Lastly, Collaborative Metacognitive Inquiry recognizes the power of collaboration in problem-solving and emphasizes metacognitive development (Dignath & Büttner, 2008). Shared Problem-Solving fosters communication, critical thinking, and peer learning within small groups, building on social constructivist learning principles (Vygotsky, 1978). Metacognitive Prompts encourage students to reflect on their thinking strategies throughout the process, drawing on metacognitive awareness and self-regulation research (Artzt & Armour-Thomas, 2011). Explicit Modeling demonstrates metacognitive strategies like planning and monitoring, highlighting their importance in successful problem-solving (Dunleavey, 2014). Joint Reflection promotes communication and discussion of diverse approaches, enriching understanding and solidifying learning gains (Osborne, 2014). Feedback Loops allow constructive feedback within groups and from the teacher, further refining solutions and enhancing future metacognitive skills (Black & Wiliam, 1998).

These frameworks, informed by evidence-based practices and research, offer promising starting points for developing multifaceted approaches to science problem-solving. It is also to be noted that they are not mutually exclusive and can be combined or adapted to suit specific context and student needs. By focusing on multiple factors beyond single predictors, educators can create a supportive and enriching learning environment that empowers students to become confident and effective problem-solvers in science.

Table 4. *Suggested activities in implementing the Proposed Framework*

Integrated Problem-Solving Cycle	**Adaptive Learning Scaffolding**	**Collaborative Metacognitive Inquiry**
Engage	Diagnose Personalize: Offer differentiated prompts or starting points based on individual understanding. Explicit Modeling: Model your own problem-solving approach and metacognitive strategies while guiding students through the analysis.	Shared Problem-Solving Metacognitive Prompts: Before starting, prompt students to reflect on their prior knowledge and problem-solving strategies.

Table 4. *Suggested activities in implementing the Proposed Framework*

Integrated Problem-Solving Cycle	Adaptive Learning Scaffolding	Collaborative Metacognitive Inquiry
Explore	Support: Provide scaffolding through hints, guiding questions, and collaborative discussions. Monitor: Observe and informally assess student participation, understanding, and metacognitive engagement. Support: Offer hands-on materials and step-by-step instructions to support investigation. Monitor: Observe and assess students' skills in data collection, analysis, and communication. Personalize: Offer differentiated data analysis tools or resources based on individual needs. Challenge: Present students with additional data or conflicting evidence to encourage critical thinking.	Joint Reflection: After analyzing the case study, have groups share their approaches, challenges faced, and lessons learned. Challenge: Encourage students to identify additional questions or research avenues to extend their inquiry.
Explain	Monitor: Observe and assess students' ability to apply knowledge, construct solutions, and justify their reasoning. Personalize: Offer differentiated solution templates or prompts based on individual understanding.	Shared Problem-Solving: Have groups work together to formulate and explain possible solutions to the identified problem. Feedback Loops: Provide constructive feedback on student explanations, focusing on both content and metacognitive strategies used.
Elaborate	Personalize: Provide students with different application scenarios or problem types based on their learning level. Monitor: Observe and assess students' ability to transfer their learning to new contexts and solve analogous problems. Support: Offer guidance and resources for students struggling to apply their knowledge.	Metacognitive Prompts: Prompt students to reflect on how they adapted their problem-solving approach to the new situation.

Table 4. *Suggested activities in implementing the Proposed Framework*

Integrated Problem-Solving Cycle	Adaptive Learning Scaffolding	Collaborative Metacognitive Inquiry
Evaluate	Monitor: Collect student self-evaluations and reflections on their learning and problem-solving experience. Personalize: Offer differentiated reflection prompts based on individual needs and learning styles.	Joint Reflection: Facilitate a class discussion where students share their metacognitive experiences and insights gained from the activity. Explicit Modeling: Share your own metacognitive reflections and lessons learned from the activity.

As shown in Table 7, the list of activities provides a comprehensive framework for cultivating multivariate success indicators in Grade 8 science problem-solving through an integrated cycle of engagement, exploration, explanation, elaboration, and evaluation, supported by adaptive learning scaffolding and collaborative metacognitive inquiry.

Engaging curiosity in real-world contexts kickstarts the cycle, like analyzing a scientific case study in small groups. Adaptive scaffolding diagnoses individual strengths and weaknesses, offering personalized prompts, differentiated data tools, and gradual reduction of support as confidence grows. Metacognitive prompts throughout the cycle encourage students to reflect on their thinking strategies, while explicit modeling showcases effective approaches.

Hands-on exploration follows, where students collect and analyze data with differentiated support depending on individual needs. Shared problem-solving encourages teamwork and peer learning, fostering diverse perspectives and collaborative solution construction. Constructive feedback loops refine explanations and enhance metacognitive skills.

Explanation moves students towards applying knowledge to build solutions, with challenges pushing them to think critically and adapt their approaches. Collaborative metacognitive inquiry shines here, as groups share problem-solving methods and reflect on challenges encountered. Students refine their understanding and learn from each other's experiences.

Elaboration extends learning by applying the acquired knowledge to new situations. Personalized scenarios or problem types cater to individual learning levels, while prompts encourage reflection on how students adapt their problem-solving approaches. Continuous monitoring ensures every student receives the support they need.

Finally, evaluation prompts self-reflection, allowing students to assess their learning and metacognitive development. Joint reflection facilitates class discussions

where students share insights and learn from each other's metacognitive experiences. By offering differentiated reflection prompts, the cycle tailors to individual needs and learning styles.

This activity list, encompassing integrated problem-solving, adaptive scaffolding, and collaborative metacognitive inquiry, provides a dynamic and comprehensive framework for nurturing Grade 8 students' science problem-solving skills, metacognitive awareness, and collaborative learning abilities.

By taking these additional steps, the institution can further increase the employment rate of CBT graduates and help them to achieve their full potential.

DISCUSSION

47.14% of students failed to meet expectations, indicating difficulties in applying scientific knowledge and reasoning to solve problems effectively. No students achieved the "Outstanding" classification, suggesting a lack of top performers and highlighting the potential need for more challenging tasks or differentiated instruction. 52.86% of students fell within the "Failed" category, further emphasizing the prevalence of inadequate problem-solving skills and the critical need for intervention. While 16.43% achieved satisfactory or above performance ("Very Satisfactory," "Satisfactory," and "Fairly Satisfactory"), this group represents a minority, indicating that the majority of students still experience significant challenges in science problem-solving.

There is a statistically significant high positive correlation ($r = 0.7343$) between students' science beliefs and their problem-solving performance. This suggests that students with stronger science beliefs tend to perform better in solving science problems. No statistically significant relationship ($r = 0.0831$) was found between students' attitudes towards science and their problem-solving performance. This indicates that, in this particular sample, positive or negative attitudes toward science did not impact their ability to solve science problems. Similar to science beliefs, a statistically significant moderate positive correlation ($r = 0.6791$) was found between students' science self-efficacy and their problem-solving performance. This suggests that students who believe in their ability to do well in science tend to perform better in solving science problems. No statistically significant relationship ($r = -0.1966$) was found between students' metacognitive skills and their problem-solving performance. This suggests that, in this particular sample, the ability to plan, monitor, and reflect on their thinking processes did not directly impact their problem-solving abilities.

For the multivariate indicators, science based beliefs and self-efficacy have strong positive correlations with problem-solving, while attitude and metacognitive skills have weaker links.

A multi-pronged framework is proposed to elevate science problem-solving in students. It blends three key components: the 5E model for structured inquiry, adaptive learning scaffolds for personalized support, and collaborative metacognitive inquiry to foster self-awareness of thinking processes. This interwoven approach, informed by

research and adaptable to varying needs, promises to empower students to become confident and effective problem-solvers in the realm of science..

Conclusions

Aligned to the findings of this study, the following conclusions are hereby presented:

1. The analysis revealed a concerning picture of Grade 8 students' science problem-solving performance. A significant portion (47.14%) failed to meet expectations, with no students reaching the "Outstanding" level. This highlights a pressing need for intervention and improvement.
2. The research found a critical link between students' science beliefs and their problem-solving abilities. Those with strong convictions about the nature and value of science demonstrated significantly better performance. This underscores the importance of fostering such beliefs, potentially through activities exploring the nature of science and its real-world applications.
3. While attitudes towards science, science self-efficacy, and metacognitive skills did not directly correlate with problem-solving performance, they may still play indirect roles or require further investigation in specific contexts. Exploring domain-specific confidence and strategic thinking skills in science could yield valuable insights for future research and intervention strategies.
4. Based on these findings, several activities could be integrated into a structured problem-solving approach. Cultivating science beliefs through case studies, debates, and immersions, introducing domain-specific metacognitive strategies, and promoting collaborative learning through peer discussions and shared problem-solving tasks could empower students to become confident and effective science problem-solvers.

Recommendations

Based from the conclusions of this research study, the following recommendations are hereby presented.

1. While the direct relationship between science beliefs and problem-solving performance is established, further investigation is needed to elucidate the potential mediating roles of other variables. Future research should explore the influence of specific constructs, such as domain-related confidence or science-specific metacognitive strategies, on the relationship between attitudes, self-efficacy, and problem-solving. This granular understanding could inform the development of more targeted and effective interventions for diverse student populations.
2. Classroom practices should prioritize the cultivation of strong science beliefs. Activities such as case studies, debates on socio-scientific issues, and field trips to research institutions can foster positive epistemic beliefs about the

nature and value of science. This focus on belief nurturing complements traditional cognitive approaches and potentially enhances motivation and self-efficacy for engaging with scientific inquiry and problem-solving.

3. Professional development initiatives for educators should emphasize the integration of domain-specific problem-solving strategies into science curricula. Training in areas such as scaffolding hypothesis formulation, data analysis procedures, and drawing evidence-based conclusions can equip teachers with the necessary tools to guide students through the problem-solving process effectively. This targeted approach directly addresses the observed lack of correlation between general metacognitive skills and problem-solving performance in science.
4. Investing in programs and resources that promote collaborative learning in science education holds significant promise. Initiatives that encourage shared problem-solving tasks, group projects, and peer discussions can foster critical thinking, communication skills, and the development of scientific identities within a supportive social context. This shift towards a collaborative learning model aligns with current research on social constructivist learning and provides potential for enhancing collective problem-solving competencies, a crucial skill for future generations.
5. Future research directions could examine the interaction between science beliefs and other variables within specific contexts, such as cultural backgrounds, learning styles, or socioeconomic status. Additionally, longitudinal studies investigating the persistence of belief-based interventions and their impact on long-term academic achievement and career choices in science-related fields would be valuable contributions to the body of knowledge.

By implementing these recommendations and pursuing further research endeavors, stakeholders can collectively contribute to the development of effective strategies for enhancing science problem-solving abilities in students, ultimately fostering a generation of critical thinkers and confident problem-solvers equipped to tackle the challenges of the future.

Compliance with Ethical Standards

The study carefully protected participants' rights and privacy. They were fully informed about the research and could withdraw at any time. Researchers minimized risks and offered support if needed. They were also upfront about any conflicts of interest. To ensure accurate and unbiased findings, the study cited sources properly, secured

data, minimized researcher bias, and consulted with experts. Finally, the research was conducted solely to advance knowledge, not for personal gain.

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NARATIBO NG LUHA AT ANG UGNAYAN SA EMOSYONAL NA ESTADO NG KALUSUGAN

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ABSTRACT

Nilalayon ng pag-aaral na suriin ang epekto ng emosyon sa kalusugan ng tao. Upang matukoy ang target na kalahok, ginamit ang *purposive sampling,* gayundin nakatulong ang pagsasagawa ng FGD, pagre-rekord at pagta-transcribe ng mga salaysay/danas ukol sa bakas ng luha ng bawat kalahok. Batay sa naging resulta ng pag-aaral, may malalim na implikasyon sa kalusugan ang pagluha ng isang tao kabilang na rito ang mga pagbabago sa tibok ng puso, mga antas ng *stress* at iba pang mga tugon sa pisyolohikal at mental. Malaki ang ambag ng pag-aaral para sa mas malalim na pag-unawa sa ugnayan ng emosyon at kalusugan.

Mga susing salita: *naratibo, luha, epekto, emosyon, kalusugan*

INTRODUCTION

Ang pag-aaral na ito ay naglalayong mailahad ang epekto ng emosyon sa kalusugan ng tao. Sa ngayon, maraming tao ang nakakaranas ng emosyonal na mga problema tulad ng depresyon, pagkabalisa, at pag-aalala. Sa pamamagitan ng pananaliksik na ito, natutukoy kung paano nakakaapekto ang mga emosyon sa kalusugan ng tao, lalo na sa pisikal nitong antas.

Ang kakayahan ng tao na maipahayag ang kanilang mga damdamin ay isang mahalagang aspeto ng buhay. Sa paglipas ng mga dekada, mas lalo nating nauunawaan ang malalim na ugnayan ng emosyon sa kalusugan ng isang tao. Sa pag-aaral na ito, inuukit ang landas tungo sa pag-unawa sa epekto ng emosyon, na maaaring ipahayag sa pamamagitan ng pagluha, sa pangkalahatang kalusugan ng isang tao.

Ayon sa isang pag-aaral, ang emosyon ay may malaking epekto sa kalusugan ng tao. Ang mga taong may malalim na emosyonal na problema ay maaaring magkaroon ng sakit sa puso, kanser at iba pang pisikal na karamdaman. Sa pamamagitan ng pananaliksik na ito, matutukoy kung paano maiiwasan ang mga ganitong sakit sa pamamagitan ng pagkontrol sa emosyon.

Ang pag-iyak ay hindi lamang nagbibigay ng agarang lunas sa sakit ngunit nagbibigay din nang pangmatagalang benepisyo sa kalusugan. Hindi lingid sa kaalaman ng marami na ang pagsugpo/pagpigil ng luha ay itinuturing na mapanganib para sa ating pisikal na kalusugan. Gaya ng ipinakita ni Cornelius (1986), sa mass media sa loob ng 130 taon (mula 1850 hanggang 1985), ang nangingibabaw na paniniwala ay ang pag-iyak at emosyonal na pagpapahayag sa pangkalahatan ay itinuturing na kapaki-pakinabang para sa buhay ng isang tao samantalang ang pagpigil sa kanyang mga luha ay maaaring magdulot ng masamang epekto sa kalusugan. Ang pananakit ng ulo, ulser, hypertension at insomnia ay itinuturing na mga halimbawa ng mga sakit na itinuturing na resulta ng hindi pag-iyak.

Mayroon ding mga pag-aaral na sinusukat ang aktibidad ng cardiovascular bago, habang at pagkatapos ng pag-iyak, bagama't hindi madaling matukoy ang eksaktong simula at timing nito (Hendriks, Rottenberg & Vingerhoets, 2007). Ang mga nabanggit na pag-aaral ay malinaw na nagpapakita na mayroong isang paunang pagtaas sa rate ng puso at ang pag-iyak ay nauugnay sa pisikal na pagpapasigla.

Gayunpaman, mayroon ding katibayan na sa mga susunod na yugto, ang pag-iyak ay nauugnay sa pagtaas ng aktibidad ng parasympathetic nervous system, partikular na nauugnay sa pagbawi at pagpapahinga (ngunit may kawalan ng kapangyarihan at passive coping). Ayon kina Rottenberg, Wilhelm, Gross at Gotlib (2003), nag-ulat ng mga kagiliw-giliw na natuklasan na nagmumungkahi na ang pag-iyak ay maaaring pasiglahin ang parasympathetic physiological activity (tulad ng na-index ng respiratory sinus arrhythmia, RSA) sa mga malulusog na indibidwal, ngunit hindi sa mga nalulumbay na indibidwal.

Ayon kay French (1939), ang kanyang mga klinikal na obserbasyon ay humantong sa kanya upang maniwala na maraming mga pag-atake ng hika ang natapos nang magsimula ang pag-iyak. Iniulat ni Kepecs, Robin, at Brunner (1951) ang isang relasyon sa pagitan ng pag-iyak at ang pagtatago ng mga cantharides sa balat. Kapag nag-uudyok ng mga emosyonal na estado sa pamamagitan ng hipnosis, ipinakita ng mga may-akda na ang pagsugpo sa pag-iyak sa simula ay nabawasan ang rate ng pagtatago, na sinusundan ng pagtaas sa patuloy na pagsugpo.

Ang unang pag-aaral sa mga pasyente na may rheumatoid arthritis (RA), ay iminungkahi na ang daloy ng luha ay nagbawas ng mga negatibong epekto ng stress sa

neuroendocrine at immune response sa peripheral blood (Ishii, Nagashima, Tanno, Nakajima at Yoshino, 2003).

Sa pag-iisip na ito, ang pag-aaral ni Rottenberg et al. (2003) at Hendriks et al. (2007) ay nagpakita na ang pag-iyak ay talagang nauugnay sa parasympathetic restorative na mekanismo, ngunit hindi posible na tapusin kung ang parasympathetic na aktibidad na ito ay maaaring makamit o sinasamahan lamang ng mga luha kaysa sa kanilang mga kahihinatnan (Hendriks et al., 2007).

Ang pag-iyak ay itinuturing din na isang masakit na pag-uugali sa sistema ng pagmamarka ng sakit ng neonatal (Stevens, Johnston, at Gibbins, 2000). Sina Vingerhoets at Kirschbaum (1997) ay may mga babaeng paksa na nanonood ng mga romantikong pelikula at sinukat ang kanilang mood at mga antas ng salivary cortisol. Bagama't ipinakita ang isang katamtaman ngunit makabuluhang ugnayan sa pagitan ng naiulat sa sarili na intensity ng pag-iyak at pagbawas ng cortisol, walang nakitang pagkakaiba sa mga antas ng hormone ng mga umiiyak at hindi sumisigaw pagkatapos ng pelikula.

Napansin din ng iba pang mga may-akda na ang mga mas malubhang nalulumbay na mga pasyente ay bihirang umiyak (Kottler, 1996; Patel, 1993). Naiulat pa na ang mga taong may posttraumatic stress disorder ay nagpapakita ng emosyonal na pamamanhid, na pumipigil sa pagpapakita ng anumang emosyonal na reaksyon (Litz et al., 1997).

Isa rin itong ilustrasyon ng katotohanan na ang (hindi) pag-iyak ay dapat minsang ituring na resulta sa halip na isang determinant ng katayuan sa kalusugan. Sinuri ni Gross at Levenson (1993) ang mga epekto ng pagpigil sa kalungkutan at kaligayahan habang nanonood ng pelikula sa physiological functioning. Ang kanilang mga resulta ay nagpapahiwatig na sa parehong mga kondisyon ay may katibayan ng pagtaas ng nagkakasundo na pag-activate ng cardiovascular system.

Sa isang susunod na pag-aaral, ang mga katulad na resulta ay natagpuan tungkol sa pagkasuklam (Gross, 1998). Lumilitaw rin na ang pagsugpo sa anumang hilig na tumugon sa mga emosyon ay tila humahantong sa isang matalim na pagtaas sa pisyolohikal na makasalanang aktibidad na sa katagalan ay maaaring humantong sa pinsala sa kalusugan. Dahil sa ilalim ng normal na mga kalagayan ay bihirang maramdaman ng mga tao ang pagnanasang umiyak, malamang na ang pagsupil dito ay maaaring makaapekto nang malaki sa kalagayan ng kalusugan.

Gayunpaman, ang pag-aaral ni Labott at Martin (1987), na partikular na nakatutok sa hypothesis na ang pag-iyak ay maaaring kumilos bilang isang moderating variable, nagpakita ng positibong epekto nito sa mga sitwasyon ng conflict, stress at tensyon. Ang mga resulta ng pag-aaral na ito ay hindi sumusuporta sa hypothesis na ang pag-iyak ay nagpapadali sa mga proseso ng pagkaya, na humahantong sa mas mahusay na mood pagkatapos ng pagkakalantad sa isang stressor.

Bukod pa rito, dalawang pag-aaral ang tahasang nakatuon sa mga epekto ng pagpapahayag ng 13 emosyon sa mga sitwasyon ng pangungulila. Pinag-aralan ni Znoj (1997) ang kaligayahan ng mga babaeng nawalan ng asawa. Ang pag-iyak sa mga haka-

haka na pag-uusap sa kanilang namatay na asawa ay natagpuan na walang koneksyon sa kaligayahan sa hinaharap.

Gaya ng nabanggit sa itaas, hindi dapat kaligtaan na ang pag-iyak ay maaari ding magkaroon ng malakas na epekto sa panlipunang kapaligiran. Kung totoo na ang pag-iyak ay may malakas na potensyal na makakuha ng suporta sa lipunan at upang itaguyod ang kalakip, maaaring inaasahan na sa pamamagitan din ng rutang ito ang pag-iyak ay nagtataguyod ng kalusugan. Mayroong sapat na katibayan na ang suporta sa lipunan ay maaaring makaimpluwensya sa mga proseso ng psychobiological at kumilos bilang isang buffer laban sa mga negatibong epekto sa kalusugan ng mga nakababahalang kondisyon (e.g. Cobb, 1976; Uchino et al., 1996).

Ang pagkakaiba ay kadalasang ginagawa sa pagitan ng emosyonal na suporta (nag-aalok ng balikat at braso sa paligid mo, nakakaaliw na mga salita), impormasyonal na suporta (payo at kapaki-pakinabang na mga mungkahi kung paano haharapin ang mga problema) at instrumental na suporta (nag-aalok ng tulong, pagpapahiram ng pera o mga tool). Mahigpit na itinataguyod ni Bowlby (1972) sa kanyang tesis na ang pag-iyak ay pinakamahalaga sa pagpapadali ng attachment sa mga kabataan, kasama ang iba pang mga pag-uugali tulad ng pagngiti, pagsuso, at pagsunod.

Ipagpalagay na ang partikular na function ng pag-iyak ay hindi pa ganap na nawala sa adulthood, ito ay kagiliw-giliw na isaalang-alang ang mga resulta ng isang kamakailang pag-aaral ni Zachariah (1996) sa 118 primiparous na mga buntis na kababaihan. Sinuri ng may-akda na ito ang mga predictors ng psychological well-being sa espesyal na grupong ito at nalaman na ang pinakamahalaga ay ang attachment ng mag-asawa, stress sa buhay, at suporta sa lipunan. Nakatutukso na isipin na sa grupong ito ang pag-iyak ay nagpapadali ng pagkakadikit, na ginagawang mas functional na kahit isang minorya ng mga buntis na kababaihan ay may isang medyo mababang threshold upang lumuha, lalo na sa unang yugto ng pagbubuntis (Lutjens, 1998).

Ang neuroticism o negatibong epekto ay kilala na negatibong nauugnay sa subjective na kalusugan, ngunit sa pangkalahatan ay walang kaugnayan sa mas layunin na mga tagapagpahiwatig ng kalusugan (Watson & Pennebaker, 1989). Higit pa rito, ang mga kababaihan na nakakuha ng mataas na marka sa katatagan (na nauugnay sa kakayahang makatiis ng stress) ay tila hindi gaanong umiyak at hindi komportable pagkatapos ng pag-iyak kaysa sa mga kababaihan na mababa sa variable na ito (Schlosser, binanggit sa Goldberg (1987). Partikular, kilala ang pagsugpo sa negatibong kaugnayan nito sa kalagayang pangkalusugan (at maging pisikal) (Schwartz, 1990; Schwartz at Kline, 1995).

Sa kasalukuyan, maraming tao ang nakakaranas ng mga problema sa pag-iisip dahil sa mga pangyayari sa buhay tulad ng pandemya, krisis sa ekonomiya at iba pang personal na problema. Sa pamamagitan ng pananaliksik na ito, maaaring maibigay ang mga solusyon upang maibsan ang emosyonal na problema ng mga tao at mapanatili ang kanilang kalusugan.

Research Question

Ang pag-aaral na ito ay naglalayong masuri ang mga tema ukol sa naratibo ng luha at epekto nito sa emosyonal na kalusugan ng bawat kalahok. Espisipiko namang sasagutin ng pag-aaral ang tanong sa ibaba na;

Ano-anong temang nangingibabaw batay sa danas ukol sa pagluha at ang epekto sa emosyonal na estado ng kalusugan ng bawat kalahok?

METHODOLOGY

Research Design

Deskriptibo-kwalitatibong metodo ang ginamit sa pananaliksik na ito. *Case study* ang metodong ginamit ng mananaliksik. Upang maging mas balido at maaasahan ang mga datos, ginamit ang talatanungan at panayam sa pag-aaral upang makuha ang detalye ng epekto ng luha sa kanilang emosyonal na kalusugan at aanalisahin ito batay sa pagko-*coding*.

Locale of the Study

Ang pag-aaral ay isinagawa sa komunidad ng Barangay San Lorenzo, Kitaotao, Bukidnon sa taong 2023.

Respondents of the Study

Ang mga kalahok ng pag-aaral ay binubuo ng limang (5) lalaki at limang (5) babae, edad 18 hanggang 60, na may iba't ibang emosyonal na karanasan.

Sampling Procedure

Pinili ang mga kalahok mula sa mga komunidad at organisasyon sa pamamagitan ng *purposive sampling.* Ang mga kalahok ay hiniling na magbigay ng kaalamang pahintulot na lumahok sa pag-aaral.

Ginamit ang Focus Group Discussion (FGD) para tuklasin ang mga personal na karanasan ng mga kalahok sa epekto ng mga emosyon sa kanilang kalusugan. Ipinasulat din sa bawat kalahok ang kanilang sariling naratibo o kuwento ukol sa pagpapahayag ng kanilang emosyon at ang epekto nito sa kanilang emosyon. Ini-rekord lahat ng mananaliksik ang naging talakayan ng kanyang mga naging respondente.

Instrument of the Study

Sa pag-aaral na ito, ang instrumentong ginamit ay ang talatanungan na pinasagutan sa mga napiling kalahok at nagsagawa ng panayam na may edad 18 hanggang 60.

Data Gathering Procedure

Ang mananaliksik ay humingi ng pahintulot sa kapitan ng baranggay sa San Lorenzo, Kitaotao, Bukidnon at sa mga *Barangay Health Workers (BHW).* Ibinigay ng mananaliksik ang talatanungan sa mga taong natukoy para maging kalahok sa pananaliksik. Isinagawa ang pangangalap ng datos sa taong 2023.

Data Analysis

Para sa mas malinaw na interpretasyon ng mga datos na nakalap mula sa panayam at talatanungan, itinala ng mananaliksik ang mga tugon ng bawat kalahok batay sa paulit-ulit na tema. Matapos maitala ang mga paulit-ulit na tema, nagsagawa ng coding, pagkakategorya, at pagbibigay-kahulugan sa datos upang matuklasan ang mga umuulit na tema. Kasama rin dito ang pag-unawa sa mga pinagbabatayan na kahulugan, pattern, at tema sa loob ng nakolektang datos.

RESULTS AND DISCUSSION

Ang seksyong ito ay nagpapakita ng pagsusuri at interpretasyon ng mga datos. Ang tabular at tekstuwal na presentasyon ay ginagamit upang maipahayag ang pagsusuri ng pahid ng luha at epekto ng emosyon sa kalusugan.

Epekto ng Emosyon sa Kalusugan

Ang pagsusuri sa epekto ng emosyon sa kalusugan ay nakakuha ng mga tema na may kaugnayan sa positibo at negatibong epekto nito. Mula sa pananaw ng mga kalahok mayroong tatlong (3) tema na lumitaw: (a) emosyonal na kalusugan (b) pagbabago ng *mood* at *stress* (c) pamamahala ng emosyon. Ang mga koda at temang ito ay inilalarawan sa Talahanayan 1.

Emosyonal na Kalusugan

Ang unang tema, emosyonal na kalusugan, ay nagpapahayag tungkol sa mga epekto ng luha sa katawan ng tao, mga positibo at negatibong epekto sa kalusugan, at pisyolohikal na reaksyon. Sa mga kalahok, ang pahid ng luha ay nagbibigay ng iba’t ibang epekto sa katawan.

Sa pahayag ng mga kalahok na nakakaapekto ang pagpahid ng luha sa kanilang katawan sa pamamagitan ng pagiging malungkot at masakit ang ulo pagkatapos umiyak. Ang pag-iyak ay nakakawala ng sakit na nararamdaman. Minsan ay nakakapagod, nakapanghihina at gustong mapag-isa. Pinatunayan ng ikaapat na kalahok na, “Nakakaapekto ito sa pamamagitan ng paglabas ng aking emosyon na maaaring maging sanhi ng panghihina ng katawan, pagkakaroon ng sipon, pagkirot ng dibdib, at maaari ding mawalan ng ganang kumain at magkasakit bilang bunga nito.” Dagdag naman ng ikaanim na kalahok na, “Pagkatapos kong mapunasan ang luha ko sa tuwing umiiyak ako

ay gumagaan ito. Dahil sa pagpunas ko nito ay iniisip ko na kaya ko to! At pinapalakas nito ang loob ko."

Talahanayan 1. Presentasyon ng mga datos na may tema, kategorya at koda tungkol sa epekto ng luha sa emosyon ng kalusugan

TEMA	KATEGORYA	KODA
Emosyonal na Kalusugan	Pisyolohikal na Epekto	Epekto sa Katawan Positibong Epekto Negatibong Epekto Pisyolohikal na Reaksyon
Pagbabago ng Mood at Stress	Mental na Epekto	Resulta sa Kalusugan Pagbabago ng Mood at Stress Emosyon/Nararamdaman Dahilan ng Pagluha Implikasyon sa Antas ng Stress
Pamamahala ng Emosyon	Epektibong Paraan ng Pangangalaga sa Kalusugan	Estratehiya/Interbensyon Mapahusay ang Kalusugan

Mayroong mga positibong epekto ng luha sa kalusugan na nabanggit ng mga kalahok. Ayon sa unang kalahok, *"Ang positibo kay makagaan sa lawas kay makagawas ang gibati human ug hilak."* Sinang-ayonan naman ng ikalawang kalahok na *"Kung makahilak mawala ang sakit nga gibati sa dughan."* Pagkatapos mailabas ang emosyon, mas nagkakaroon ang isang tao ng lakas ng loob na harapin ang mga hamon ng buhay. Nagiging mas matatag ang isang tao dahil naipalabas niya ang kaniyang nararamdaman.

Sa kabilang banda, mayroon din itong mga negatibong epekto sa kalusugan ng tao. Ayon sa ikatlong kalahok, "Ang negatibong epekto sa aking katawan ay nanghihina ako." Sinabi naman ng ikasampung kalahok na, *"Pero, naa sad negatibo kay makakapoy sa lawas human ug hilak."* Binaggit naman ng ikaapat na kalahok na, "Sa negatibong epekto naman ay maaaring magkaroon ng depresyon ang isang tao kapag paulit-ulit niya iyong naramdaman o hindi mapigilan ang emosyon at hahantong sa pagkitil ng sariling buhay." Kaya, mas mainam na alam natin ang pagkontrol ng ating sariling emosyon para maiwasan ang mga masasamang pangyayari.

Mayroon ding mga pisyolohikal na reaksyon na naoobserbahan sa katawan pagkatapos punasan ang mga luha. Sa salaysay ng unang kalahok, "*Ang mabati nako kay kakapoy, dili ganahan mo lihok, ug bug-at sa lawas.*" Ayon naman sa ikaapat na kalahok, "Pagkatapos punasan ang mga luha ay makakaramdam ako ng pagod, antok, pananakit ng mata dahil sa pagluha. Magiging magaan din ang aking pakiramdam dahil sa luhang nailabas dahil sa sama ng loob o sa sakit na nararamdaman." Dagdag naman ng ikaanim na kalahok, "Pagkatapos kong punasan ang luha ko ay naging masigla ulit ang katawan ko, dahil kapag nagpunas ako ng luha ko, nilalakasan ko ang loob ko. Normal lang sa tao na maluha kapag nasaktan pero may katumbas naman ito na ngiti

pagkatapos.” Saad naman ng ikasiyam na kalahok, “Ang pagluha ay nakawala ng sakit sa damdamin at ito’y nakabawas sa stress at pananakit.”

Itinuturing ni Hamilton (1982) ang patuloy na pag-iyak bilang hindi gaanong epektibo para makapagbigay ng kaginhawahan. Inilalarawan ng may-akda na ito ang pag-iyak bilang isang tampok ng mas banayad na mga anyo ng depresyon, samantalang sa matinding depresyon, ang mga pasyente ay maaaring hindi na kayang umiyak.

Pagbabago ng *Mood* at *Stress*

Ang pangalawang tema na nabuo ay pagbabago ng *mood* at *stress*. Nababago ang *mood* at *stress* ng isang tao depende sa kaniyang pinagdaan. Nagsasaad ito na maaaring mabago ang *mood* kapag ang isang tao ay nakaramdam ng mga di kanais-nais na pangyayari sa buhay. Mayroong mga natuklasan na pagbabago sa mga aspekto ng kalusugan gaya na lamang ng pagkakaroon ng presyon ng dugo at tibok ng puso. Pinatutunayan sa pahayag ng unang kalahok na, *“Mabag-o kay kung mo hilak kay motaas ang dugo ug mo paspas ang pitik sa kasing-kasing.”* Bilang karagdagan, sinabi ng ikawalong kalahok na, “Maaaring mabago ang presyon ng dugo at tibok ng puso dahil sa iba’t ibang kadahilanan tulad ng pisikal na aktibidad, stress, pagkain, kapaligiran, hormonal na mga pagbabago, at iba pang mga kondisyon sa kalusugan.”

Pagkatapos magpunas ng luha, nagbabago rin ang mood at antas ng *stress* ng isang tao. Sa pahayag ng ikaapat na kalahok na, “Pagkatapos lumuha ay naiilang akong makipaghalubilo sa mga taong nakapaligid sa akin. Tinatamad din akong magsalita, dahilan kung bakit sumasama ang timpla ng mukha o tingin ko sa mga taong nakikita ko at mapagkakamalang galit ako sa kanila.” Sinabi naman ng ikalimang kalahok na, “Magbabago ang aking mood kapag pinalabas ko na lahat ang sakit sa aking damdamin.” Saad naman ng ikaanim na kalahok na, “Pagpahid ko ng luha ay iniisip ko natapos na ang sakit. Kaya umiisip nalang ako ng masaya para malibang. Ang tao naman ay may iba’t ibang paraan kung paano dalhin ang mood or stress.” Dagdag naman ng ikasampung kalahok na, *“Kahuman ug hilak, medyo okay ang pamati sa lawas. Ug makuha-kuhaan ang problema kay nakagawas ang gibati.”*

Mayroon ding mga emosyonal na nararamdaman pagkatapos punasan ang mga luha. Ayon sa ikalawang kalahok, *“Nigaan ang paminaw human nagpahid sa luha.”* Isinalaysay din ng ikaanim na kalahok ang kanyang nararamdaman, sabi niya na, “Matapos kung punasan ang luha ko ay masaya na ako ulit. Maiksi lang ang buhay ng tao kaya bawal ma *stress.* Happy lang, walang *ending.* Mayroon naman akong mahal sa buhay na nagbibigay lakas ng loob ko sa bawat sitwasyon.” Ipinahayag naman ng ikasiyam na kalahok ang kaniyang emosyon, “Nararamdaman ko ang magandang ginhawa pagkatapos lumuha dahil na ilabas ko ang sakit ng dinadala na problema. Ang pagluha ay isang solusyon para mawawala ang ‘yong stress at pighati ng damdamin. Ito’y nakakatulong sa ating kalusugan para mag iba ang ating pananaw sa buhay.”

Sa modernong teorya ng stress, ang pag-uugali sa pagkaya ay tumutukoy sa mga pagsisikap (pag-uugali at nagbibigay-malay) upang alisin ang mga stressor o bawasan ang emosyonal na pagkabalisa na dulot nito. Ang isang pangkalahatang pagkakaiba ay

maaaring gawin sa pagitan ng pagharap na nakatuon sa problema at pagharap na nakatuon sa emosyon (Lazarus & Folkman, 1984; Steptoe, 1991).

Ang pagharap na nakatuon sa problema ay tumutukoy sa mga pagsisikap na naglalayong alisin ang mga stressor o bawasan ang kanilang intensity. Sa kabilang banda, ang emotion-focused coping ay tumutukoy sa mga pagsisikap na naglalayong bawasan ang intensity ng mga emosyon at i-regulate ang mga ito nang tama.

Pamamahala ng Emosyon

Pamamahala ng emosyon ang pangatlong temang lumitaw sa pag-aaral. Mayroong mga natuklasang impormasyon na nagsilbing batayan para sa pagbuo ng mga estratehiya sa pamamahala ng emosyon at mga interbensyon upang mapabuti ang mga resulta sa kalusugan. Sa isang panayam, sinabi ng ikalawang kalahok na, *"Magpa check-up sa health center"* kapag nakaramdam ng kakaibang sakit. Upang maiwasan ang pag-iyak sa sitwasyong pinagdaanan, ang ikatlong kalahok ay naglalaro ng badminton at gumagamit ng *cellphone* saka manonood ng mga nakakaaliw na *videos*, at nakikinig ng mga musika para gumaan ang nararamdaman niya.

Ayon naman sa ikaapat na kalahok, "Kailangan sa buhay ng bawat tao ay mayroon tayong kahit isang taong mapagkakatiwalaan at masasandalan upang may masabihan o may makausap tao sa panahong kailangan natin ng tulong, gabay, alalay at malabasan ng problema o hinanakit sa buhay." Kinakailangan na ibahagi sa isang kaibigan o taong mapagkakatiwalaan upang maibsan ang sakit na nararamdaman ng isang tao. Binanggit ng ikawalong kalahok na kinakailangang konsultahin ang isang propesyonal sa kalusugan para sa tamang pangangalaga. Dagdag pa niya, "Huwag nating hayaan ang ating mga sarili na kimkimin ang sakit kahit alam nating hindi na natin kaya. Wala namang masama sa paglabas ng emosyon, mas masama ang pinipilit natin ang ating sarili na maging okay kahit hindi naman."

Para mas mapahusay ang kalusugan ng isang tao ay dapat mailabas ang kaniyang emosyon sa pamamagitan ng pag-iiyak dahil ang pag-iyak ay nakakatulong sa ating katawan. Ayon sa salaysay ng unang kalahok, *"Dili kaayo magpa stress ug ipagawas ang gibati pinaagi sa paghilak."* Sinabi naman ng ikaapat na kalahok na, "Natuklasan ko ito batay sa aking karanasan sa buhay na hindi pala nagiging batayan ang pagluha dahil mahina ka, kundi lumuha ka para mailabas mo 'yong sakit at emosyon na iyong kinikimkim upang gumaan ang iyong kalooban. Magagamit mo rin ito sa pang araw-araw upang maging malakas ka sa mga susunod na hamon sa iyong buhay." Nagbigay naman ng saloobin ang ikaanim na kalahok, "Naisip ko itong inspirasyon lalo na sa mga mahal ko sa buhay dahil minsan kapag nakita ka nilang malungkot ay naaapektuhan din sila. Positibo lang lagi. Bawat problema ay may solusyon." Dagdag ng ikapitong kalahok, *"Makagaan sa gibati kung mapagawas ang gibati pinaagi sa paghilak."*

Samakatuwid, may malakas na pagkakatulad sa mga estratehiya sa regulasyon ng emosyon na binanggit sa itaas. Iminungkahi pa ni Lipe (1980) na ang pag-iyak ay maaaring magbago ng physiological states upang mapadali ang pag-uugali sa paglutas ng problema. Kaya, ang pag-iyak ay maaaring potensyal na magsilbi sa parehong mga function at maaaring makatulong na baguhin ang hindi nakokontrol na mga sitwasyon sa

medyo mas nakokontrol na mga sitwasyon, sa gayon ay makabuluhang binabawasan ang stress.

Pisyolohikal na Epekto

Ipinakita ng mga pagsusuri na ang pagpahid ng luha ay nagdulot ng pansamantalang pagtaas ng presyon ng dugo, at may pagbabago sa tibok ng puso. Ito ay nagpapahiwatig na ang mga emosyonal na proseso at pisyolohikal na mga tugon ay maaaring maiugnay. Bilang suporta sa pag-aaral nina Labott at Martin (1987) nabanggit sa Bylsma, Croon, at Vingerhoets (2008) na isang coping mechanism ang pagluha ayon sa imbestigasyon. Batay sa naging resulta, ang isang indibidwal na may maraming stressor na umiiyak nang madalas hindi nakakaranas nang ginhawa bagkus mas lumala ang kanyang kondisyon.

Bilang susog sa kaisipan, sinuri din sa pag-aaral nina Rottenberg, Gross, at Gotlib (2005) ang emosyonal na konteksto ng mga taong nakaranas ng depresyon. Natuklasan sa pananaliksik na ito na ang mga taong may malalim na depresyon ay maaaring kulang sa sensibilidad sa mga emosyonal na sitwasyon. Ibig sabihin, ang kanilang mga reaksyon sa mga kaganapan at sitwasyon ay maaaring labis o hindi naaayon sa mga normal na emosyonal na tugon. Sa kasong ito, ang labis na pagluha ay maaaring dahil sa kakulangan ng pagiging sensitibo sa mga emosyonal na sitwasyon.

Sa pag-aaral na ito, sinisiyasat ng mga mananaliksik ang proseso ng klasikal na pagkondisyon ng mga ekspresyon ng mukha na nauugnay sa mga luha. Natuklasan sa pananaliksik na ang pagluha ay maaaring sanhi ng emosyonal na mga karanasan. Ibig sabihin, ang mga tao ay maaaring awtomatikong bumuo ng isang nakakaiyak na tugon sa mga sitwasyon kung saan sila ay nakakaranas ng isang emosyonal na pagkakataon (Vingerhoets, Van Tilburg, Boelhouwer, 2011).

Mental na Epekto

Ang mga ehersisyo at obserbasyon ng mga kalahok ay nagpakita ng pinabuting kalooban pagkatapos magpunas ng luha. Napansin din nila ang pagbaba ng antas ng *stress.* Ipinapahiwatig nito na ang mga bakas ng luha ay may positibong epekto sa sikolohikal.

Nalaman sa pag-aaral nina Rottenberg, Ray, at Gross (2007) na ang pag-iyak, kasama ng iba pang mga emosyon, ay maaaring makaapekto sa kalusugan ng isip ng isang tao. Itinatampok ng pag-aaral na ito ang kahalagahan ng mga emosyon sa pag-unawa sa estado ng isang indibidwal.

Natuklasan din ng isang pag-aaral nina Bylsma, Croon, at Vingerhoets (2008) na ang pag-iyak ay maaaring magdulot ng mga pagbabago sa pag-uugali sa ibang tao, na nakakaapekto sa mga relasyon at sa pangkalahatang kagalingan ng indibidwal. Ang pag-aaral na ito ay nakatuon sa epekto ng pag-iyak sa mga aspeto ng pang-araw-araw na buhay ng isang tao.

Conclusions

Batay sa mga natuklasan ng pag-aaral, narito ang mga sumusunod na kongklusyon:

May mga epektong pisyolohikal ang pagtatago/pagpigil ng luha na maaaring magbigay daan sa mas malalim na pag-unawa sa kaugnayan sa pagitan ng mga emosyon at kalusugan. Ang pagluha ay maaaring magdulot ng mga pansamantalang pagbabago sa ilang mga sintomas ng pisyolohikal, ngunit kailangan pa rin ang masusing pagsasaliksik upang matukoy ang kanilang kalikasan.

Ipinakita ng mga pag-aaral na maaaring makaapekto sa *mood* at *stress* pagkatapos maipalabas ang sakit ng nararamdaman sa pamamagitan ng pagluha. Ang pagbuo ng isang masusing pagsusuri ng mga emosyonal na aspekto ay maaaring makatulong sa masusing pagsasaliksik sa kalusugan ng isip at magbigay-daan para sa mga interbensyon.

Ang pag-aaral ay nagbibigay daan para sa pagbuo ng mga diskarte sa pamamahala ng emosyon at mga interbensyon para sa mas mabuting kalusugan. Ang impormasyong nakuha mula sa na pananaliksik ay maaaring magsilbing batayan para sa mga programang pangkalusugan upang itaguyod ang mental at pisikal na kalusugan.

Recommendations

Batay sa mga natuklasan, lubos na inirerekomenda ang masusing pagsisiyasat sa mga aspeto ng pisyolohikal na epekto ng pagpahid ng luha, kabilang ang presyon ng dugo, tibok ng puso, at iba pang mga tagapagpahiwatig ng kalusugan. Makakatulong ito na mas makita ang tunay na epekto sa iyong katawan.

Kinakailangan ang masusing pagsusuri sa mga aspetong sikolohikal tulad ng *mood* at *stress.* Ang isang mas detalyadong pagsusuri ay makakatulong na maunawaan kung paano nakakaapekto ang mga pahid ng luha sa kalusugan ng isip.

Inirerekomenda ang pagsasanay sa emosyonal na kaayusan bilang bahagi ng interbensyon. Maaaring kabilang dito ang mga diskarte sa pagpapahayag ng emosyonal at iba pang mga pagsasanay upang mas mahusay na pamahalaan ang mga emosyon.

Ang mga natuklasan sa pananaliksik ay maaaring magsilbing batayan para sa pampublikong edukasyon tungkol sa kahalagahan ng pakikipagtalastasan ng mga emosyon nang naaangkop. Mayroon itong mga benepisyo sa kalusugan at nagsisilbing pangunahing hakbang sa pangangalaga sa sarili.

Inirerekomenda ang karagdagang pananaliksik sa lugar na ito upang lubos na maunawaan ang epekto ng pahid ng luha sa iba't ibang sektor ng lipunan. Ang mas detalyadong pagsusuri ay maaaring makatulong na linawin ang iba't ibang mga relasyon at ang epekto nito sa kalusugan.

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Sa aking tagapayo o guro, Dr. Freddielyn B. Pontemaryor, sa walang sawang payo at suporta sa buong proseso ng pagsasagawa ng pag-aaral. Ang iyong mga payo at rekomendasyon ay nagbigay ng liwanag at direksyon sa aking paghahanap ng impormasyon at sa pagpapahayag ng mensaheng sinusubukang ihatid ng aking pananaliksik.

Sa mga kalahok ng aking pananaliksik sa pakikilahok at pakikipagtulungan sa pagsasagawa ng panayam at sa pagpapahayag ng kanilang mga karanasan. Binigyan nila ng buhay at konteksto ang mga konsepto at isyung tinalakay sa pag-aaral na ito.

Sa mga may-akda ng mga sanggunian at literatura na aking ginamit upang ibahagi ang inyong kaalaman at pananaliksik. Ang inyong pagsulat ay nagbigay ng lakas at pundasyon sa aking mga pananaw at pahayag at naging batayan para sa isang mas mahusay at mas malalim na pag-unawa sa pananaliksik na ito.

Sa aking mga magulang at pamilya sa walang sawang suporta, pang-unawa at pagmamahal. Ang inyong pasensya at suporta ay nagbigay sa kanila ng lakas upang mapanatili ang aking determinasyon na isagawa ang pananaliksik na ito.

At sa Panginoon sa lahat ng mga biyayang patuloy niyang ibinibigay. Ang kanyang patnubay, lakas at pag-asa ang naghatid sa akin ng tagumpay sa pananaliksik na ito. Siya ang gabay at lakas sa bawat hakbang na aking ginagawa sa pananaliksik na ito.

Compliance with Ethical Standards

Pinahahalagahan ang etika ng pananaliksik sa pag-aaral na ito. Ang mananaliksik ay nagbigay ng *informed consent* at *data privacy consent* sa mga kalahok upang mabasa at mapag-aralan bago lagdaan ang panuntunan sa isinagawang pag-aaral. Sinisigurong mapoprotektahan sila sa anumang sensitibong impormasyon na kalakip sa isinagawang pag-aaral at magbibigay kamalayan sa kanila na tanging sa pananaliksik lamang ang layunin ng kanilang pakikilahok at sila ay may karapatang iurong ang pakikilahok sa pag-aaral. Ang kaligtasan, pagiging kumpidensyal, at mga karapatan ng mga kalahok ay pinananatili sa buong panahon ng pag-aaral at tanging mananaliksik lamang ang nakaalam. Kaya, walang pangalang ispesipiko sa papel bagkus mga tugon lamang mula sa kalahok ang isinama bilang pagpapatunay sa nasabing isinagawang pananaliksik.

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NAVIGATING WASTE MANAGEMENT PRACTICES IN ISLAMIC PERSPECTIVE AMONG PUBLIC VENDORS IN JOLO MARKET

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ABSTRACT

The research study was conducted to navigate the waste management practices in accordance with Islamic point of view among public vendors in Jolo Market. A qualitative, descriptive research design was employed in this study. A total of 30 respondents were taken from public vendors in the Jolo Market. A survey interview was discussed with the vendors. Thematic analysis on the responses were utilized. The results of the study revealed that majority of public vendors in Jolo Market were unaware of the proper segregation of biodegradable and non-biodegradable garbage. Furthermore, the findings also revealed the lack of equipment for disposal of wastes and the proper management within the area needs improvement. Moreover, aside from behavioral aspects, public vendors are unaware that waste management is considered to be a religious obligation. Hence, there is a need for mass orientation.

Keywords: *Islamic Perspective, Jolo Market, Public Vendors, Waste Management Practices*

INTRODUCTION

Waste management is crucial for maintaining a clean and healthy environment. According to Rahman N. Protecting and conserving the environment is the responsibility of every individual including religious people in the Islamic context. Religious people play an

important role in environmental conservation because they have the ability to cultivate public awareness on environmental conservation by linking the field of environmental conservation with religious knowledge (Rahman, 2021).

According to Muslim scholars, the universe is governed and regulated by the principles of unity, balance, and harmony that characterise the interactive unifying principle -tawhid. The Qur'an repeatedly quotes that the universe is characterised by proportion, harmony, and beauty, which are the hallmarks of Divine craftsmanship (Saniotis, 2012).

Saniotis further cited Idris 1990 and Khalid et.al 1992 that the second concept of Islamic environmental ethics is stewardship "khilafah". He stressed, The Qur'an declares that human beings are stewards of Allah's creation "Behold, the Lord said to the angels: "I will create a vicegerent on earth" (Qur'an 2:30). Furthermore, human beings need to refrain from mischief (actions leading to the corruption of the environment) (Saniotis, 2012).

Hence, incorporating Islamic perspective in waste management is important because Islam emphasizes the importance of caring for the environment and being responsible stewards of the earth. Additionally, the teachings of Islam regarding environmental stewardship, cleanliness, and waste management explores concepts such as "mizan" (balance), "amanah" (trust), and "khilafah" (stewardship), which emphasize the responsibility of Muslims to protect and preserve the environment.

The Qur'an and Hadiths contain numerous teachings that emphasize the importance of cleanliness, conservation and sustainability. By incorporating Islamic principles into waste management practices, individuals and communities can align their religious beliefs and contribute to a more sustainable and environmentally-friendly society. As stated by Mariyam, Cochrane, Zuhara, & McKay, (2022) a study conducted a survey targeting Muslim consumers in a university in Qatar and found that there is a sense of ethical consumption behavior The Islamic philosophy of moderation or "wastiya" encourages sharing resources rather than unnecessary wastage based on the Quranic quote [7:31], "Eat and drink but waste not by excess; Verily Allah loves not the excessive", which teaches Muslims to take heed of careless consumption.

The issue of protecting human health and the environment is the responsibility of the state and the experts, but it is evident that this problem is part of the teaching in Islam…An important point that needs to be underlined is that Islam prioritizes health, self, and the environment. This is very important because all the activities we do will run optimally if we are physically, spiritually, and mentally healthy. Likewise, without a healthy environment, it will hurt the Muslim community itself.

Therefore, Islam invites its people to maintain the health of both humans and their environment in every religious message (Mishbahuddin, et.al., 2021)

Furthermore, Incorporating Islamic principles in public awareness campaigns can effectively promote proper solid waste management behavior among Muslims. Studies

have shown that using Islamic education channels and expressions to address environmental issues has positive effects in raising awareness (Ismail, 2016).

Research Questions

This research aims to answer the following questions:

1. What are the Islamic perspectives on waste management among public vendors in Jolo?
2. What are the waste management practices of public vendors in Jolo market?
3. What challenges do public vendors face in implementing waste management practices in line with Islamic principles in Jolo market?
4. Does the Islamic perspective of waste management influence the waste management practices of public vendors in Jolo market?

METHODOLOGY

Research Design	: Descriptive research design, qualitative approach.
Research Locale	: Jolo Public Market in Serantes St., Walled City, Jolo, Sulu.
Respondents	: 30 vendors selected through random sampling.
Data Collection	: Survey questionnaire used to gather data on waste management practices.
Data Analysis:	Thematic analysis employed to analyze qualitative responses.

RESULTS

The results obtained from the survey shed light on the pressing issue of waste management within the study area. The majority of the respondents expressed their concerns and shared their insights regarding waste management practices, to wit:

Ignorance

A significant finding from the survey is that the respondents tend to dispose of their waste in a single container, without segregating biodegradable and non-biodegradable waste. This practice highlights a lack of awareness and adherence to proper waste disposal methods. It is imperative to know how waste properly disposed in order to attain the healthier and safe lifestyle.

Recognizing the difference between these types of waste is essential for effective recycling and waste management. It informs which materials can be safely composted, and which require recycling or special disposal methods to mitigate their environmental impact. Biodegradable waste comprises materials that decompose naturally under the action of microorganisms such as bacteria and fungi. This includes kitchen waste, garden waste, paper, and wood. In contrast, non-biodegradable waste consists of materials that

cannot be easily broken down by natural processes. This includes plastics, metals, glass, and certain types of chemicals (Rodrigues, 2024).

Lack of Tools Necessary for Waste Disposal

One crucial aspect that emerged from the respondents' feedback is the absence of suitable waste disposal systems and containers. Despite acknowledging the importance of proper waste disposal, the respondents face challenges in implementing it due to a lack of equipment. They expressed a need for composting facilities and the ability to determine whether their waste can be composted or not. Furthermore, the infrequency of garbage collection forces them to store their waste, leading to adverse consequences.

Proper Management

The accumulation of waste within the Jolo market area has resulted from these inadequate waste management practices. The presence of dirt and foul odors has not only compromised the aesthetic appeal of the area but has also had a detrimental impact on the quality of their products and the health of the community members.

Moreover, it was observed that some individuals resort to haphazard waste disposal methods, such as discarding waste in creeks or canals, further exacerbating the environmental degradation. Others opt to pile up waste in various locations, compounding the waste management challenges faced by the community.

It is inseparable from the problems faced, one of which is the cleanliness of market stalls and the health of the market environment. The problem of stall cleanliness and the health of the market environment tends to increase if it does not get special attention and high concern from the kiosk owner traders and market environmental cleaners. A good and correct waste management system will provide the advantage of reducing pollution caused by the accumulation of waste, by providing alternative efforts due to the generation of well-managed waste (Ariani, 2021).

Healthy, clean and comfortable environment also expected to exist a market, as well as traditional market. The goods in traditional market usually household daily needs… Creating a clean and healthy environment is a shared responsibility. Especially the people around the neighborhood. They have an important role in protecting the environment and creating a clean and healthy environment .Creating a clean and healthy environment in the market is a shared responsibility of all stakeholder (P.M.H., 2018).

Behavioral Aspects

Additionally, the findings highlight the importance of understanding local contexts and perceptions when developing waste management strategies. To align with the cultural and religious values of the target community that can increase their relevance and effectiveness. By leveraging the moral and spiritual dimensions of waste management found in Islamic teachings, future initiatives may be better positioned to drive behavioral

change and foster a sense of environmental stewardship among the public vendors in the Jolo market.

Moreover, it was stressed in a study that components of environmental awareness can be classified into two aspects: perception and behaviour, that is, the perception of environmental problems and the behavioural inclination to protect the environment. The perception of environmental problems involves people's objective knowledge, perception and environmental realities (Desa, Kadir, & Yusooff, (2011).

DISCUSSION

Both the literature and the study emphasize the importance of proper waste management practices in maintaining environmental health and cleanliness. The Islamic perspective on waste management, as discussed in the literature, aligns with the need for responsible waste disposal highlighted in the study findings. Both sources underscore the significance of avoiding wasteful behaviors, such as indiscriminate waste disposal and improper handling of resources.

The literature highlights Islamic teaching on environmental stewardship and waste management, while the study findings reveal a lack of awareness among public vendors in the Jolo market regarding the religious significance of waste management. While the literature discusses the rewards and prohibitions related to waste management in Islam, the study findings point out specific challenges faced by public vendors, such as the lack of necessary equipment and infrastructure for effective waste disposal.

The study extends the existing literature by providing insights into the practical challenges and perceptions of waste management among public vendors in specific market setting. By uncovering the gap in understanding Islamic teachings on waste management among vendors, the study contributes to the discourse on integrating religious principles into environmental practices.

The comparison highlights the needs for educational efforts to bridge the gap between Islamic teachings on waste management and the awareness of public vendors in the Jolo market. Understanding the divergence between literature and study findings underscores the importance of context-specific waste management strategies aligned with cultural and religious values. By comparing the literature with the study findings, it becomes evident that while the theoretical framework of Islamic waste management is well –established, practical implementation and awareness among public vendors present significant challenges that require targeted interventions and educational initiatives.

Conclusions

The importance of raising awareness about proper waste management practices and integrating Islamic teachings on cleanliness and resource conservation. By addressing

the gaps in knowledge and behavior, and leveraging religious values, initiatives can be tailored to promote sustainable waste management practices and foster a sense of environmental responsibility among public vendors in the Jolo market.

Recommendations

To address the challenges in waste management practices at Jolo market, several strategies can be implemented. Here are some recommendations for improving waste management in the market:

1. Public Awareness Campaigns: conducting educational programs and awareness campaigns to inform vendors, customers and the local community about the importance of proper waste disposal and recycling practices;
2. Infrastructure Improvement: investing in waste segregation bins, recycling facilities, and proper waste disposal infrastructure within the market area to encourage proper waste management;
3. Regular Waste Collection: establish a regular waste collection schedule to ensure that waste is collected and disposed of in a timely manner to prevent accumulation and littering;
4. Collaboration with Local Authorities: working closely with local government authorities to enforce waste management regulations, conduct inspections and implement penalties for non –compliance with waste disposal guidelines;
5. Promoting Sustainable Practices: encouraging the use of eco –friendly packaging materials, reusable containers and promoting sustainable practices among vendors and customers to reduce waste generation;
6. Community Engagement: involving the local community in waste management initiatives through volunteer clean –up drives, recycling programs, and community participation in keeping the market clean;
7. Monitoring and Evaluation: implementing a monitoring and evaluation system to track progress, measure the effectiveness of waste management initiatives, and make necessary adjustments to improve efficiency.

Compliance with Ethical Standards

In order to ensure informed consent, the researchers emphasized the importance of the respondents' understanding and willingness to participate in the study. Detailed information and assurances were provided to ensure that the respondents were fully informed and had the freedom to choose whether or not to participate. The researchers also guaranteed the confidentiality of any information shared, reassuring the respondents that their privacy would be protected and their responses would remain confidential.

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NIGGA IN ACADEMIA: A LANGUAGE SOCIALIZATION CASE STUDY ON TERTIARY STUDENTS OF CHRIST THE KING COLLEGE

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ABSTRACT

This study investigated the awareness and perceptions of tertiary students regarding the term "nigga" and its relevance to their daily interactions. The research explored how these students acquired the term and their attitudes toward its usage, and determined whether the students felt permitted to use the word despite not being Black. A convenience sampling method was employed to collect data, integrating qualitative techniques by inquiring if participants were familiar with the term. The sample consisted of 20 students from the Higher Education Department at Christ the King College, Gingoog City. Participants who responded affirmatively were further engaged through survey questionnaires specifically designed by the researchers. The study revealed that many participants encountered the n-word through various media. They understood that "nigga" is a derogatory term targeting Black individuals, their race, and their culture. While most participants refrained from using the term to avoid causing offense, some reported using it for humor, entertainment, or as a term of endearment among friends, without any intention of racial insult. Data analysis was conducted through thematic analysis, clustering responses based on recurring themes. The study concluded that language usage and interpretation vary significantly. It emphasized the importance of incorporating respect and awareness of the word's historical and social impact when using such language. Understanding the historical context and potential for harm is crucial in ensuring respectful and considerate communication. The findings underscore the necessity for greater awareness and education regarding the implications of using racially charged terms, particularly in diverse social settings.

Keywords: *language socialization, media influence, nigga, racial sensitivity*

INTRODUCTION

The United States is one of the most influential countries globally with its products and culture widely patronized (Neufeld, 2022). This includes their expressions and slang, such as “a piece of cake” and “are you for real?” These phrases often sound appealing, especially when uttered in an Americanized manner. One such term is “nigga,” which can serve as both a salutation among African Americans and a derogatory expression used to discriminate (Jacobs, 2002). Additionally, some individuals use it as a term of endearment, signifying belonging to the "hood”, a slang term for African American communities (De Malsche, 2019). While the term was initially confined to American contexts, it has been appropriated by others, including whites who use it derogatorily. This raises questions about its appropriation by non-African Americans and how Filipinos perceive and utilize the term. This paper examines the etymology of the word "nigga" and the awareness and understanding of this word among college Filipino students.

Etymology of “Nigga”

The term “nigga” is a respelling of “nigger.” According to Merriam-Webster (2024), "nigga" is a racial slur, a variant of “nigger,” used among African Americans as a form of address within their community. It derives from the Latin word "niger” meaning black. Kennedy (2001) notes that the word did not originate as a racial slur but evolved to acquire racial connotations over time. The Washington Post (2001) reports that John Rolfe, Pocahontas's husband, referred to black individuals as "negars" in his journal in 1619. The term has various spellings, including nigguh, niggah, niggur, and niggar. African Americans generally perceive "nigga" as offensive when used by non-African Americans because it invokes historical traumas and negative connotations associated with slavery and racial discrimination.

Nigga as a Racial Slur

In the African American community, "nigga" is a variant of the racial slur “nigger,” referring to impoverished African Americans. Sinclair (2017) explains that slurs are degrading, with “nigga” referring to black people in derogatory contexts. Words such as "nigger-stick," "nigger work," "nigger luck," and "nigger rich" carry offensive connotations, reminding African Americans of their historical mistreatment. During slavery, African Americans endured harsh labor and punishment, fostering a deep-seated trauma that renders the term "nigga" highly offensive when used by those outside the African American community. It symbolizes an attempt to undermine their identity and ignore their historical struggles.

Nigga as Identity Representation

In the late 20th century, the word "nigga" began to acquire neutral and positive connotations among African Americans (Merriam-Webster, 2024). African Americans started using the term as part of African American Language (AAL), also known as Black English, to signify camaraderie and identity (De Malsche, 2019). While some euphemize the term as the “N-word,” it remains exclusive to African Americans, symbolizing a sense of belonging. Andrews (2013) argues that "nigga" should not be banned, as it reflects warmth and goodwill when used within the African American community, despite its offensive nature when used by others. Andrews (2013) contends that banning the term denies its positive connotation of “buddy” among African Americans, despite its origins as a racial slur. Although its usage varies among generations, with some older African Americans finding it offensive, the term has been integrated into African American identity.

Media and the “Nigga” Word

Globalization has facilitated the spread of various cultural elements, including language, through media. Media, encompassing print, broadcast, and online platforms, disseminates information globally (Oxford, 2024). This has popularized the term "nigga" worldwide. In music, African American rappers use "nigga" to refer to friends, often accompanied by hip-hop beats. In movies, the term is used to depict characters, sometimes reinforcing stereotypes. Social media also showcases diverse interpretations of the word. Despite its global reach, the term remains controversial when used by non-African Americans, as it invokes historical traumas and disrespects African Americans’ struggles. While some African Americans may be indifferent to its usage, others view it as a catalyst for arguments and criticism, particularly in mainstream media.

Filipino Perception Towards the Nigga Word

According to Braj Kachru’s concentric circles, the Philippines belongs to the outer circle, where English is used as a supplementary language for international communication. Filipinos often imitate American expressions without understanding their meanings. For instance, Filipino children may shout "nigga" at African Americans on the streets, and Filipinos might use the term jokingly or endearingly among friends, mimicking African American customs. This imitation, however, often lacks awareness of the term’s significance to African Americans. Meier (2018) explains that Filipinos were exposed to the term through American soldiers during the war and the popularity of hip-hop music. Despite enjoying the cultural elements brought by Americans, Filipinos often fail to grasp the term’s historical and racial implications. Consequently, Filipinos may perceive "nigga" as a neutral or friendly term, overlooking its offensive connotations and the importance of respecting African Americans' historical experiences.

Research Questions

This study focused on determining the perspectives on the word “Nigga” among Higher Education students of Christ the King College, Gingoog City. Specifically, it sought to answer the following questions:

1. What are the connotations and personal significances associated with the term “nigga” among tertiary students?
2. In which contexts and mediums do tertiary students most frequently encounter the term “nigga”?
3. How do tertiary students incorporate the term "nigga" into their linguistic interactions, and what are the underlying motivations for its usage?
4. How do Filipino tertiary students perceive the appropriateness of using the term "nigga," and what factors influence their perceptions?

METHODOLOGY

The research design of this study is a qualitative case study, focusing on the cultural awareness and perception of the term "nigga" among Filipino tertiary students. Qualitative research is ideal for exploring complex social phenomena, providing a deep understanding of participants' views and experiences. The case study method allows for an in-depth examination within the specific context of the Higher Education Department at Christ the King College in Gingoog City. This design helps uncover the students' awareness and perception of the term, offering rich, detailed insights. By concentrating on a particular group in a defined setting, the case study provides a thorough and nuanced understanding of the factors shaping the students' attitudes and behaviors.

Data collection involves structured interviews with open-ended questions and survey questionnaires, enabling participants to share their thoughts and experiences freely. This approach aligns with qualitative research principles, emphasizing the collection of detailed, descriptive data over numerical measurement. Thematic analysis is used to identify and analyze patterns and themes in the data, offering a structured yet flexible way to interpret complex social interactions. Convenient sampling was used to select 20 participants, ensuring the sample was accessible and manageable while still capturing a range of perspectives within the target group. This combination of qualitative methods and case study design effectively reveals the multifaceted nature of cultural awareness and the varied understandings and uses of the term "nigga" among Filipino tertiary students.

RESULTS

Research Question 1. What are the connotations and personal significances associated with the term “nigga” among tertiary students?

Table 1:
Connotations and personal significances associated with the term “nigga” among tertiary students

Responses	No. of Responses
“Black person/Black people”.	7
“Big insult related to black people’s history, race, and culture”.	6
“That is an offensive word for black Americans”.	4
“It discriminates dark color individuals”.	4
“For white people, they use it to bully”.	3

Table 1 provides an analysis of the connotations and personal significances ascribed to the term "nigga," as reported by tertiary students. This breakdown illuminates the diverse interpretations and emotional responses evoked by the term, unveiling its intricate nature within contemporary discourse. Notably, a prominent association identified by seven respondents is the term's straightforward reference to "Black person/Black people," reflecting a foundational acknowledgment of racial identity that resonates with broader societal norms and perceptions.

Moreover, six respondents articulated a perception of the term as a "significant insult linked to black people’s history, race, and culture." This assertion underscores the term's historical weight and its entanglement with systemic racism and oppression. Similarly, four respondents explicitly characterized "nigga" as "an offensive word for black Americans," aligning with scholarly discourse on racial slurs and their societal repercussions (Smith, 2019).

Furthermore, four respondents emphasized its role in "perpetuating discrimination against individuals with darker skin tones," highlighting its contribution to colorism and racial bias (Hunter, 2020). Additionally, three respondents noted its utilization by "white individuals as a tool for bullying," shedding light on power dynamics and racial harassment within social contexts (Davis, 2018).

In conclusion, these responses offer invaluable insights into the nuanced perceptions and ramifications of the term "nigga" among tertiary students, reflecting broader societal attitudes towards race and language. This analysis contributes to ongoing dialogues surrounding racial discourse and underscores the

imperative of comprehending the complexities of language in shaping social interactions and identity formation.

Research Question 2: **In which contexts and mediums do tertiary students most frequently encounter the term "nigga"?**

Table 2:
Contexts and mediums where tertiary students encounter the term "nigga

Responses	No. of Responses
"Social Media/Social Circle"	7
"Music/Movie/Novel/Videos/Tiktok"	5
"Friends"	4
"Classmates/At school"	4
"Internet" "Home"	2
"Western countries"	1
"Internet especially in American servers"	1

Moreover, five respondents identified "Music/Movie/Novel/Videos/TikTok" as a prominent medium for encountering the term, highlighting its prevalence in popular culture and entertainment media (Smith et al., 2020). This association underscores the role of mainstream media in perpetuating language and cultural norms, contributing to the normalization of certain linguistic expressions.

Additionally, four respondents mentioned "Friends" and "Classmates/At school" as common contexts for encountering the term, emphasizing its integration into personal relationships and social environments (Brown & Williams, 2019). Furthermore, two respondents cited "Internet" and "Home" as contexts of exposure, underscoring the ubiquity of the term across various online platforms and domestic settings.

One respondent noted encountering the term in "Western countries," highlighting its geographical dissemination and cross-cultural relevance. Another respondent specifically mentioned encountering the term on the "Internet, especially in American servers," emphasizing its prevalence within digital spaces dominated by American cultural influences.

In summary, Table 2 provides valuable insights into the diverse contexts and mediums in which tertiary students encounter the term "nigga," reflecting its multifaceted presence within contemporary society. These findings contribute to scholarly discussions on language usage, cultural transmission, and the intersection of race and media in shaping linguistic norms and practices.

Research Question 3: How do tertiary students incorporate the term "nigga" into their linguistic interactions, and what are the underlying motivations for its usage?

Table 3 examines the ways in which tertiary students incorporate the term "nigga" into their linguistic interactions and explores the underlying motivations for its usage. The responses highlight a range of attitudes and intentions, reflecting the complexity and sensitivity surrounding the term.

Responses	No. of Responses
“For entertainment purposes only	5
“Yes, as a joke”	3
“For entertainment purposes without the intention of insulting the race”	11
“It randomly just came out of my mouth”	2

The largest group of respondents, numbering eleven, indicated that they use the term "nigga" "for entertainment purposes without the intention of insulting the race." This suggests that a significant portion of students perceive the term as a casual, non-malicious expression within their social interactions, often influenced by its prevalent use in popular culture and media (Smith et al., 2020). This trend aligns with findings that demonstrate the normalization of potentially offensive language when detached from its historical and racial connotations (Andrews, 2013).

Conversely, five respondents admitted using the term "for entertainment purposes only," which further supports the notion that humor and entertainment are primary drivers behind its usage among tertiary students. This use underscores the impact of media portrayals in shaping linguistic behavior, where the term is often stripped of its derogatory context (Brown & Williams, 2019).

Three respondents acknowledged incorporating the term "as a joke," reflecting an awareness of its provocative nature and potential for humor. This usage points to a broader cultural phenomenon where offensive terms are recontextualized as comedic devices, although such practices can perpetuate harmful stereotypes and insensitivity (Hunter, 2020).

Lastly, one respondent indicated that the term "randomly just came out of my mouth," suggesting an unconscious or habitual use possibly influenced by frequent exposure in everyday interactions and media. This incidental usage highlights the pervasive nature of the term and the need for greater awareness and sensitivity in language use (Smith, 2019).

In conclusion, the responses in Table 3 provide valuable insights into the varied motivations and contexts in which tertiary students use the term "nigga," reflecting broader societal attitudes towards race and language. These findings contribute to

ongoing discussions about linguistic practices and the importance of understanding the implications of language in shaping social interactions and cultural identity.

Research Question 4: How do Filipino tertiary students perceive the appropriateness of using the term "nigga," and what factors influence their perceptions?

Table 4 explores the perceptions of Filipino tertiary students regarding the appropriateness of using the term "nigga" and the factors that influence these perceptions. The responses illustrate a range of understandings and attitudes towards the term, shaped significantly by media exposure and social narratives.

Table 4.
Perceptions of Filipino tertiary students regarding the appropriateness of using the term "nigga" and the factors that influence these perceptions.

Responses	No. of Responses
“It is offensive based on what I heard in the news”	6
“It is used to discriminate the African American as I have seen in social media platforms.”	12
“I am not fully aware of the term’s implication.”	2

The majority of respondents, totaling twelve, perceived the term "nigga" as a discriminatory term primarily based on their observations on social media platforms. This significant finding underscores the role of digital media in shaping public perceptions and awareness of racial issues. Social media, with its widespread dissemination of both personal and global narratives, serves as a critical source of information for many students, influencing their views on the appropriateness of certain language (Chen & Williams, 2019). This aligns with existing literature that highlights social media's impact on spreading awareness about racial discrimination and promoting social justice (Kim, 2020).

Six respondents deemed the term offensive based on reports and discussions they encountered in the news. This response indicates that traditional news media continue to play an essential role in informing public opinion and fostering an understanding of racial sensitivities. News outlets often serve as a primary source of information on social issues, providing context and analysis that help shape individuals' perceptions and attitudes (Smith, 2019). This reflects broader trends in media consumption where traditional news sources remain influential despite the rise of digital platforms.

Two respondents admitted to a lack of full awareness regarding the term's implications. This response highlights a gap in understanding that may result from

insufficient education on racial issues within certain educational or social contexts. It suggests a need for more comprehensive discussions and educational programs to enhance awareness and understanding of the historical and cultural significance of racially charged language (Williams & Brown, 2017).

In summary, the responses in Table 4 revealed that Filipino tertiary students' perceptions of the appropriateness of using the term "nigga" are significantly influenced by media exposure, both social and traditional. The findings emphasize the critical role that media plays in shaping societal attitudes and the importance of educational initiatives to address gaps in understanding. These insights contribute to the broader discourse on race, language, and media's role in influencing public perception.

DISCUSSION

Language is a powerful vehicle for communication, shaping our understanding of the world and influencing social interactions (Rabiah, n.d). Within the complex tapestry of language use, certain words carry profound historical and cultural significance, eliciting diverse reactions and perspectives. This study delved into the multifaceted discourse surrounding the term "nigga" among Filipino individuals, exploring themes of cultural awareness, respect, and historical context.

Theme 1: Cultural Awareness and Sensitivity

Cultural awareness and sensitivity are fundamental pillars in the discourse surrounding the usage of the word "nigga" in the Philippines. Many respondents emphasize the critical importance of understanding the historical and cultural contexts that envelop this loaded term. As noted by The Washington Post (2001), the word "nigga" roots back to the era of Black enslavement, underscoring the necessity for education and heightened awareness. Respondents highlight that while some Filipinos may use the term casually without fully grasping its weight, it remains imperative to acknowledge the sensitivity associated with words entrenched in oppression and discrimination. This theme accentuates the pivotal role of cultural competence in nurturing respectful communication, advocating for a deeper understanding of linguistic nuances, and emphasizing the significance of continual learning and dialogue in navigating linguistic diversity.

Respondents illuminate the necessity of contextual understanding when engaging with contentious language, emphasizing the need for nuanced comprehension beyond surface-level meanings. Their perspectives advocate for a more profound appreciation of the socio-political dynamics shaping language usage, underscoring the importance of fostering a culture of sensitivity and awareness. Furthermore, the discourse on cultural awareness and sensitivity underscores the evolving nature of language and its dynamic relationship with societal norms and values. Respondents advocate for ongoing dialogue that promotes introspection and critical engagement with language, recognizing that linguistic diversity reflects broader cultural landscapes. By acknowledging the sensitivity associated with certain words and recognizing the power dynamics inherent in language

usage, individuals can cultivate a more inclusive and respectful communicative environment that honors the complexities of cultural identity and historical context.

Theme 2: Respect and Empathy

Respect for others' experiences and perspectives stands out as a central theme in the discourse on language use, particularly concerning terms like "nigga." Most respondents stress the significance of employing language in a manner that cultivates empathy and understanding. Meier (2018) reiterates that using the term remains taboo in Filipino culture due to its derogatory nature, aligning with respondents' views on the ethical responsibility and conscientious word choice, especially regarding sensitive issues such as racial discrimination. By advocating for the avoidance of derogatory language and recognizing the lived experiences of marginalized communities, particularly the Black community, these respondents highlight the profound impact language can have in nurturing inclusive dialogue and fostering mutual respect.

Respondents emphasize the need to acknowledge and validate the experiences of those affected by discriminatory language and attitudes. Their commitment to dismantling harmful linguistic practices and creating inclusive spaces underscores the importance of fostering empathy in language use. This transformative discourse prioritizes understanding and solidarity, challenging entrenched systems of oppression and fostering a more equitable society. The theme of respect and empathy highlights the interconnectedness between language, power dynamics, and social justice, advocating for language as a tool for empowerment rather than harm. Respondents underscore the potential for language to catalyze positive change, prompting individuals to interrogate their linguistic habits and cultivate a deeper understanding of the impact of words on marginalized communities.

Theme 3: Historical Context and Social Awareness

Some respondents contribute valuable insights by focusing on the historical context surrounding the term "nigga" and its implications for contemporary society. They engage with the deep-rooted history of racial discrimination and oppression associated with the word, particularly within the context of Black American history. By acknowledging this historical trajectory, respondents invite critical reflection on the enduring legacies of colonialism and systemic racism, emphasizing the interconnectedness of diverse historical narratives and their impact on language usage. Their nuanced exploration of historical context illuminates the complex intersections of power, identity, and language, underscoring the imperative of understanding the broader social dynamics that shape linguistic norms and perceptions.

Respondents highlight the significance of social awareness in shaping perceptions of language and fostering empathy across cultural and historical divides. They draw attention to the shared struggles of marginalized communities worldwide and advocate for an intersectional approach to understanding linguistic dynamics. Their emphasis on solidarity underscores the importance of collective action in confronting systemic

injustices and advancing linguistic justice. Furthermore, the theme of historical context and social awareness underscores the dynamic nature of language as a reflection of evolving social landscapes. Respondents highlight the transformative potential of historical consciousness in challenging dominant narratives and promoting cultural sensitivity, fostering a deeper understanding of the power dynamics inherent in language.

Theme 4: Cultural Relativism and Linguistic Fluidity

A significant theme that emerges is the notion of cultural relativism and linguistic fluidity. Some respondents assert that within Filipino culture, the usage of the word "nigga" is normalized and does not carry the same offensive connotations as it might in other cultural contexts. This aligns with Andrews (2013), who suggests that the term's meaning is not solely limited to being a racial slur. Respondents' perspectives underscore the dynamic nature of language, suggesting that meanings can evolve and adapt within specific cultural frameworks. This recognition of linguistic fluidity highlights the complexity of interpreting language across diverse cultural settings, where words may hold different meanings and connotations depending on historical context and societal norms.

Respondents challenge the notion of linguistic universalism, suggesting that words like "nigga" can have varied interpretations depending on the cultural lens through which they are viewed. Their argument reflects a sensitivity to the nuanced ways language functions within different communities, recognizing that what may be offensive in one context may not necessarily hold the same weight in another. This theme underscores the importance of understanding language within its cultural context, acknowledging the diversity of linguistic practices, and promoting cross-cultural sensitivity in communication. By recognizing the diversity of linguistic practices and the fluidity of language within different cultural settings, individuals can foster greater understanding and respect in cross-cultural communication.

Conclusions

The word "nigga" is a racial slur with historical roots in the era of Black enslavement, often used derogatorily to address African American individuals (Merriam-Webster, 2024; Kennedy, 2001; The Washington Post, 2001). While its meaning has evolved over time, it remains offensive to many, even when used informally or in attempts at friendly communication. The majority of participants perceive the term as related to racial identity, while others view it as an insult primarily used by white Americans. Most participants encounter the term in social media and social circles, often using it humorously, though many avoid it due to its offensive nature. When considering its usage as Filipinos, most participants use it without integrating a disrespectful connotation while others use the term cautiously, acknowledging its historical connotations and the offensive impact on African American communities.

Recommendations

The following recommendations are drawn based on the findings, interpretations, and discussions from the data gathered:

Teachers: Foster an inclusive usage of language within educational settings and promote sensitivity and cultural awareness when addressing or adapting foreign slang and terms, while integra ting discussions on the historical and social contexts of racially charged language into the curriculum to enhance students' understanding and empathy.

Students: Engage in self-discovery and critical analysis of terms and languages propagated in media, develop a deeper understanding of the historical and cultural significance of the language they encounter, and practice mindful and respectful communication, particularly when using terms with complex racial connotations.

School Administrators: Develop and enforce policies that promote respectful and inclusive language use within the school environment, provide training and resources for teachers to handle sensitive language issues effectively, and organize workshops and seminars to raise awareness about the impact of racially charged language on the school community.

Language Experts: Conduct comprehensive studies on the evolution and social implications of racially charged language, offer guidance and resources to educational institutions on best practices for addressing sensitive language issues, and collaborate with educators to create materials that foster a deeper understanding of the cultural and historical contexts of language.

Future Researchers: Conduct further research on the implications of using language exclusive to specific racial or cultural groups, investigate the impact of racially charged terms on intergroup relations and individual identities, and explore strategies for fostering respectful and inclusive language practices in diverse social settings.

Compliance with Ethical Standards

Protection of Confidentiality

Ensures the confidentiality of participants' information. Data were anonymized and stored securely to protect participants' privacy and identity.

Informed Consent

The researchers obtain informed consent from participants, providing them with clear information about the purpose, procedures, potential risks, and benefits. The participants freely and voluntarily agreed to participate without any form of coercion.

Withdrawal from participation in the study

The decision to participate in this study was entirely up to the participant. They could refuse to take part in the study at any time without affecting the relationship with the researchers. Their decision to refuse would not result in any loss of benefits. The participant had the right not to answer any single question, as well as to withdraw completely at any point during the collection of data.

Risks

Participants were informed that some questions may be sensitive and potentially trigger some cultural and racial concerns. Participants were aware of any potentially distressing or emotional content, and they could have the option to skip or opt out of answering such questions.

Benefits

Participating in the study offered several significant benefits to the sample group, providing a platform for voicing their experiences and engaging in important discussions. Firstly, it enabled participants to actively contribute to the expansion of scientific knowledge. By sharing their thoughts, experiences, and opinions, they provided diverse perspectives that could lead to more comprehensive and accurate findings. This contribution is essential for enriching the understanding of complex issues and enhancing the robustness of research outcomes.

Secondly, their participation fostered self-awareness and introspection. The process of responding to questionnaires often prompts individuals to reflect on their beliefs, behaviors, and attitudes, encouraging personal growth and a deeper understanding of themselves. This reflective practice can lead to greater self-awareness and more informed personal and professional choices.

Moreover, engagement in the study provided a sense of fulfillment and purpose. Knowing that their input matters and has the potential to positively influence future decisions and policies can be highly rewarding. Participants could take pride in contributing to research that may have meaningful societal impacts.

Lastly, participation offered unique learning opportunities. Individuals had the chance to learn about new concepts, develop critical thinking skills, and stay updated on the latest research in their field of interest. This exposure not only enhanced their knowledge base but also encouraged continuous learning and intellectual curiosity, which are crucial for both personal and professional development.

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NUTRITION INFORMATION AND AUDIT SUBMISSION PORTAL FOR THE BARANGAYS OF A CERTAIN MUNICIPALITY IN LAGUNA

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ABSTRACT

This research underscores the pressing need for establishing a nutrition information and audit submission portal for barangays of a certain municipality in Laguna, to rectify deficiencies in local nutritional assessment and supervision. This system empowers the community to make informed decisions and implement targeted interventions by providing a well-organized framework. The primary objective is to enhance health outcomes by examining current methods for gathering nutritional data, assessing the impact of manual data entry on the Operational Timbang Plus (OTP) system, devising strategies for effectively disseminating accurate nutritional information to citizens and officials, and implementing a uniform audit system to evaluate nutrition programs and monitor health trends in barangays. The research used quantitative research methodology, data were collected and analyzed through thematic analysis and weighted mean calculation. Non-probability purposive sampling was employed, involving interviews and questionnaires distributed across the city and barangays. The study findings highlight challenges with the OTP system, particularly regarding data accuracy due to human input errors. There is an evident need to establish a standardized audit system to enhance data quality and decision-making in nutrition initiatives. Utilizing technological solutions such as web-based systems or mobile apps can improve data collection efficiency.

Keywords: *Nutrition Information, Audit System, Portal Submission, Operation Timpbang Plus, Local Government Unit*

INTRODUCTION

Nature and Scope of the Problem Investigated

The incorporation of community health and nutrition was crucial for promoting the overall well-being of local populations. This research emphasized the necessity of establishing a robust portal system for nutrition audit, recognizing its pivotal role in addressing nutritional deficiencies. A key challenge identified was the absence of a structured information and audit system at the barangay level, impeding accurate assessment and monitoring of nutritional status. This limitation hindered barangay officials' ability to make informed decisions, implement targeted initiatives, and allocate resources effectively to tackle nutritional issues. To overcome this challenge, establishing a structured framework was deemed essential to equip officials and authorities with the necessary resources for informed decision-making on nutrition interventions, policies, and programs.

This systematic approach not only addressed existing shortcomings but also laid the groundwork for continuous assessment. By eliminating the lack of comprehensive data structure, it enabled efficient evaluation of ongoing nutrition initiatives and pinpointed areas requiring improvement. Regular assessments, based on accurate and up-to-date information, allowed for adaptable approaches to meet evolving community needs.

Furthermore, the study prioritized community empowerment alongside system development. It employed a collaborative methodology involving barangay officials, health experts, and community members in data collection and analysis, fostering a sense of ownership and ensuring the sustainability of the implemented system. Anticipated outcomes include establishing a basis for enhancing nutrition policies at the barangay and municipal levels, aligning with the overarching goal of improving public health and community well-being.

In essence, the implementation of the portal system addressed not only the lack of local nutrition data but also took proactive steps towards promoting a healthier and more resilient community. It aimed to facilitate informed decision-making and targeted interventions tailored to the specific dietary needs of the local population.

Research Objectives

1. Evaluate the present methods used for collecting nutritional data in relation to its accuracy, accessibility, and effectiveness.
2. Determine the assessment level of the nutritional-related data of residents in a certain municipality in Laguna
3. Identify how citizens and barangay officials can get more accurate and up-to-date nutritional information to build programs and initiatives in the field of nutrition.

Research Framework

The establishment of a comprehensive conceptual framework was crucial in creating the portal system, serving as the foundational structure for the study's objectives (Figure 1). This framework aimed to offer a thorough understanding of the interconnected components and crucial elements necessary for developing and implementing an efficient information and audit system. It was built upon established principles and considered the specific circumstances of the municipality's barangays. By effectively navigating the complex terrain of community nutrition, this strategy yielded a focused and substantial outcome. In delineating the essential aspects of the study, this conceptual framework provided the groundwork for the development of the innovative system, facilitating a comprehensive and tailored approach to addressing the nutritional challenges encountered.

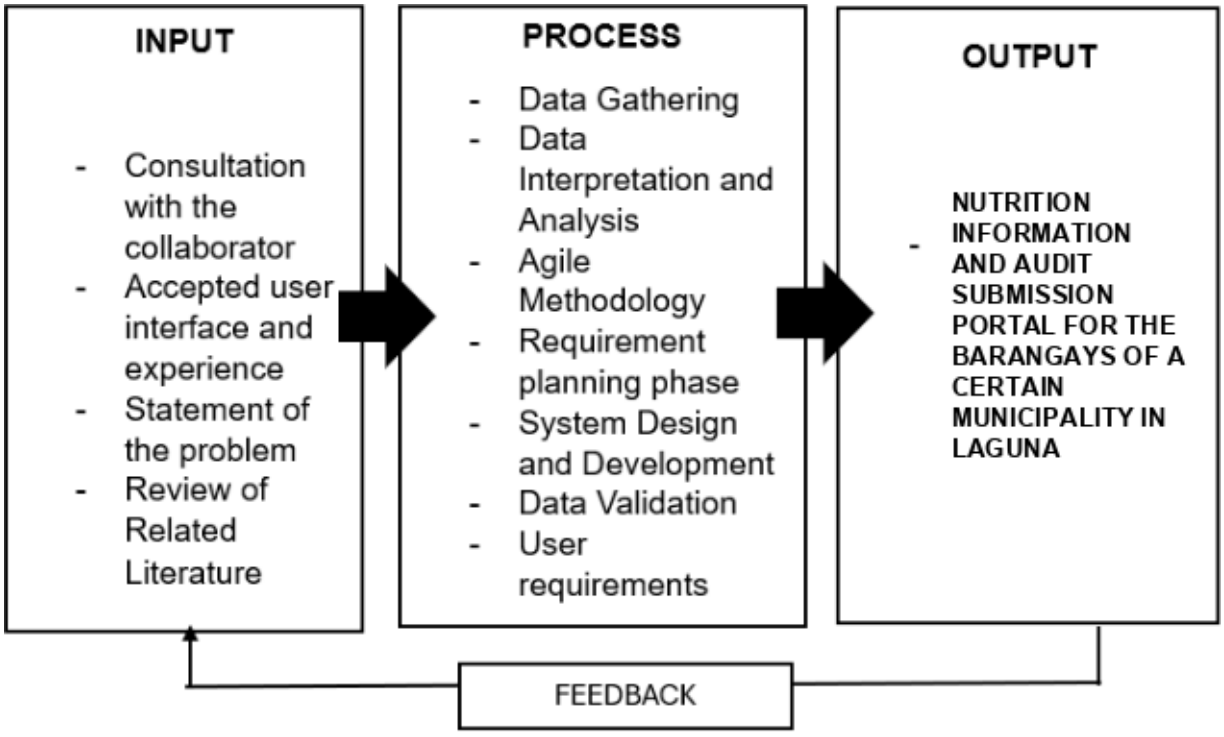


Figure 1: Research Framework

Scope and Limitation

The proposed nutrition information and audit submission portal for barangays aimed to modernize the conventional data input techniques, with a specific emphasis on enhancing the Operation Timbang Plus program. The system incorporated an easy user interface that facilitated smooth data entry, guaranteeing precision and effectiveness. The system integrated a centralized database capable of storing, categorizing, and retrieving nutrition-related information, thus optimizing the data management process. The

inclusion of real-time reporting capabilities allowed for the prompt monitoring of metrics and trends related to the Operation Timbang Plus program. This greatly assisted local officials in making decisions based on solid facts. Nevertheless, it was crucial to recognize certain limitations. The efficacy of the system may have relied on the presence of technological infrastructure, such as dependable internet connectivity and accessibility to digital devices, within the barangays. Furthermore, the efficiency of the system may have been impacted by the degree of technological proficiency of barangay personnel, thus requiring thorough training initiatives. To ensure the protection of sensitive information, it was imperative to address privacy and security issues by implementing strong data protection procedures. Moreover, the study was limited to the Operation Timbang Plus program, and it did not include a thorough evaluation of other nutritional factors. The system needed to be adaptive and scalable to enable future expansions or changes in the scope of nutrition-related efforts within the municipality. The research was limited to the development of an information and auditing system portal submission for the barangays o. The auditing process was restricted to the admin side, enabling assessment of the files submitted by the barangay nutrition scholars. On the other hand, any other aspects in the nutrition field outside the scope of Operation Timbang Plus were not addressed by the researchers as they fell outside the study's coverage.

Review of Pertinent Literature

The notion of an information system comprises the many tools, technologies, and procedures that businesses utilize to successfully manage and utilize data. These systems play a crucial role in the contemporary digital era, as they serve as the foundation for not only gathering and retaining data but also converting it into significant insights.

In the study conducted by Skagne and Dalipi (2022), entitled “Understanding the Importance of Information Systems Implementation in Organization’s Effectiveness: A Comparative Study on Two Swedish Organizations,” the purpose of information systems (IS) is to enhance the dissemination of information inside an organization, across all hierarchical levels. This facilitates the timely and accurate delivery of data to the intended recipient, in the appropriate format, resulting in a favorable and advantageous impact on the business. Hence, it is important to examine their intended objectives and the extent to which they impact the efficacy of the organization, specifically. The introduction of a new information system (IS) has a more significant influence on an organization's effectiveness in comparison to the updating and addition of features to an existing older system.

As mentioned by Markgraf (2019) in an article entitled “Importance of Information Systems in an Organization,” the significance of information systems lies in their ability to handle data derived from firm inputs, thus generating valuable information that facilitates effective management of operations. In order to enhance the efficacy of the information system, two approaches may be adopted: augmenting the existing data to enhance its accuracy or exploring novel applications of the available information. The article discusses two strategies aimed at increasing the effectiveness of information systems: the first involves enhancing current data to boost its accuracy, while the second involves discovering new ways to utilize the information that is already accessible. These techniques are relevant to the conduct of the study, as they pertain to the optimization

and usage of nutritional data within the barangays for improved management and decision-making. Furthermore, it serves to strengthen the notion that the implementation of a nutrition information and audit system has the potential to enhance the administration of nutrition-related data within these local bodies.

The implementation of every system is accompanied by an inherent propensity for failure, posing a significant challenge. It is important for those responsible for managing the system to possess a comprehensive understanding of their anticipated roles and responsibilities. The need must be explicitly and concisely articulated in written form, and subsequently, it should be efficiently conveyed to the relevant stakeholders via training. In order to achieve exemplary performance in system management, it is essential to secure the active involvement of not only engineers, designers, and managers, but also all staff members (Pain, 2023). In summary, the book elucidates the significance of effective administration of the proposed portal submission system. This entails effectively conveying explicit expectations to all individuals, delivering thorough training, and fostering active engagement from all staff members to avert system deterioration and sustain optimum performance in the long run.

Deane & Kraus (2021), want to challenge the prevailing idea that security specialists bear exclusive responsibility for upholding the security of systems and data in their scholarly investigation. This commonly held misunderstanding is often seen among those who are not affiliated with the security business. It is strongly advised that firms create unambiguous security roles and responsibilities within their policy governing the information security system. It is essential that these criteria be congruent with those delineated in other corporate regulations to maintain uniformity and facilitate efficient cooperation. Ensuring transparency, comprehension, and adherence to these duties and responsibilities is crucial for staff members at all levels within the company and across all business areas. Additionally, it is important for external entities, such as suppliers and contractors, to possess knowledge of these designated roles and corresponding obligations.

As per the study of Komalasari, et al. (2018), one primary focus of study in human behavior was to identify faults that arose inside information systems, leading to their inefficacy. The rapid advancement of information systems and information technology emerged as a necessary competitive advantage for companies to succeed in the competitive landscape. The effective implementation of information systems and information technology could have been determined by its ability to enhance employee performance. The accuracy of an information system might have been influenced by several variables, including user behavior, training, and usability. These factors might have had the potential to introduce errors and bugs into the system. The enhancement of the system's overall efficacy might have been achieved by addressing possible inefficiencies that were connected to human actors. The ongoing investigation being undertaken by the researchers might have included the provision of a comprehensive users' handbook, which aimed to facilitate the proper use of the information system. The implementation of a proficient nutrition information system might have had the potential to distinctly distinguish barangays in relation to the quality of service, efficiency, and results pertaining to public health. The proposed system aimed to be a user-friendly platform designed to enhance staff productivity and efficiency.

As mentioned by the study of Batoon, et al., (2022), the documentation of healthcare activities mostly relied on paper-based systems, resulting in a multitude of issues. The process of manually documenting patient information was characterized by time consumption and susceptibility to mistakes, resulting in inefficiencies in the retrieval and administration of health data. Moreover, the potential for data redundancy exacerbated the issue. The decentralized form of paper records presented challenges in effectively mapping health concerns across various geographical locations, such as barangays, and in promptly accessing an individual's medical history. With the continuous growth in patient data volume, the manual system had significant challenges in terms of maintenance.

According to the research study entitled “Data Security and Privacy Protection for Cloud Storage: A Survey,” the increasing prevalence of innovative phenomena such as the Internet of Things (IoT), smart cities, digital transformation inside organizations, and the global digital economy has generated a heightened need for effective data storage solutions. Cloud storage systems have become more essential in contemporary times, as governments, corporations, and people are actively engaged in the process of transferring their data to cloud-based platforms. Nevertheless, the huge increase in data volume presents both lucrative opportunities for wealth generation and serious concerns, including but not limited to unlawful access, data leaks, and breaches of privacy (Yang et al, 2020). In order to ensure the preservation and security of all healthcare unit data, it was essential for the Barangay Nutrition Information System to possess the advantages of convenient accessibility, scalability, and cost-effectiveness. The researchers ensured that the system would not only be efficient but also secure.

According to Tao, et al, (2020), the use of big data analysis significantly transformed decision-making procedures in several industries, as it enabled the conversion of vast datasets into valuable and informative insights. Previous research in the field of the food industry mostly focused on the analysis of data obtained from equipment. However, current advancements shed light on the significance of digital text data. The objective of this study was to provide a comprehensive comprehension of text data sources, computational methodologies, and their applications within the food sector. The system demonstrated the capability to rapidly analyze large volumes of textual data and extract valuable information about dietary trends and customer preferences via the use of advanced methods such as text classification and sentiment analysis. The provided information had the potential to enhance supply chain management, facilitate the creation of novel goods, and enhance the monitoring of food safety. By conducting an analysis of nutrition data, barangays could enhance their decision-making process on health interventions and planning, enabling them to make better-educated choices. The incorporation of analytical tools into the Barangay Nutrition Information System could also help evaluate resident input, local news stories, and other pertinent text-based sources related to nutrition.

In the study conducted by Garcia et al, (2021) despite the well-documented associations between diet and health, there continued to be a persistent issue of poor nutrition among Filipino homes. The development of the Virtual Dietitian (VD) system was undertaken as a reaction to tackle the public health risk. The beta review yielded significant information about user experience, which informed the improvements made to

the final version of VD. By incorporating expert feedback, the accuracy, usefulness, and validity of VD could be ensured in later stages, hence offering a possible solution to the current nutrition dilemma in Filipino families.

As per Moghaddasi (2019), the provision of high-quality food and nutrition in hospital settings has been shown to enhance patient care and increase overall quality of life. Undoubtedly, the task of catering to the diverse dietary needs of patients in a hospital setting posed challenges to achieving optimal nutrition. The integration of a nutrition information system inside the Hospital Information System (HIS) could facilitate hospitals in achieving their objective of providing superior healthcare services to enhance patient well-being. The present system had the capability to manage patient data pertaining to their medical condition through effective communication with their Electronic Medical Record (EMR). The Nutrition Information System played a significant role, particularly within hospital settings, with the potential for expansion to the Barangay level. This statement underscored the significance of delivering superior food and nutrition services within healthcare environments, as it had the potential to improve patient care and overall quality of life. The present idea could be modified to emphasize the potential advantages of guaranteeing nutrition services of superior quality at the barangay level in order to enhance the overall welfare of the inhabitants.

METHODOLOGY

Research Design

This study used quantitative research because it generates numerical data and allows rigorous statistical analysis. Researchers used surveys and statistical methods to assess nutritional indicators and audit measures for accurate measurement and evidence-based decision-making. This quantitative method provided a deep insight of existing situations, improving system development and execution. The study stressed the need for descriptive and quantitative research to understand the barangay's nutrition information and audit methods. Descriptive study employing interviews and surveys highlighted key features for a customized solution. Quantitative research, which used numerical data and statistical analysis, strengthened the intended information and audit system by supporting evidence-based decision-making.

Research Locale

The research was conducted at the Municipal Health Office of one of the municipalities in the province of Laguna, Philippines. The selection of this location was based on several factors, including its zoning classification, the implementation of procedures throughout all Barangays, and the information technology index. The research included various data collection methods, such as surveys and interviews, which were conducted at the respondents' convenience.

Population and Sampling Design

Researchers used non-probability and purposeful sampling for this investigation. In non-probability sampling, individuals are not picked randomly or equally. Using purposeful sampling, the researcher selects participants based on study-relevant traits.

Research Instrument

The researchers used several instruments that were utilized to collect data for this study; questionnaires, and interviews. This study targeted nutrition officials in several barangays. The questionnaire assessed the systems used by the Municipality Barangay Nutrition Officers, with adjustments restricted to adding a data collection and auditing system. The questionnaire explained barangay resident data collection. The researcher distributed a closed-ended Likert scale questionnaire. Five answer possibilities were provided in the questionnaire. The satisfaction scale included "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." The researcher was able to discover information system techniques, technology strategies, management approaches, resources, and implementation timetables by interviewing respondents. The main data source. To learn about data collection and protocols in each barangay in the municipality, the City Nutrition Officers were provided a set of questions. The Nutrition Officer was chosen because of their entire responsibility for municipal nutrition operations.

Data Gathering Procedure

The Data Gathering Procedure began with a formal client letter. This professional and courteous letter began data collecting. The study's goals and data collection methods were explained in the letter. The letter also requested customer agreement and assistance in the study mission. Being a collaborative framework, stressing the client's participation in study achievement. This email set the tone for data collection and emphasized ethical issues and study procedure adherence.

Two primary instruments, the questionnaire and interview, were used to gather relevant information. To promote systematic investigation, barangay respondents were given the questionnaire. The purpose was to quantify dietary habits, information demands, and audit methodologies. After comprehensive questionnaire analysis, numerical insights were intended to help identify patterns and connections and construct a full system. Interviews were also conducted to gather data to better understand the nutrition and audit background. Through semi-structured interviews with key actors, including local authorities, the study sought to understand cultural difficulties, issues, and aspirations related to nutrition information and audit processes. This interview data would augment the quantitative questionnaire findings' contextual knowledge. Using numerous varied but complementary data sources, the research intended to provide a thorough and well-informed foundation for the proposed system, ensuring its relevance and utility in the barangays.

RESULTS AND DISCUSSION

Objective 1. Evaluate the present methods used for collecting nutritional data in relation to its accuracy, accessibility, and effectiveness.

In this objective, the researchers employed various research tools, such as interviews, and questionnaires to assess the prevailing systems and processes implemented in the barangays. The focus of the assessment revolved around evaluating accuracy, accessibility, and effectiveness. The researchers conducted interviews with city nutrition officers and carried out surveys among barangay nutrition officers in five (5) barangays in the municipality. Three city nutrition officials were subjected to interviews, while a total of ten barangay nutrition officers participated in the study. The aim was to investigate and identify the and identify the current system implemented in the Operational Timbang Plus process. The transcribed audio underwent thematic analysis to present the results comprehensively. Some of the results of the study are presented in the following paragraphs

1. **Accuracy - Effects of Paper-Based Nutritional Data Recording.**

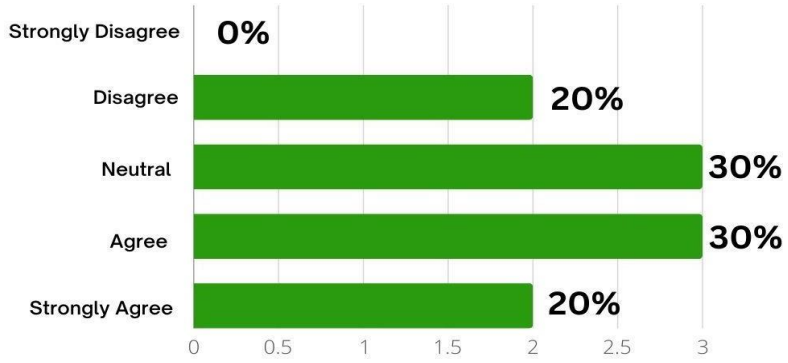


Figure 1. Accuracy of Data Amidst Human Errors (Questionnaire)

As shown in Figure 1, an equal number of respondents expressed agreement and neutrality when it came to the impact of manually recording nutritional data on paper. They believed that this method could lead to human mistakes or errors. In the questionnaire, a total of 3 out of 10 participants agreed with the statement, while another 3 respondents remained neutral. In addition, four (4) individuals also gave their responses, with two (2) expressing disagreement and two (2) strongly agreeing. It was interesting to observe that all the participants did not select the option "Strongly Disagree."

2. Accessibility - Current Nutritional Data Collection Methods

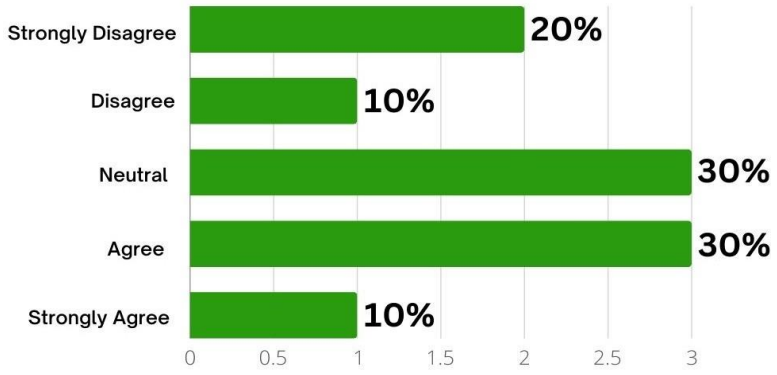


Figure 2. Preferences vs. Accessibility in Nutritional Data Collection (Questionnaire)

As shown in Figure 2, most participants expressed a "Neutral" or "Agree" response when rating the compatibility of the current methods for collecting nutritional data with their preferences. Two out of 10 respondents strongly disagreed, one out of 10 respondents disagreed, and finally, 1 out of 10 of the respondents strongly agreed that the accessibility for collecting nutritional data using the current method was in line with their preferences. The researchers calculated the weighted mean score to assess the level of agreement or disagreement among barangay nutrition scholars regarding the alignment of preferences with the current method for collecting nutrition-related data.

Objective 2. Determine the assessment level of the nutritional-related data of residents in a certain municipality in Laguna.

In pursuit of this objective, the researchers utilized various research tools, such as interviews and questionnaires, to evaluate the impact of manual entry of nutritional data on the OTP system and to propose potential enhancements. Interviews were conducted with three city nutrition officers, and surveys were administered to ten barangay nutrition officers across five barangays. The primary focus was to comprehensively assess how the manual entry of nutrition-related data in the municipality affected the OTP system. Thematic analysis was employed to derive meaningful insights from transcribed audio recordings, presenting the results in a comprehensive manner. Additionally, the responses gathered from the questionnaires were subjected to a weighted mean analysis to provide a quantitative measure of the participants' perspectives and contribute to a well-rounded understanding of the impact and potential improvements in the OTP system.

3. Assessing Manual Data Entry Impact on Operation Timbang Plus

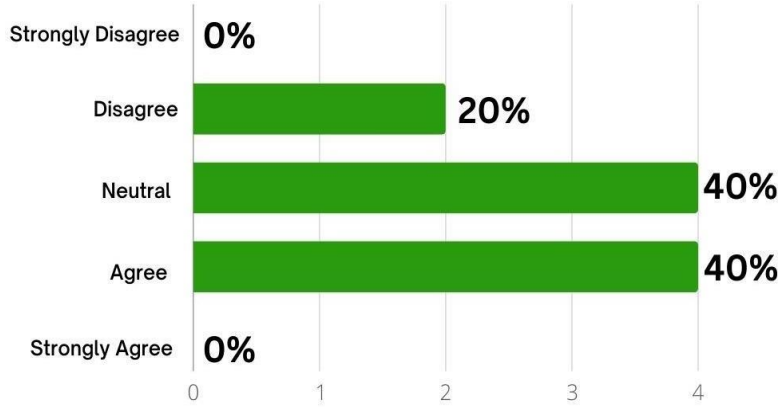


Figure 3. Effects of Manual Data Entry (Questionnaire)

As depicted in Figure 3, the majority of respondents provided responses falling within the "Neutral" and "Agree" categories when rating the impact of entering nutritional-related data by hand for Operation Timbang Plus. Specifically, 30% expressed agreement, while another 30% maintained a neutral stance. Contrarily, 20% of respondents disagreed with the impact on the OTP method of entering nutritional data. Notably, none of the respondents indicated "Strongly Disagree" or "Strongly Agree" with the given statement. To gauge the overall sentiment among barangay nutrition scholars, the researchers calculated the weighted mean, providing a quantitative measure to assess the collective agreement or disagreement regarding the impact on the OTP method of entering nutritional-related data by hand for the people

4. Exploring the Efficiency of a Website-Based Operation Timbang Plus System

All City Nutrition Officers in the municipality were in complete agreement that the implementation of a website-based system for Operation Timbang Plus (OTP) would greatly improve efficiency and effectiveness. Every officer expressed their support for implementing a website-based system for OTP, citing their own personal reasons. It was highlighted that implementing such a system would greatly improve data collection efficiency, provide instant updates on children's status, and reduce the chances of errors caused by manual input. The officers anticipated a decrease in errors compared to the traditional manual data inputting process and expected the Municipality Nutrition Department to have better data monitoring capabilities as an added benefit.

The respondents consistently emphasized the benefits of implementing a web-based system for Operation Timbang Plus (OTP), highlighting how it would improve the speed and accuracy of data collection. They emphasized the importance of minimizing errors caused by human factors, specifically focusing on the difficulties caused by unreadable writing among Barangay Nutrition Scholars (BNS). Through the insights of

the respondents, the researchers became aware of a significant problem with the manual OTP system. According to the majority of respondents, it seemed that developing a web-based system could tackle these challenges and provide a more efficient and precise method for collecting data.

Objective 3. Identify how citizens and barangay officials can get more accurate and up-to-date nutritional information to build programs and initiatives in the field of nutrition.

In this objective, the researchers employed various research tools, including interviews and questionnaires, to understand how citizens and barangay officials could obtain more precise and current nutritional data. This information would be used to develop programs and initiatives in the field of nutrition in the municipality. Interviews were conducted at the city nutrition office, with the participation of three available city nutrition officers. The survey questionnaire was administered by ten barangay nutrition officers across five barangays. The main objective was to thoroughly evaluate how citizens and barangay officials could access more precise and current nutritional information to develop programs and initiatives in the field of nutrition. An in-depth analysis was used to extract valuable insights from the transcribed audio recordings, presenting the findings in a thorough manner. Additionally, the responses collected from the questionnaires underwent a weighted mean analysis to offer a numerical measure of the participants' viewpoints and contribute to a comprehensive understanding of the impact and possible enhancements in the OTP system.

Conclusions

Ever since Operation Timbang Plus (OTP) was introduced, the system has faced numerous difficulties in terms of data accuracy, accessibility, and overall effectiveness. These challenges have arisen due to a range of errors and issues. OTP played a vital role in identifying children who were underweight, wasted, stunted, or obese, as well as finding families with malnourished children. Although the OTP system has proven to be effective, there is still room for improvement, especially when it comes to collecting nutritional data.

The research conducted on the nutrition information and audit portal submission for the municipality, offered valuable insights into the previous state of nutrition management and the OTP program within the community. After conducting interviews, surveys, and reviewing literature, it became clear that the accuracy of nutritional data was being compromised by manual data entry errors. These errors included inaccurate inputs and unreadable records, which presented significant challenges. In addition, city and barangay nutrition officers have reached a unanimous agreement on the urgent need to implement a standardized audit system. This system will improve data accuracy, improve operations, and strengthen evidence-based decision-making in nutrition initiatives.

The findings highlighted the crucial significance of precise and easily obtainable nutritional data for successful program planning and decision-making. The challenges that were identified have emphasized the need for technological solutions, like web-based

systems or mobile applications, to improve data collection and make the OTP process more efficient. In addition, the research highlighted the importance of offering sufficient training and support to barangay

nutrition scholars to ensure the successful implementation of the proposed Information and Audit system.

Finally, the research supported the idea of introducing a customized Information and Audit system to tackle the obstacles faced in nutrition management and improve the efficiency of the OTP program in the municipality. By harnessing the power of technology and ensuring accurate data, this system could completely transform the way nutrition management is done. It has the potential to enhance health outcomes and empower local communities to make informed choices about their nutritional well-being.

Recommendations

Implementation of a Tailored Information and Audit System.

Based on the findings, the researchers recommended the development and implementation of a full blown auditing system specifically tailored to the needs and context of the barangays of the municipality This system should have incorporated features such as user-friendly interfaces, standardized data entry protocols, and built-in quality control mechanisms to ensure accuracy and reliability of nutritional data.

Training for Barangay Nutrition Scholars in using the proposed system.

To facilitate a seamless transition to the proposed system, it was beneficial to offer thorough training sessions for Barangay Nutrition Scholars (BNS) on the optimal utilization of the proposed Barangay Nutrition Information and Audit System. These training sessions provided comprehensive coverage of the system, encompassing data entry, retrieval, analysis, and reporting functionalities. In addition, it was beneficial to create specialized training modules that effectively tackled the specific challenges that were discovered during the research. These challenges included dealing with difficult-to-read handwriting and ensuring the accuracy of the collected data. By equipping BNS with the essential skills and knowledge, they could have had a significant impact on guaranteeing the success and long-term viability of the system implementation, ultimately resulting in enhanced nutrition management

Continuous Monitoring and Evaluation.

Establishing a framework for ongoing monitoring and evaluation of the implemented system was crucial in assessing its effectiveness and identifying areas for improvement. It would have been beneficial to implement regular feedback mechanisms, user surveys, and performance metrics to monitor the usability of the system, the quality of the data, and the overall impact on nutrition management initiatives.

For Future Researchers.

Future researchers should conduct longitudinal studies to assess the long-term impact and effectiveness of the implemented portal submission system. Longitudinal research would allow for the observation of trends and changes over time, providing valuable insights into the system's sustainability and its contribution to improved nutrition management outcomes in the municipality. Additionally, future studies could explore the scalability of the system to other barangays or municipalities, as well as its adaptability to different contexts and settings. By conducting longitudinal research and exploring scalability, future researchers can further advance the researcher's understanding of nutrition management systems and contribute to ongoing efforts to improve community health and well-being.

Compliance with Ethical Standards

The researchers complied with the basic standards of research ethics and also followed the Data Privacy Act in the collection and process of data gathered.

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ONLINE SHOPPING PLATFORMS' INFLUENCE IN CONSUMER BEHAVIOR

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ABSTRACT

Online shopping has grown in importance as a means of conducting business and marketing. Indeed, many consumers are ditching conventional methods of exchanging things in favor of the online shopping trend. The Philippines is the third most populous country in the Asia Pacific that has been spotted using the internet shopping platforms. The convenience of online shopping has made it a popular trend among customers, particularly among Millennials and Gen Z. Online shopping is getting more popular among busy individuals, especially among the young and those who know how to browse and buy online. The study anticipated that fourth-year students from the Higher Education Institution's (HEI) in BSBA Financial Management program are more educated about buying and shopping online. As a result, the researcher felt compelled to perform this study to see if this presumption is correct, particularly among FM students. This study was carried out to see how online shopping influences their purchase behaviors. A valid response from thirty respondents from the given course and school was included in the study. The researcher decided to utilize a descriptive research strategy that included purposive sampling. When buying online, respondents examine factors such as sales promotion, advertisement, feedback, logistics, and payment process, according to the findings. The researchers discovered that there is a significant relationship between the respondents' assessments of the aspects of online shopping on the purchase decision process using the Pearson correlation coefficient or Pearson's R.

Keywords: *Online shopping, Shopping platforms, Consumer behavior*

INTRODUCTION

Online shopping and online stores are probably one of the oldest words or terms used to describe what we have all been doing over the years (Sajannavar, Dharwad, & Tandale, 2022). On the other hand, the terms “trade” or “exchange” and probably even “market” would have been used in ancient times (Hirth, 2020). However, the internet has opened up a broader and more exciting market for the new generation of consumers. This is now the way that consumers can buy goods or services directly from home. Online shopping is becoming more popular, whether for clothes, gadgets, or even pets. Every day, new websites are being launched to meet the growing need for comfort and convenience. Online shopping is quickly becoming the preferred method for making all purchases, whether you are at home, at work, or in another country. This is especially true in industrialized nations, where every store has its own website from which to purchase goods online. Tricks of the trade such as cash on delivery and special discounts on internet purchases have made it incredibly easy to communicate with customers.

The habit of shopping online from the comfort of one's own sofa has lately gained traction in the Asian area. The worldwide e-commerce sector has been classified into several areas, including apparel, electronics, cosmetics and personal care, and other items (Afridi et al., 2021). According to research from the United States Census Bureau, an estimated $222.5 billion was spent on retail e-commerce sales in the second quarter of 2021. In comparison, retail e-commerce sales were predicted to be $47.5 billion in 2011. Also, according to Statista research, the Philippines ranks third (3rd) among the world’s fastest-growing e-commerce economies, outlasting its Southeast Asia neighbor and according to Statista data from September 2019 (Marasigan, 2020), the Philippines has more than 69 million internet users, with Global Web Index reporting that three-quarters of these individuals are aged 16 to 64. Purchase behavior, on the other hand, is impacted by the consumer’s perspective (Tao et al., 2022). Because online shopping is a new medium, consumer behavior in the field of online shopping is rather different in character when compared to conventional consumer behavior; therefore, it is equally essential to understand what variables encourage customers to purchase online. It comprises of numerous elements that drive customers to buy online in order to achieve a purchasing choice.

Along these lines, the purpose of this research is to examine the influences of online shopping platforms on students’ purchasing behavior. To localize the issue, this study will dive into The National Teachers College students’ perception of online buying and their subsequent purchase behavior.

Research Questions

This study pointed out the influence of online shopping platforms on the purchasing behavior of students. Specifically, it is intended to answer the following questions:

1. What is the profile of the respondents in terms of:

1.1 Gender, and
1.2 Online shopping platform?

2. What is the assessment of the respondents on the influence of the online shopping platform in terms of:

2.1 Sales promotion,
2.2 Social environment,
2.3 Advertisement,
2.4 Feedback,
2.5 Logistics, and
2.6 Payment process?

3. What is the assessment of the respondents on their purchasing behavior in terms of:

3.1 Pre-Purchase behavior, and
3.2 Post-Purchase behavior?

4. Is there a significant relationship between the factors of online shopping platforms and the purchase decision process in the purchasing behavior of the respondents?

METHODOLOGY

Research Design

To further understand the impact of online shopping platforms on student purchase behavior, we conducted a descriptive study using a survey and a self-constructed questionnaire. According to Shona Siedlecki (2020), the goal of descriptive research is to correctly and thoroughly describe a population, situation, phenomena. It can answer the questions what, where, when, and how but not why. To explore one or more variables, a descriptive research design might employ a range of research methods. Although qualitative research can sometimes be utilized for descriptive purposes, descriptive research is typically characterized as a sort of quantitative study.

To ensure that the results are legitimate and dependable, the research should be properly constructed. This study used a quantitative way to determine what factors influence students' purchase behavior and how they are influenced by online shopping platforms. The descriptive research method used in the study is deemed the most appropriate as it involves collecting data to test the hypothesis and answer questions concerning the current status of the subject of the study. This study identifies the influence of the online shopping platforms on the purchasing behavior of the HEI's 4th year BSBA Financial Management students.

Research Locale

A selected Higher Education Institution is the locale of the research. It is an ideal location for the study because our respondents are students, and we all know that students are the ones that shop online these days. HEI students are well-versed in the online commerce business. Also, the number of online shopping platforms is increasing at such a rapid pace that online buyers or students are most likely to contemplate purchasing because they spend too much time on the internet. Specifically, it aims to gather data from the 4th year BSBA Financial Management students.

Respondents of the Study, Population, and Sample Size

The 30 respondents were students who are currently studying and taking BSBA Financial Management. The 4th-year students are chosen because the majority of them are aged 21 years old and above with a high preference for buying their needs and wants through online shopping.

Samples and Sampling Techniques Used

A sample is a subset of a population. Sampling is the process of picking a sample. In this work, we used a non-probability sampling method combined with a purposive sampling strategy. The researchers used purposive sampling to determine the reliable respondents who are capable of assessing the influence of online shopping platforms on purchasing behavior.

The respondents who were chosen to accomplish the survey/questionnaire were identified as follows:

1. Must be twenty-one (21 years) old and above,
2. Must be currently enrolled in SY 2023-2024,
3. Must be a 4th-year BSBA Financial Management student, and
4. At least had purchased ten (10) or more times in an online shopping platform.

The researchers surveyed thirty (30) respondents who qualified for the above-mentioned criteria. This is to ensure that the answers of the respondents and the results of the study are credible and reliable.

Research Instrumentation

Primary data will be gathered through the use of survey questionnaires designed to answer questions on the influence of online shopping platforms on purchasing behavior. The data will be acquired through the use of a practical and intentional sampling approach. This study's major data collection instrument is a self-created questionnaire used to address the research questions and objectives relevant to the study. In this study, those who are available to engage in the research are chosen to utilize the purposive sampling technique.

Validation of Instrument

To ensure the validity and reliability of the items in the survey questionnaire, the researchers sought assistance from their research adviser and statistician. The draft was submitted to check the words for further editing, the suggestions were adapted to enrich the statement questions in the survey questionnaire.

Data Gathering Procedure

The researchers will send a letter to the respondents informing them of the survey's completion.

The Likert Scale is the instrument that will be used to analyze the data Likert Scale scores are calculated by multiplying each frequency by the Likert Scale score, which ranges from 5 = Strongly Agree to 1 = Strongly Disagree.

To determine the response of the respondents, 5 points were devised with the relative weighting system as a reference point.

The table below will be used to verbally interpret the mean scores; Range Scale Value Verbal Interpretation:

The table below will be used to verbally interpret the mean scores; Range Scale Value Verbal Interpretation:

Range	Scale Value	Verbal Interpretation
4.21-5.00	5	Strongly Agree
3.41-4.20	4	Agree
2.61-3.40	3	Moderately Agree
1.81-2.60	2	Disagree
1.01-1.80	1	Strongly Disagree

Statistical Treatment of Data

The researchers used different methods which helped them in analyzing the gathered data.

Frequency.

This is a tabular arrangement where numerical data are grouped into different intervals and the number of observations from each interval is determined.

Percentage.

This is used to interpret the data of the respondents in terms of their profile; P = FN (100)

Where:

P= Percentage
F= Frequency for each category N= Total number of respondents
100= Constant multiplier

Weighted Mean.

The weighted average on the assessment of the respondents on the online shopping platforms and purchasing behavior was measured using the following formula; WM=ΣFWN

Where:

WM= Weighted mean
Σ= Summation symbol
F= Frequency
W= Assigned weight
N= Total number of Frequencies

Pearson Product Moment of Correlation (Pearson r)

This is necessary to find the degree of the association of the variables. This will use for the statement of problem number 4, to determine the correlation between online shopping platforms and purchasing behavior.

The formula is as follows:

$$r=n(\Sigma xy)-(\Sigma x)(\Sigma y)\sqrt{[n\Sigma x2-(\Sigma x)2][n\Sigma y2-(\Sigma y)2]}$$

Where:
Where:
Σ= Summation symbol
x = Values in the first set of data
y = Values in the second set of data n = total number of samples

RESULTS AND DISCUSSION

In this chapter, the gathered data along with its interpretation were presented in tabular form arranged chronologically considering the statement of the problem. These findings were the basis upon which the conclusions and recommendations were derived.

TABLE 1: PROFILE OF THE RESPONDENTS AS TO GENDER

Gender	Number
Male	9
Female	21
Total	30

Table 1 depicts the gender of the participants. There are 9 males that answered the survey, or around 30% of the entire population. When it comes to the entire population, female make about 70 % of the study's subjects. Studies developed by Meena (2018) show that from a young age one begins to have a preference for one product/service over another, as we are confronted with various commercial stimuli that shape our choices.

TABLE 2: Profile of the Respondents as to Types of Online Platforms Used

Types of Online Platforms used	F	%	Rank
1. Shopee	25	83%	1
2. Lazada	2	7%	2
3. Facebook Marketplace/Facebook	2	7%	2

4. Others	1	3%	3
Total	30	100%	

As shown in table 2, Rank 1 is the Shopee where it had the frequency of 25 or 83%. Followed by Rank 2 which is Lazada and Facebook marketplace/Facebook with the frequency of 2 or 7%. Rank 3 is other online shopping site with the frequency of 1 or 3%. The data shows that the majority of the respondents prefer to use Shopee for their online shopping needs. It also indicates that the respondents are more familiar with using Shopee than other online shopping platforms such Lazada and Facebook Marketplace/Facebook.

It can also be surmised that respondents are now really fond of doing online shopping due to their familiarity with the different online shopping platforms available in the market. All the applications or sites offer different products for different needs of their market that including apparel, accessories, gadgets, home products, and more. Social influences include reference groups, family, and social position. These elements also have an impact on the consumer's purchasing behavior. These elements, in turn, indicate an unending and strong influx through which individuals learn alternative values of consuming.

TABLE 3: **Assessment of the Respondents on the Factors of Online Shopping Platforms as to Sales Promotion**

Sales Promotion	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. A promotional offer like sales or reduced-price influences my purchasing decisions when buying through online shopping platforms	14	13	3	0	0	30	4.37	Strongly Agree	1
2. The promos enable me to make impulsive purchasing decisions	7	13	8	2	0	30	3.83	Agree	4
3. Coupons make me persuaded to make purchases online	8	11	9	2	0	30	3.83	Agree	4
4. The most effective promotional tactic is to buy having freebies from the online seller	11	13	6	0	0	30	4.17	Agree	3

5. Sales promotion is more effective and appealing than advertisements	14	11	5	0	0	30	4.30	Strongly Agree	2
Weighted Mean							**4.10**	**Agree**	

As shown in table 3, Rank 1 is the question “A promotional offer like sales or reduced-price influences my purchasing decisions when buying through online shopping platforms” with a weighted mean of 4.37 “Strongly Agree”; Rank 2 is the question “Sales promotion is more effective and appealing than advertisements” with a weighted mean of 4.30 “Strongly Agree”; Rank 3 is the question. “The most effective promotional tactic is to buy having freebies from the online seller” with a weighted mean 4.17 Agree, and Rank 4 are the questions “The promos enable me to make impulsive purchasing decisions” and “Coupons make me persuaded to make purchases online” with a weighted mean of 3.83 Agree. Overall, the assessment of the respondents on the factors of online shopping platforms as to sales promotion is equivalent to the weighted mean of 4.10 “Agree”.

This explains that respondents are more likely to buy when they see a reduction in the prices of the products seen on online shopping platforms. They are persuaded to buy products because of the discounts or sales. The advertisement also plays a vital role in the awareness of the customers about the variety of products available on the app or site.

This brings the customer to browse and do window shopping in the online shopping platform that makes them impulsive to buy products even though they don’t really need them. Promos are also relevant as seen in the result; this is also a factor that convinces the respondents that buying now because of the promo is important because of the limited time applicable in the promo. It creates thinking that buying now will save them money.

The sales promotion has become one of the most powerful tools to change the perception of buyers and has a significant impact on their purchase decision (Khan et al., 2019). The main factors affecting online buying were found as availability, cheap price, promotions, comparison, convenience, and customer service, perceived ease of use, attitude, time consciousness, trust, and variety seeking. (Jadhav and Khanna, 2016). Lastly, coupons are the least effective tool in sales promotion because people prefer other types of sales promotions than having coupons as seen in the results.

TABLE 4: Assessment of the Respondents on the Factors of Online Shopping Platforms as to Social Environment

Social Environment	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. My purchasing decisions are influenced by my family Members	3	9	12	5	1	30	3.27	Moderately Agree	3
2. My purchasing decisions are influenced by the culture of my society	3	9	13	4	1	30	3.30	Moderately Agree	2
3. My friends are the most influential persons in my purchasing decisions	3	9	14	2	2	30	3.30	Moderately Agree	2
4. I care about people opinions and suggestions when I buy things	10	11	5	2	2	30	3.83	Agree	1
5. My classmates and professors may, and do, have a significant impact on my purchase decisions	4	4	12	6	4	30	2.93	Moderately Agree	4
Weighted Mean							**3.33**	**Moderately Agree**	

As shown in table 4, Rank 1 is the question “I care about people opinions and suggestions when I buy things” with a weighted mean of 3.83 “Agree”; Rank 2 are the questions. “My purchasing decisions are influenced by the culture of my society” and “My friends are the most influential persons in my purchasing decisions” with a weighted mean of 3.30 “Moderately Agree”; Rank 3 is the question “My purchasing decisions are influenced by my family members” with a weighted mean of 3.27 “Moderately Agree”; Rank 4 is the question “My classmates and professors may and do, have a significant impact on my purchase decisions” with a weighted mean of 2.93 “Moderately Agree”. Overall, the assessment of the respondents on the factors of online shopping platforms as to social environment has resulted in a weighted mean of 3.33 “Moderately Agree”

It was really seen in the results that opinions and suggestions are relevant for the respondents when buying products from the online shopping platform. It gives them an idea of the possible advantages and disadvantages whenever they make a purchase. It also means that they listen to other peoples’ thoughts and points of view.

Culture and the friends of the respondents are also somehow important in their purchasing decision. Trends and norms of the community someway affect whether they will buy a certain product in an app or site, or not. Friends had also been creating an influence in the purchasing process of the respondents as seen in the results.

Family members are also a factor in the social environment that influences the respondents to buy in the shopping platform. It means that family members such as the

parents and siblings somehow have a say whether they agree or disagree over a purchasing decision. Lastly, the least that affects the purchasing of products through online shopping platforms is their classmates and professors. The results state clearly that the other people who purchased already the product in the app/site are more relevant to the respondents when making a purchase.

TABLE 5: Assessment of the Respondents on the Factors of Online Shopping Platforms as to Advertisement

Advertisement	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. Tiktok app, Blog posts, and Facebook and Instagram pages influence my purchasing behavior	9	12	5	4	0	30	3.87	Agree	3
2. social media is my primary source of information that affects my purchasing decisions	12	12	4	1	1	30	4.10	Agree	2
3. I search various online shopping websites just to find out more about the last products	12	11	6	1	0	30	4.13	Agree	1
4. I read online advertisements just out of my curiosity	8	13	6	2	1	30	3.83	Agree	4
5. Advertisements on television are more appealing than advertisements on social media	4	7	13	3	3	30	3.20	Moderately Agree	5
Weighted Mean							**3.83**	**Agree**	

As shown in table 5, Rank 1 is the question “I search various online shopping websites just to find out more about the last products” with a weighted mean of 4.13 “Agree”; Rank 2 is the question “social media is my primary source of information that affects my purchasing decisions” with a weighted mean of 4.10 “Agree”; Rank 3 is the question.

“Tiktok app, Blog posts, and Facebook and Instagram pages influence my purchasing behavior” with a weighted mean of 3.87 “Agree”; Rank 4 is the question “I read online advertisements just out of my curiosity” with a weighted mean of 3.83 “Agree”; Rank 5 is the question “Advertisements on television are more appealing than advertisements on social media” with a weighted mean of 3.20 “Moderately Agree”; Overall the assessment of the respondents on the factors of online shopping platforms as to advertisement gained a weighted mean of 3.83 “Agree”

The results show that comparing products from online shopping sites is important for the respondents before making a purchase. They really ensure that the product they will buy is worth their money. One thing to note, in the purchasing behavior of the respondents, is their habit of getting information about products through social media. This only proves that social media nowadays is not just essential in connecting people but also important in providing necessary information about products, that will convince the customer to make a purchase.

Online advertisement through other websites and blogs makes also a vital role to know more about products' specifications and features. It leads to a better understanding of the benefits that the buyer may get when they decided to make a purchase already. There is a significant link between social media and marketing. Alavi et al (2019) illustrate that social media marketing is seen as utilizing the "social" with the "media" for marketing enterprises and correctly executing them. It is clear that social media marketing is the process of encouraging individuals to promote their products or services through various social media platforms. This will allow you to reach a significant number of people who would not have been reachable through traditional advertising methods.

TABLE 6: Assessment of the Respondents on the Factors of Online Shopping Platforms as to Feedback

Feedback	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. Personal product review has become one of the most significant sources of information for me when making purchase Selections	15	10	5	0	0	30	4.33	Strongly Agree	2
2. When there are no product reviews, I am hesitant to make a purchase	15	12	3	0	0	30	4.40	Strongly Agree	1
3. A customer review of a product allows me to acquire a better understanding of the product before purchasing it	13	12	5	0	0	30	4.27	Strongly Agree	3
4. Feedback and suggestions assist me in determining whether or not a product is worth purchasing	16	8	6	0	0	30	4.33	Strongly Agree	2
5. When a product or an online store gets positive feedback, it is simpler to trust it	14	9	6	1	0	30	4.20	Agree	4
Weighted Mean							**4.31**	**Strongly Agree**	

As shown in table 6, Rank 1 is the question “When there are no product reviews, I am hesitant to make a purchase” with a weighted mean of 4.40 “Strongly Agree”; Rank 2 are the questions “Personal product review has become one of the most significant sources of information for me when making purchase selections” and “Feedback and suggestions assist me in determining whether or not a product is worth purchasing” with a weighted mean of 4.33 “Strongly Agree”; Rank 3 is the question “A customer review of a product allows me to acquire a better understanding of the product before purchasing it” with a weighted mean of 4.27 “Strongly Agree”; Rank 4 is the question “When a product or an online store gets positive feedback, it is simpler to trust it”; Overall, the assessment of the respondents on the factors of online shopping platforms as to feedback gained a weighted mean of 4.31 “Strongly Agree”. It was clear from the results that respondents are hesitant to make a purchase if they will not see any product review.

This is considered an essential part of the factors that affect the purchasing behavior of the respondents in an online shopping platform. One of the reasons why customers need to see a product review is because they don’t see the actual product, and just see it on the pictures posted in the shopping app or sites. This gives them thinking that pictures are from reality that’s why they really seek a product review before making any purchase.

It can also be surmised that they might already experience buying in an online shopping platform and getting a product they don’t expect. Or they know someone who bought a product in an online shop or site, who is disappointed with the actual product, which really eager the respondents to check first the product review prior to buying it. According to Putter (2017), more buyers are utilizing social media platforms than ever before. Customers have shown a desire to provide as much feedbacks and ideas as possible. Furthermore, according to recent surveys, 88% of individuals rely their shopping decisions on feedback on social media and search engines.

However, Hernández-Méndez & Muñoz-Leiva (2015) found no significant difference in their trust levels since they are as eager to embrace these reviews as they are to trust those of their close ones. In terms of statistics, it can be stated that many individuals pick their ecommerce platforms for buying based on the reviews of their loved ones or reviews on social media. More buyers than ever before are turning to social media sites like Facebook and Twitter, according to a study by Putter (2017). Customers have been shown to be looking for the most comments and ideas. As a result, it's critical to maintain an active social media presence. However, the emergence of social media is seen as the current marketing trend.

TABLE 7: Assessment of the Respondents on the Factors of Online Shopping Platforms as to Logistics

Logistics	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. A complete description of the product would make it easy for me to purchase	13	11	6	0	0	30	4.23	Strongly Agree	1
2. The online seller was quite helpful when doing queries on the products they sell	7	18	5	0	0	30	4.07	Agree	3
3. Before dispatching the orders, the majority of the merchants exercised quality and product Verification	7	16	6	1	0	30	3.97	Agree	5
4. All of the delivery riders I've encountered have been kind and cheerful	10	12	6	2	0	30	4.00	Agree	4
5. I'm fine with the delivery fee for the sort of shipment I choose	10	15	5	0	0	30	4.17	Agree	2
Weighted Mean							**4.09**	**Agree**	

As shown in table 7, Rank 1 is the question “A complete description of the product would make it easy for me to purchase” with a weighted mean of 4.23 “Strongly Agree”; Rank 2 is the question “I'm fine with the delivery fee for the sort of shipment I choose” with a weighted mean of “4.17” Agree”; Rank 3 is the question “The online seller was quite helpful when doing queries on the products they sell” with a weighted mean of 4.07 “Agree”; Rank 4 is the question “All of the delivery riders I've encountered have been kind and cheerful” with a weighted mean of

4.00 “Agree”; Rank 5 is the question “Before dispatching the orders, the majority of the merchant’s exercised quality and product verification” with a weighted mean of 3.97 “Agree”. Overall, the assessment of the respondents on the factors of online shopping platforms as to logistics resulted to a weighted mean of 4.09 “Agree”.

A detail about the product is the most important factor in terms of logistics as seen in the results. Product description really matters for the respondents when purchasing a product online. For the respondents, the delivery fee is not an issue anymore because it is just minimal and the convenience, they get over the delivery fee they will pay is far better.

TABLE 8: Assessment of the Respondents on the Factors of Online Shopping Platforms as to Payment

Payment Process	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. I prefer cash on delivery over online payment	20	6	3	1	0	30	4.50	Strongly Agree	1
2. The requirement to use online payment is difficult for me	3	8	8	8	3	30	3.00	Moderately Agree	5
3. As a customer, I must be aware of the safety and security concerns while utilizing e-payment systems	15	11	4	0	0	30	4.37	Strongly Agree	2
4. Online payment systems save me time and money	7	14	9	0	0	30	3.93	Agree	4
5. Online payments are simple to understand and use	7	21	2	0	0	30	4.17	Agree	3
Weighted Mean							**3.99**	**Agree**	

As shown in table 8, Rank 1 is the question “I prefer cash on delivery over online payment” with a weighted mean of 4.50 “Strongly Agree”; Rank 1 is the question “As a customer, I must be aware of the safety and security concerns while utilizing e-payment systems” with a weighted mean of 4.37 “Strongly Agree”; Rank 3 is the question “Online payments are simple to understand and use” with a weighted mean of 4.17 “Agree”; Rank 4 is the question “Online payment systems save me time and money” with a mean of 3.93 “Agree”; Rank 5 is the question. “The requirement to use online payment is difficult for me” with a weighted mean of 3.00 ‘Moderately Agree”. Overall, the assessment of the respondents on the factors of online shopping platforms as to payment resulted in a weighted mean of 3.99 “Agree”.

Paying on cash on a delivery basis remained to be the most preferred payment method of the respondents. They really want to pay in cash because of the other charges they need to pay before they can cash in their money in an e-wallet or in the online payment wallet of the shopping platform/s. It is also reflected in the results that safety and security had been one of the reasons why the respondents are hesitant to pay online. They are not also familiar with the process of using the online payment and it is not convenient for them to use it because of the required process prior to utilizing it.

The COD transactions are considered safe in this scenario as no sharing of private banking information is involved. According to Jana (2017), COD is a source of satisfaction for customers attributed to such reasons. Furthermore, COD is also an alternative for youngsters and those customers who do not have credit/debit cards or other e-payment facilities.

COD is a payment method in which clients choose to pay for the purchased item once it has been delivered. As a result, a buyer would have to pay for the merchandise only when it arrived at their door (Chiejina & Olamide, 2014). Customers that choose COD can make their purchase without having to pay cash. The store provides an invoice along with the consignment, and then a logistics business is brought in to handle goods delivery and payment collection.

As a result, this method offers the consumer with a sense of security and trust. COD also provides the opportunity for a product replacement if the purchase is not in excellent shape. As a result, buyers sense more control over the purchasing process since they must pay for the goods after personally seeing it. Additionally, when clients utilize e-payment methods to make purchases, more information about them is recorded. This information can be utilized at any moment to track the specifics and preferences of clients. Customers sense greater control over the purchasing process when using COD since there is less likelihood of recording personal information for future ads.

TABLE 9: Summary of the assessment of the Respondents on the Factors of Online Shopping Platforms

	Weighted Mean	**Verbal Interpretation**	**Rank**
Sales Promotion	4.10	Agree	2
Social Environment	3.33	Moderately Agree	6
Advertisement	3.83	Agree	5
Feedback	4.31	Strongly Agree	1
Logistics	4.09	Agree	3
Payment Process	3.99	Agree	4
Average Weighted Mean	**3.94**	**Agree**	

As seen in table 9, Rank 1 is the variable “Feedback” with a weighted mean of 4.31 “Strongly Agree”; Rank 2 is the variable “Sales Promotion” with a weighted mean of 4.10 “Agree”; Rank 2 is the variable “Logistics” with a weighted mean of 4.09 “Agree”; Rank 4 is the variable “Payment Process” with a weighted mean of 3.99 “Agree”; Rank 5 is the variable “Advertisement” with a weighted mean of 3.83 “Agree”; Rank 6 is the variable “Social Environment” with a weighted mean of 3.33 “Moderately Agree”; Overall, the summary of the assessment of the respondents on the factors of online shopping platforms had gained a weighted mean of 3.94 “Agree” These results reflected that Feedback is the most important factor among the variables indicated in the table.

This is a great result that gives the businesses an idea to maintain and even improve the feedback management system of the Online shopping platform/s. Sales Promotion, Advertisement, Logistics, and Payment Process became the second consideration of the respondents in making an online purchase, but it is worth noting that social environment

is the least important factor which gives an idea that online feedback and information is better than the feedback coming from the circle of a personal network of the respondents.

TABLE 10: College Students' Purchase Decision Process as to Pre-Purchase Stage

Pre-Purchase Stage	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. Product reviews are something I trust	16	13	1	0	0	30	4.50	Strongly Agree	1
2. The site or app is user-friendly	9	13	8	0	0	30	4.03	Agree	5
3. Product ratings assist me when making a purchase selection	17	9	4	0	0	30	4.43	Strongly Agree	2
4. Finalizing my order is easy	12	13	4	1	0	30	4.20	Agree	3
5. The variety of options in online stores is useful for me	10	16	3	1	0	30	4.17	Agree	4
Weighted Mean							**4.27**	**Strongly Agree**	

As shown in table 10, question number 1 received the highest score with a weighted mean of 4.50, indicating "Strongly Agree," followed by question number 3 with a weighted mean of 4.43, indicating "Strongly Agree," next is question number 4 with a weighted mean of 4.20, indicating “Agree," second to the last is question number 5 with a weighted mean of 4.17, indicating "Agree." and lastly, question 2 with a weighted mean of 4.03, indicating “Agree” Overall, the Pre-Purchase Stage has a weighted average of 4.27, indicating "Strongly Agree," implying that it can influence respondents' purchase behavior while using online shopping platforms.

It is essential to know that product review and product ratings are the two most essential factors in the pre- purchase decision of the respondents. They were really intended to see first the feedback of the buyers of the product and check how the former customers rate the store or the products they bought. This gives an impression that sellers of the online shopping platform should be sensitive to the concerns of the customers to avoid negative feedback and lower product ratings.

Furthermore, the adding to cart process is an essential part of the pre-purchase decision because they could able to select first their product prior to finalizing their online purchase. Shoppers are most likely to read reviews in the pre-purchase stage when they are researching products and trying to make a purchase decision. More than four in five (85%) shoppers read online reviews during online research as they decide what to buy. Reading online reviews during research is common among Millennials. Lastly, the variety of products were also seen in the results as essential because a customer wants to have many options and they really want to compare those products, until they already made their final decision.

TABLE 11: College Students' Purchase Decision Process as to Post-Purchase Stage

Post-Purchase Stage	Frequency					Total	Weighted Mean	Verbal Interpretation	Rank
	5	4	3	2	1				
1. Shopping online satisfied me with good quality products	11	14	5	0	0	30	4.20	Agree	2
2. Product availability satisfied me when I shopped online	9	19	2	0	0	30	4.23	Strongly Agree	1
3. I am pleased that I can readily change address data while buying online	12	12	6	0	0	30	4.20	Agree	2
4. When I ordered, the packing and product(s) arrived in good quality	7	16	7	0	0	30	4.00	Agree	3
5. I was usually able to receive the items within the estimated time of arrival	9	11	9	1	0	30	3.93	Agree	4
Weighted Mean							**4.11**	**Agree**	

As shown in table 11, question number 2 received the highest score with a weighted mean of 4.23, indicating "Strongly Agree," followed by question numbers 1 and 3 with a weighted mean of 4.20, indicating "Agree," next is question number 4 with a weighted mean of 4.00, indicating "Agree," and lastly is question number five with a weighted mean of 3.93 indicating "Agree." Overall, the Post-Purchase Stage has a weighted average of 4.11, indicating "Agree," implying that it can influence respondents' purchase behavior while using online shopping platforms.

The results indicate that product availability is important for the respondents in the post purchasing stage. They are confident that whenever they buy and ordered their product online, there are stocks available and it will be prepared for delivery. It can also be added that the respondents are familiar with some of the settings like changing their delivery address to ensure that they will receive their ordered products on their preferred location/site. It means that if a buyer is working or has multiple locations, he/she can able to customize his/her delivery address. The respondents are also satisfied with the products they received through purchasing online. They see that online products can now match, in terms of quality, with the products seen in the physical stores. Quality of packaging and the timely delivery of products were also rated as satisfactory by the respondents.

It means that online shopping companies are properly doing their job in taking care of the parcel or packages ordered by the customers. Social media has the ability to influence potential clients from the initial point of contact until the time of purchase, as well as post-

purchase behavior. To begin, clients must have a thorough awareness of the company and its services; but, when they begin to narrow down their preferences, they will need the assistance of a social media influencer to pursue their selections. It can be seen that a constant dialogue or negotiation between the customer and the brand is essential for keeping the relationship robust and stable.

TABLE 12: Significant Relationship of the Assessment of the Respondents on Online Shopping Platforms' Influence on Student Purchasing Behavior

Computed r	Degrees of Freedom	Critical r	level of Significance
0.617	28	0.349	0.05

Since the computed value of r which is .617 is greater than the critical r of .349 at a .05 level of significance with 28 degrees of freedom, the null hypothesis is rejected in favor of the alternative hypothesis. This means that there is a significant relationship on the assessment of the respondents on the factors of Online Shopping on the Purchase Decision Process of the College Students

This result indicates that if the online shopping platforms will improve more their products and services, the more likely the customers are to be satisfied and order more products through their apps or sites.

Conclusions

The results of the study revealed that majority of the respondents chose Shopee as their shopping platform online in terms of purchasing products. The gathered data also showed that consumer behavior of the respondents is greatly influenced by the offer they received. Next factor that influenced their consumer behavior is the advertisement that attracts the students to purchase the product online. Lastly, coupons and freebies offered online influenced their tendency to avail of the online products.
Ultimately, the researcher at the HEI came to a conclusion that online shopping platforms are successful in encouraging students to make better purchase decisions and feedback, thru product reviews, plays an important factor in their consumer behavior. Moreover, the results revealed that using online shopping platforms helps the students to make better decisions when it comes to their purchasing behavior.

Compliance with Ethical Standards

The author declares that there are no conflicts of interest. All procedures conducted in this research involving human participants were performed in compliance with the ethical standards of the institutional and/or national research committees and adhered to the 1964 Helsinki declaration and its subsequent amendments or comparable ethical guidelines. Informed consent was obtained from all individual participants involved in the study. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The datasets generated and analyzed during the study are available from the corresponding author upon reasonable request.

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OPTIMIZING QUEUING MANAGEMENT SYSTEMS FOR ENHANCED SERVICE EFFICIENCY IN A GOVERNMENT HEALTH INSURANCE AGENCY

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ABSTRACT

Health insurance agencies play a crucial role in providing universal health coverage to people. Long queues and waiting times make it difficult for services to be efficient and for members to be satisfied. Research findings indicate significant issues with staffing allocation, process repetition, and inefficient break scheduling, contributing to long queues. This study addresses these challenges by employing queuing theory models, simulation software, and process flow chart analysis. An action research approach is utilized, involving stakeholders and employing tools such as time and motion study. Data is gathered through interviews, observations, and secondary sources. Proposed solutions include balanced break schedules, checklist implementation, and separate queuing systems. These strategies are shown to reduce waiting times, cost of waiting time, processing times, and travel distances, and an increase in members served, thereby improving service efficiency. Implementing these solutions can effectively address queuing challenges, leading to improved service delivery and member satisfaction at health insurance agencies. It is crucial to address staffing allocation, process repetition, and break scheduling issues to optimize service efficiency and ensure timely access to essential healthcare services for all stakeholders.

Keywords: *Queuing Theory, Process Flow Chart Analysis, Service Efficiency, Simulation Software*

INTRODUCTION

One of the most unpleasant but inevitable experiences in daily life is waiting for assistance. When we wait in line at banks, fast-food restaurants, hair salons, medical facilities, insurance agencies, or retail establishments, it immediately affects how we perceive the quality of the service (Obermeier et al., 2020). A well-designed queuing system reduces short queue lengths and waiting times, which enhances the service quality and customer satisfaction. There is also an increase in efficiency, leading to higher productivity and better utilization of resources (Amelia et al., 2021).

Customer dissatisfaction with the service has far-reaching consequences, affecting the entire industry. Prolonged wait times or long queue lines not only frustrate potential consumers to leave, but they may damage the company's brand image, encouraging negative opinions among current and future customers. Furthermore, the negative impacts aren't limited to consumers; long lineups may decrease employee morale, resulting in lower work satisfaction and productivity. So, the company needs to fix service problems and reduce wait times to keep customers happy and maintain a good reputation (Burodo et al., 2021).

An analytical method to problem-solving and decision-making that is effective in organizational management is operations research (OR). Mathematical analysis breaks issues down and delivers step-by-step answers. When it comes to decision-making OR is more effective than standard software and data analytics methodologies (Lewis, 2019). Queuing theory, a mathematical framework, serves as a crucial tool for examining varied system types and their performance regarding service quality. From complicated queues inside broad network systems to the investigation of service chains, queuing theory gives insights into system behavior. It permits the examination of numerous parameters such as waiting times, resource use, and system throughput (Jiang et al., 2019).

This study aims to address the issues of extended queue lengths and prolonged waiting times observed during Public Assistance and Complaints Desk (PACD)/screening, membership, and payment section at the government health insurance agency. To propose effective solutions to the problems associated with service planning and scheduling in this industry, data will be gathered utilizing the M/M/s queuing theory model and process flow chart analysis. Data collection occurred over a single day with a nine (9) hour operation. The researcher conducted a comparative analysis to assess the disparities between the current system and the proposed system, with the objective of determining their significance in enhancing efficiency and customer satisfaction levels.

Based on the research of Bahrami et al. (2020), shows that the use of queuing theory models improves the satisfaction of the patients in terms of receiving services in a healthcare facility. Many existing studies show how queuing theory and healthcare management have extensively explored strategies to reduce waiting times and improve efficiency in healthcare settings such as hospitals and clinics; however, there is a lack of studies addressing queue management in health insurance agencies. This study's

significance lies in its potential to enhance service delivery at the case company by reducing waiting times and queue lengths, thereby improving overall customer experience and satisfaction, particularly in healthcare insurance, where timely access to services is crucial. This study also contributes by extending the applicability of existing knowledge and recommendations relevant to this industry.

Research Questions

In the service industry, efficient queuing management systems are essential for ensuring customer satisfaction and operational efficiency. However, inadequate queuing strategies often result in prolonged wait times, dissatisfied customers, and subpar service delivery. Using Fishbone Diagram and 5 Why's Analysis, this research aims to uncover critical insights into the root causes of these issues. By identifying these root causes, the study seeks to develop and implement queuing strategies to reduce waiting time and long queue lengths, ultimately enhancing service efficiency, customer satisfaction, and ensuring timely access to essential healthcare services for all stakeholders. Specifically, this research tried to address subsequent inquiries:

1. What are the main factors contributing to prolonged waiting times and excessive queue lengths at the government health insurance agency?

    1.1. How do manpower availability, particularly during breaks and staff allocation, and management practices like break scheduling and frontliner allocation impact queue lengths during operational hours?
    1.2. How do process inefficiencies, such as repetition and inadequate transmission of information, prolong transaction times and elongate queues?

2. How can queuing strategies be developed and implemented to reduce waiting time and long queue lengths at the government health insurance agency, thereby enhancing service efficiency and customer satisfaction?

    2.1. What strategies can be employed to improve manpower allocation and deployment, as well as optimize methods to streamline processes and reduce transaction times, thereby minimizing queue lengths during operational hours?
    2.2. What managerial interventions are necessary to improve break scheduling and staff allocation, leading to more efficient frontline deployment and shorter queues?

METHODOLOGY

The study was conducted at a government health insurance agency, focusing on addressing issues related to extended queue lengths and prolonged waiting times observed during various operational phases, including Public Assistance and Complaints

Desk (PACD)/screening, membership, and payment sections. The sampling method involved purposive selection of participants directly involved in the operations of the government health insurance agency. Data were gathered through a combination of observation and interviews. Direct observation of the process flow from member application to the payment section provided insights into existing challenges. Interviews with personnel addressed issues related to long queues and service time. Various tools and methods were used for data collection. A phone and stopwatch combo recorded customer arrival and service times, offering insights into interaction durations. Additionally, a handheld tally counter tracked member arrivals per minute, systematically measuring entry flow.

The arrival time, service time, and transportation of members lacking qualifications were all determined using Industrial Engineering techniques including time and motion studies. Data analysis was conducted using the Queuing theory model (M/M/S): (FCFS/∞/∞) to calculate average arrival and service rates, with the mean statistical tool in Microsoft Excel used to compute necessary values. The analysis process involves comparing the present queuing system with the proposed one to reveal significant differences in waiting time, line length, and distance saved. The suggested queuing model demonstrates decreased waiting time and shorter lineups, highlighting potential advantages for service efficiency. Visual aids such as tables and charts facilitate thorough insights and comprehension. Design planning includes defining objectives, literature study, data assessment, and solution design, aiming to increase service efficiency by addressing waiting time and queue length issues through queuing theory concepts and process improvements. Testing involves comparative analysis, time study, motion analysis, simulation software, and sensitivity analysis to assess system efficiency.

RESULTS AND DISCUSSION

Frontliners' Break Scheduling

Table 1.

Current Frontliners' Break Scheduling

PACD/Screening Section						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate	Utilization Factor	%
1	11:00 am - 12:00 pm	73	1.2167	0.7522	1.6175	161.75
1	12:00 pm - 1:00 pm	52	0.8667	0.7522	1.1522	115.22

Membership Section						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate	Utilization Factor	%
2	11:00 am - 12:00 pm	33	0.5460	0.2316	1.1788	117.88
2	12:00 pm - 1:00 pm	18	0.3008	0.2316	0.6494	64.94

Payment Section						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate	Utilization Factor	%
1	11:00 am - 12:00 pm	10	0.1722	0.2373	0.7258	72.58
1	12:00 pm - 1:00 pm	8	0.1317	0.2373	0.5552	55.52

The table 1 illustrates that the current scheduling of the frontliners' breaks results in long queues in both batches within the PACD/screening and membership sections, as the utilization factor of the frontliners exceeds 80%. In the payment section, one (1) frontliner is generally sufficient to assist members during those hours. However, since some members have numerous transactions that consume significant time, it is necessary to include two (2) frontliners to lessen the longer waiting time for members in the queue.

Comparative Analysis of Frontliners' Utilization Factor

Table 2.
Hourly Frontliner Utilization Comparison in PACD/Screening

Frontliners	Time	Utilization Factor (%)
3	8:00 am - 9:00 am	48.01
3	9:00 am - 10:00 am	40.62
3	10:00 am - 11:00 am	39.14
3	11:00 am - 12:00 pm	53.92
3	12:00 pm - 1:00 pm	38.41
3	1:00 pm - 2:00 pm	37.67
3	2:00 pm - 3:00 pm	45.79
3	3:00 pm - 4:00 pm	38.41
3	4:00 pm - 5:00 pm	15.51

Frontliners	Time	Utilization Factor (%)
2	8:00 am - 9:00 am	72.01
2	9:00 am - 10:00 am	60.93
2	10:00 am - 11:00 am	58.72
2	11:00 am - 12:00 pm	80.87
2	12:00 pm - 1:00 pm	57.61
2	1:00 pm - 2:00 pm	56.50
2	2:00 pm - 3:00 pm	68.69
2	3:00 pm - 4:00 pm	57.61
2	4:00 pm - 5:00 pm	23.26

Frontliners	Time	Utilization Factor (%)
1	8:00 am - 9:00 am	144.02
1	9:00 am - 10:00 am	121.86
1	10:00 am - 11:00 am	117.43
1	11:00 am - 12:00 pm	161.75
1	12:00 pm - 1:00 pm	115.22
1	1:00 pm - 2:00 pm	113.00
1	2:00 pm - 3:00 pm	137.37
1	3:00 pm - 4:00 pm	115.22
1	4:00 pm - 5:00 pm	46.53

Interpretation
Underutilized
Balanced
Overutilized
Balanced but causes long queues

Each group of frontliners has a color-coded usage factor, which helps balance their hourly availability. Table 2 shows that three frontliners on the PACD/screening sector is excessive owing to its low utilization factor, resulting in idle frontliners. This section may so have less frontliners. However, allocating just one frontliner exceeds the recommended utilization factor of 80%, resulting in long queues and waiting times for members. This may work in the last hour of the day when consumer arrival is low. Throughout the day, it is advisable to have two (2) counters open to minimize queues and waiting times for members.

Table 3.
Comparison of Utilization Factor of Frontliners/Hour in Membership Section

Frontliners	Time	Utilization Factor (%)
4	8:00 am - 9:00 am	42.06
4	9:00 am - 10:00 am	54.74
4	10:00 am - 11:00 am	66.39
4	11:00 am - 12:00 pm	58.94
4	12:00 pm - 1:00 pm	32.47
4	1:00 pm - 2:00 pm	52.43
4	2:00 pm - 3:00 pm	56.03
4	3:00 pm - 4:00 pm	48.83
4	4:00 pm - 5:00 pm	27.16

Frontliners	Time	Utilization Factor (%)
3	8:00 am - 9:00 am	56.09
3	9:00 am - 10:00 am	72.99
3	10:00 am - 11:00 am	88.53
3	11:00 am - 12:00 pm	78.59
3	12:00 pm - 1:00 pm	43.29
3	1:00 pm - 2:00 pm	69.91
3	2:00 pm - 3:00 pm	74.70
3	3:00 pm - 4:00 pm	65.11
3	4:00 pm - 5:00 pm	36.21

Frontliners	Time	Utilization Factor (%)
2	8:00 am - 9:00 am	84.13
2	9:00 am - 10:00 am	109.49
2	10:00 am - 11:00 am	132.79
2	11:00 am - 12:00 pm	117.88
2	12:00 pm - 1:00 pm	64.94
2	1:00 pm - 2:00 pm	104.86
2	2:00 pm - 3:00 pm	112.06
2	3:00 pm - 4:00 pm	97.66
2	4:00 pm - 5:00 pm	54.32

Frontliners	Time	Utilization Factor (%)
1	8:00 am - 9:00 am	168.26
1	9:00 am - 10:00 am	218.97
1	10:00 am - 11:00 am	265.58
1	11:00 am - 12:00 pm	235.77
1	12:00 pm - 1:00 pm	129.88
1	1:00 pm - 2:00 pm	209.72
1	2:00 pm - 3:00 pm	224.11
1	3:00 pm - 4:00 pm	195.33
1	4:00 pm - 5:00 pm	108.63

Interpretation
Underutilized
Balanced
Overutilized
Balanced but causes long queues

Table 3 illustrates that in the membership section, having four (4) frontliners is acceptable. There are certain hours, such as 10am-11am, where four (4) frontliners are necessary. However, similar to the PACD/screening section, where frontliners may be underutilized, optimization can be achieved by reducing the number of open counters. Operating with only one (1) or two (2) frontliners throughout the day results in a high utilization factor, contributing to longer waiting times and queues. Nevertheless, during off-peak hours like 12pm-1pm and 4pm-5pm, operating with two (2) frontliners is sufficient due to the lower volume of arriving members. To ensure a smooth flow of member assistance throughout the day, maintaining a balanced set of three (3) frontliners available is recommended.

Table 4.

Comparison of Utilization Factor of Frontliners/Hour in Payment Section

Frontliners	Time	Utilization Factor (%)
3	8:00 am - 9:00 am	19.51
3	9:00 am - 10:00 am	24.30
3	10:00 am - 11:00 am	26.20
3	11:00 am - 12:00 pm	24.19
3	12:00 pm - 1:00 pm	18.51
3	1:00 pm - 2:00 pm	21.40
3	2:00 pm - 3:00 pm	23.08
3	3:00 pm - 4:00 pm	19.73
3	4:00 pm - 5:00 pm	9.70

Frontliners	Time	Utilization Factor (%)
2	8:00 am - 9:00 am	29.26
2	9:00 am - 10:00 am	36.46
2	10:00 am - 11:00 am	39.30
2	11:00 am - 12:00 pm	36.29
2	12:00 pm - 1:00 pm	27.76
2	1:00 pm - 2:00 pm	32.11
2	2:00 pm - 3:00 pm	34.62
2	3:00 pm - 4:00 pm	29.60
2	4:00 pm - 5:00 pm	14.55

Frontliners	Time	Utilization Factor (%)
1	8:00 am - 9:00 am	58.53
1	9:00 am - 10:00 am	72.91
1	10:00 am - 11:00 am	78.60
1	11:00 am - 12:00 pm	72.58
1	12:00 pm - 1:00 pm	55.52
1	1:00 pm - 2:00 pm	64.21
1	2:00 pm - 3:00 pm	69.23
1	3:00 pm - 4:00 pm	59.20
1	4:00 pm - 5:00 pm	29.10

Interpretation
Underutilized
Balanced
Overutilized
Balanced but causes long queues

Table 4 shows that for the payment section, operating with three (3) frontliners throughout the day results in a low utilization factor. It is advisable not to add another frontliner unless there is a day with a high volume of arrivals in the future. Operating with only one (1) frontliner achieves a balanced utilization factor; However, some members have multiple transactions, which can lead to longer waiting times and queues for other members in line. Nevertheless, opening one counter during the last hour of the shift is acceptable. Maintaining two (2) frontliners throughout the entire day is the best approach to achieve service efficiency.

Table 5.

Proposed Hourly Staff Allocation

PACD/Screening Section						
Number of Counters Available per hour						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate/min	Utilization Factor	%
2	8:00 am - 9:00 am	65	1.0833	0.7522	0.7201	72.01
2	9:00 am - 10:00 am	55	0.9167	0.7522	0.6093	60.93
2	10:00 am - 11:00 am	53	0.8833	0.7522	0.5872	58.72
2	11:00 am - 12:00 pm	73	1.2167	0.7522	0.8087	80.87
2	12:00 pm - 1:00 pm	52	0.8667	0.7522	0.5761	57.61
2	1:00 pm - 2:00 pm	51	0.8500	0.7522	0.5650	56.50
2	2:00 pm - 3:00 pm	62	1.0333	0.7522	0.6869	68.69
2	3:00 pm - 4:00 pm	52	0.8667	0.7522	0.5761	57.61
1	4:00 pm - 5:00 pm	21	0.3500	0.7522	0.4653	46.53

Membership Section						
Number of Counters Available per hour						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate/min	Utilization Factor	%
3	8:00 am - 9:00 am	23	0.3897	0.2316	0.5609	56.09
3	9:00 am - 10:00 am	30	0.5071	0.2316	0.7299	72.99
4	10:00 am - 11:00 am	37	0.6151	0.2316	0.6639	66.39
3	11:00 am - 12:00 pm	33	0.5460	0.2316	0.7859	78.59
2	12:00 pm - 1:00 pm	18	0.3008	0.2316	0.6494	64.94
3	1:00 pm - 2:00 pm	29	0.4857	0.2316	0.6991	69.91
3	2:00 pm - 3:00 pm	31	0.5190	0.2316	0.7470	74.70
3	3:00 pm - 4:00 pm	27	0.4524	0.2316	0.6511	65.11
2	4:00 pm - 5:00 pm	15	0.2516	0.2316	0.5432	54.32

Payment Section						
Number of Counters Available per hour						
Frontliner	Time	Average Arrival/hour	Mean Arrival Rate/min	Mean Service Rate/min	Utilization Factor	%
2	8:00 am - 9:00 am	8	0.1389	0.2373	0.2926	29.26
2	9:00 am - 10:00 am	10	0.1730	0.2373	0.3646	36.46
2	10:00 am - 11:00 am	11	0.1865	0.2373	0.3930	39.30
2	11:00 am - 12:00 pm	10	0.1722	0.2373	0.3629	36.29
2	12:00 pm - 1:00 pm	8	0.1317	0.2373	0.2776	27.76
2	1:00 pm - 2:00 pm	9	0.1524	0.2373	0.3211	32.11
2	2:00 pm - 3:00 pm	10	0.1643	0.2373	0.3462	34.62
2	3:00 pm - 4:00 pm	8	0.1405	0.2373	0.2960	29.60
1	4:00 pm - 5:00 pm	4	0.0690	0.2373	0.2910	29.10

Based on the comparison of the utilization factor of frontliners per hour in each section, table 5 illustrates the appropriate number of available counters to be opened hourly is determined. Ensuring that the number of available counters remains consistent throughout the day is essential to prevent the accumulation of long queues, particularly as the utilization factor of the frontliners remains below 80% (Rajagopalan, 2016).

Table 6.
Hourly Breaks' Performance Summary in PACD/Screening Section

Performance Rate	**11:00 am – 12:00 pm**		**12:00 pm – 1:00 pm**	
	Current	**Proposed**	**Current**	**Proposed**
Frontliner (s)	1	2	1	2
Mean Arrival Rate (λ)	1.2167 member/minute	1.2167 member/minute	0.8667 member/minute	0.8667 member/minute
Mean Service Rate (μ)	0.7522 member/minute	0.7522 member/minute	0.7522 member/minute	0.7522 member/minute
Utilization factor of the entire system (ρ)	161.75%	80.87%	115.22%	57.61%
Probability of zero member in the system (P_0)	-	10.57%	-	26.89%
Average number of members in the queue (L_q)	-	3.0587 members	-	0.5724 members
Average number of members in the system (L_s)	-	4.6762 members	-	1.7246 members

Average waiting time in the queue (W_q)	-	2.5139 minutes	-	0.6604 minutes
Average time a member spends in the system (W_s)	-	3.8433 minutes	-	1.99 minutes

Table 6 explains that for the PACD/screening section, it is essential to have at least two (2) frontliners available. This is because, based on the gathered data, some members take up to seven (7) minutes in asking questions, leading to longer waiting times for members in the queue. The table demonstrates that operating with two (2) frontliners during the first batch enhances the utilization rate from 161.75% to 80.87%, resulting in 3.0587 members in the queue and 4.6762 members in the system. The average waiting time for members in the queue is 2.5139 minutes, while the average time spent by members in the system is 3.8433 minutes. During the second batch, it is crucial to have two (2) counters open, as this improves the utilization rate from 115.22% to 57.61%. As a result, there are 0.5724 members in the queue and 1.7246 members in the system. The average waiting time for members in the queue is 0.6604 minutes, with members spending an average of 1.99 minutes in the system.

Table 7.
Hourly Breaks' Performance Summary in Membership Section

Performance Rate	**11:00 am – 12:00 pm**		**12:00 pm – 1:00 pm**	
	Current	**Proposed**	**Current**	**Proposed**
Frontliner (s)	2	3	2	2
Mean Arrival Rate (λ)	0.5460 member/minute	0.5460 member/minute	0.3008 member/minute	0.3008 member/minute
Mean Service Rate (μ)	0.2316 member/minute	0.2316 member/minute	0.2316 member/minute	0.2316 member/minute
Utilization factor of the entire system (ρ)	117.88%	78.58%	64.94%	64.94%
Probability of zero member in the system (P_0)	-	6.12%	21.26%	21.26%
Average number of members in the queue (L_q)	-	2.2908 members	0.9471 members	0.9471 members
Average number of members in the system (L_s)	-	4.6483 members	2.2459 members	2.2459 members
Average waiting time in the queue (W_q)	-	4.1956 minutes	3.1497 minutes	3.1497 minutes
Average time a member spends in the system (W_s)	-	8.5134 minutes	7.4665 minutes	7.4665 minutes

Table 7 interprets that for the membership section, it is advisable to have at least two (2) to four (4) frontliners available, depending on the time of day as indicated in the table above. Since three (3) frontliners suffice for efficient operation during most hours, the additional frontliner can assist other counters in different sections when extra help is required or in case of absences due to leaves or other activities. The table demonstrates

that operating with three (3) frontliners during the first batch enhances the utilization rate from 117.88% to 78.58%, resulting in 2.2908 members in the queue and 4.6483 members in the system. The average waiting time for members in the queue is 4.1956 minutes, while the average time spent by members in the system is 3.8433 minutes. During the second batch, both the current and proposed setups maintain two (2) counters open, as they can effectively operate without the need to add additional frontliners. With this allocation, the utilization rate is 64.94%. As a result, there are 0.9471 members in the queue and 2.2459 members in the system. The average waiting time for members in the queue is 3.1497 minutes, with members spending an average of 7.4665 minutes in the system.

Table 8.
Hourly Breaks' Performance Summary in Payment Section

Performance Rate	**11:00 am – 12:00 pm**		**12:00 pm – 1:00 pm**	
	Current	**Proposed**	**Current**	**Proposed**
Frontliner (s)	1	2	1	2
Mean Arrival Rate (λ)	0.1722 member/minute	0.1722 member/minute	0.1317 member/minute	0.1317 member/minute
Mean Service Rate (μ)	0.2373 member/minute	0.2373 member/minute	0.2373 member/minute	0.2373 member/minute
Utilization factor of the entire system (ρ)	72.57%	36.28%	55.50%	27.75%
Probability of zero member in the system (P_0)	27.43%	46.75%	44.50%	56.56%
Average number of members in the queue (L_q)	1.9195 members	0.1101 members	0.6922 members	0.0463 members
Average number of members in the system (L_s)	2.6452 members	0.8357 members	1.2472 members	0.6013 members
Average waiting time in the queue (W_q)	11.1469 minutes	0.6389 minutes	5.2556 minutes	0.3516 minutes
Average time a member spends in the system (W_s)	15.3610 minutes	4.854 minutes	9.4697 minutes	4.5657 minutes

Table 8 illustrates that for the payment section, it is essential to have at least two (2) frontliners available. This is based on the gathered data, which indicates that some members have numerous transactions lasting up to fourteen (14) minutes. This leads to longer waiting times for members in the queue. The table illustrates that operating with two (2) frontliners during the first batch increases the utilization rate from 72.57% to 36.28%, leading to 0.1101 members in the queue and 0.8357 members in the system. On average, members wait for 0.6389 minutes in the queue and spend 4.854 minutes in the system. During the second batch, maintaining two (2) counters open remains crucial, as this allocation raises the utilization rate from 55.50% to 27.75%. As a result, there are

0.0463 members in the queue and 0.6013 members in the system. On average, members wait for 0.3516 minutes in the queue and spend 4.5657 minutes in the system.

Proposed Frontliners' Schedule of Breaks

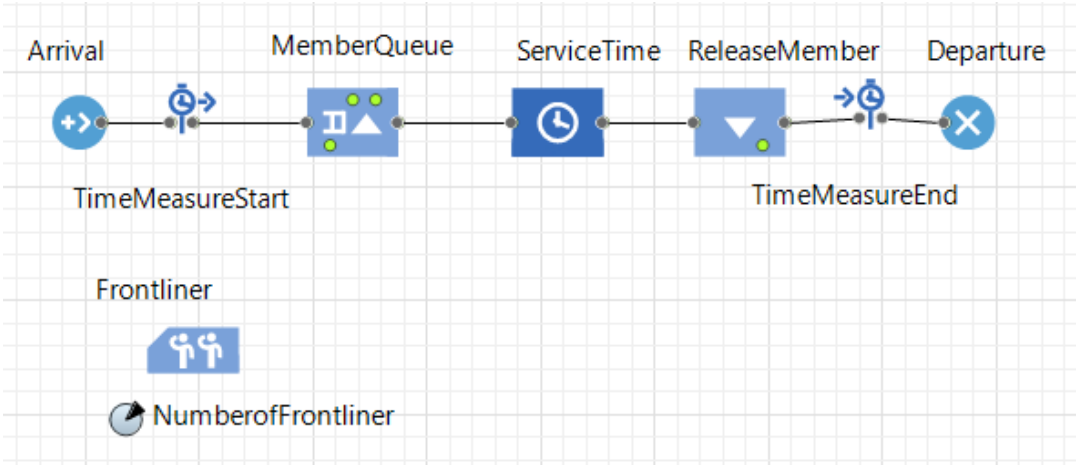
Table 9.
Proposed Third Batch Break's Performance Summary in Membership Section

Performance Rate	**1:00 pm – 2:00 pm**	
	Current	**Proposed**
Frontliner (s)	4	3
Mean Arrival Rate (λ)	0.4857 member/minute	0.4857 member/minute
Mean Service Rate (μ)	0.2316 member/minute	0.2316 member/minute
Utilization factor of the entire system (ρ)	52.43%	69.91%
Probability of zero member in the system (P_0)	11.73%	9.61%
Average number of members in the queue (L_q)	0.219 member	1.1404 members
Average number of members in the system (L_s)	2.3161 members	3.238 members
Average waiting time in the queue (W_q)	0.4508 minute	2.3479 minutes
Average time a member spends in the system (W_s)	4.7686 minutes	6.6657 minutes

Table 9 only focuses on the membership section due to a reduction in frontliners from four (4) to three (3) operating during the 1:00 pm – 2:00 pm shift, while the PACD/screening section and payment section continue to operate with two (2) frontliners during that time. The table illustrates that the proposed third batch and three (3) frontliners can still efficiently handle the service without forming long queues. The utilization factor increases from 52.43% to 69.91%, with 1.1494 members in the queue and 3.238 members in the system. The average waiting time per member is 2.3479 minutes, and 6.6657 minutes in the system.

Table 10.

Queuing System Comparison During Breaks: Discrete Event Simulation with AnyLogic Software Version 8.9



PACD/screeningsection											
Type	Frontliner	Time	Number of Arrivals	Member's Served	Member's time spent in the system (in mins)		Waiting Time (in mins)		Queue length		Utilization (%)
					Mean	Max	Mean	Max	Mean	Max	
Current	1	11:00 am - 12:00 pm	85	43	13.32	30.75	12.369	30.74	15	42	99%
Proposed	2	11:00 am - 12:00 pm		71	3.62	7.44	2.329	6.077	3	9	79%
Current	1	12:00 pm - 1:00 pm	61	42	7.17	17.37	6.07	16.37	5	18	94%
Proposed	2	12:00 pm - 1:00 pm		58	1.99	4.51	0.60	2.503	1	5	67%

Membership Section											
Type	Frontliner	Time	Number of Arrivals	Member's Served	Member's time spent in the system (in mins)		Waiting Time (min)		Queue length		Utilization (%)
					Mean	Max	Mean	Max	Mean	Max	
Current	2	11:00 am - 12:00 pm	41	24	7.47	14.77	3.814	13.22	2	12	88%
Proposed	3	11:00 am - 12:00 pm		31	5.68	13.16	1.87	7.519	1	10	78%
Current	2	12:00 pm - 1:00 pm	14	13	5.86	12.18	1.36	6.058	0.4077	2	49%
Proposed	2	12:00 pm - 1:00 pm		13							
Current	4	1:00 - 2:00 pm	36	28	4.44	7.89	0.19	2.361	0.0909	2	54%
Proposed	3	1:00 - 2:00 pm		27	4.88	8.60	1.15	6.18	1	6	69%

Payment Section											
Type	Frontliner	Time	Number of Arrivals	Member's Served	Member's time spent in the system (in mins)		Waiting Time (min)		Queue length		Utilization (%)
					Mean	Max	Mean	Max	Mean	Max	
Current	1	11:00 am - 12:00 pm	13	8	10.32	20.81	5.85	13.916	1	3	73%
Proposed	2	11:00 am - 12:00 pm		11	5.61	13.71	0.97	6.815	0.1670	1	39%
Current	1	12:00 pm - 1:00 pm	7	5	9.89	20.81	4.14	13.916	1	2	52%
Proposed	2	12:00 pm - 1:00 pm		6	6.47	13.71	1.49	6.815	0.1960	1	29%

Discrete event simulation is utilized to optimize hourly break scheduling for frontliners by modeling event flows and analyzing different scenarios. Through simulating member arrivals, service times, and breaks, the impact of policies on queues and efficiency can be assessed. This method offers insights for achieving better resource balance and service quality. Table 10 presents real-life scenarios experienced by the agency, based on the number of available frontliners in each hour, comparing current and proposed schedules. The results indicate an increase in members served per hour, accompanied by reductions in member enrollment process duration, waiting time, and queue length. Moreover, there is a decrease in frontliner utilization, a critical factor in

preventing prolonged queues and waiting times. However, the results for the 1:00-2:00 pm period in the membership section differ from others due to a decrease in available counters by one to optimize scheduled breaks. This results in a slight increase in waiting time by one minute, which does not cause long queues or excessive waiting times and still adequately services members.

Table 11.
Proposed Frontliners' Schedule of Breaks

Sections	PACD/Screening		Membership				Payment	
Time/Frontliners	Frontliner 1	Frontliner 2	Frontliner 3	Frontliner 4	Frontliner 5	Frontliner 6	Frontliner 7	Frontliner 8
8:00 am - 9:00 am								
9:00 am - 10:00 am								
10:00 am - 11:00 am								
11:00 am - 12:00 pm								
12:00 pm - 1:00 pm								
1:00 pm - 2:00 pm								
2:00 pm - 3:00 pm								
3:00 pm - 4:00 pm								
4:00 pm - 5:00 pm								

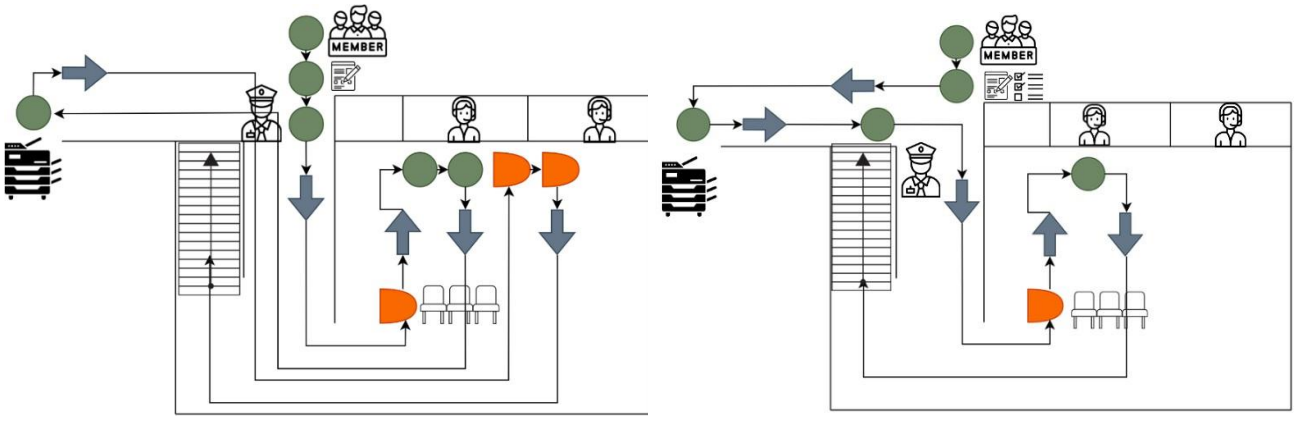
Working
On Break
On Break, Operating by Backroom Employee 1
On Break, Operating by Backroom Employee 2
On Break, Operating by Backroom Employee 3
On Break, Operating by Backroom Employee 4

Table 10 illustrates the proposed scheduling of breaks for each frontliner operating in the agency. Since there are sixteen (16) backroom employees, with four (4) assigned to the membership section and twelve (12) to the Accounts Information Management Specialist, four (4) of them who are available and do not have a workload of tasks can be chosen to take over the shift while the frontliners are on breaks. Frontliner 1 will take his break at 1:00 pm, during which he will be substituted by backroom employee 1. Frontliner 2 will take a break at 12:00 pm, covered by backroom employee 2. Frontliner 3 will also take a break at 1:00 pm, while Frontliner 4 will do so at 11:00 am. Frontliners 5 and 6 will take their breaks at 12:00 pm. Frontliner 7 will have a break at 11:00 am, covered by backroom employee 3. Lastly, Frontliner 8 will take a break at 12:00 pm, and their responsibilities will be covered by backroom employee 4. This scheduling ensures that all frontliners have their breaks while maintaining a continuous flow of service with the appropriate number of counters available during these hours. Since the tasks of backliners are not overly burdensome, their breaks can still be accommodated during times when three frontliners can manage the workload.

Inadequate Requirements Dissemination in PACD/Screening Section

Figure .1

Comparison of Current and Proposed Flow Process Diagram: Membership Screening



Current Proposed

Figure 1 illustrates a recommended method by proposing a checklist of requirements necessary for enrolling in membership. Before entering the PACD/screening section, members must complete the required forms and obtain necessary photocopies, such as their birth certificate and valid ID, to avoid forming long queues and cutting through lines. Observations indicate that some customers return multiple times to fulfill requirements, leading to wasted time and a decrease in morale. This repetition not only affects customer morale but also impacts frontline staff morale, as some members fail to complete the necessary forms.

Table 12.

Summary of Process Improvement Utilizing Checklist

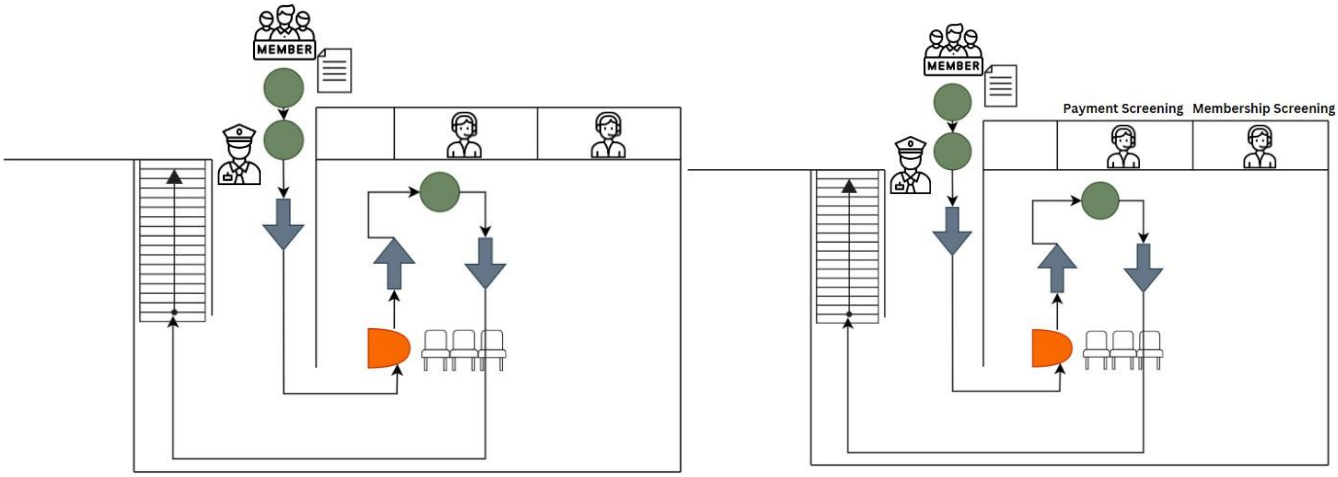
Current	Proposed
Time Spent = 14.74 minutes	Time Spent = 11.64 minutes Reduced Time by 3.1 minutes (21.03%)
Distance Travelled = 334.3 feet	Distance Travelled = 272.14 feet Reduced Distance Travelled by 62.16 feet (18.59%)

From the Table 11, the summary of Process improvement proposed methods demonstrates a reduction in operational processes by one (1) and two (2) delays, thereby minimizing the time consumed in the process by 3.1 minutes marking a difference of 21.03% to the current process and the distance travelled by the member by 62.16 feet with a difference of 18.59% to the current process as well. During the observation period, it was noted that 31.99% of the members, equating to 119 out of 372, had missing requirements. The total saved time and distance amounted to 368.9 minutes, and 7397.04 feet travelled throughout the whole day. As a result, the processing time per member is faster, and the number of members repeating the process is reduced.

Numbering System in PACD/Screening Section

Figure 2.

Comparison of Current and Proposed Flow Process Diagram: Payment Screening



Current Proposed

Figure 2 shows the recommended proposal is to establish separate queuing lines for the membership and payment sections. With two (2) frontliners operating throughout the day, each section can accommodate its own queue. Given that the number of members arriving for payment is lower compared to those applying for membership, the counter staff can also assist with payment transactions when there are no queues for payment.

Table 13.

Summary of Process Improvement Utilizing New Numbering System

Current	Proposed
Time Spent = 4.55 minutes	Time Spent = 3.09 minutes Reduced Time = 1.46 minutes (32.09%)

In Table 12 shows the summary of improvement, the recommended proposal of utilizing a new numbering queueing system demonstrates a reduction in time by 1.46 minutes, marking a difference of 32.09% to the current process, resulting in a total processing time of 3.09 minutes. This approach aims to prevent the formation of long queues, thereby providing a smoother flow of processing members.

Conclusions

The current queuing system at the case company, while generally effective, encounters challenges during specific periods, resulting in lengthy queues and increased wait times due to issues such as insufficient communication of requirements, inefficient frontliner break scheduling, and a lack of a streamlined numbering system. Analyzing frontliners' break scheduling and staff allocation underscores the importance of proper resource management for efficient service delivery. Proposing a balanced hourly staff allocation and a revised three-batch break schedule tailored to each department's needs aims to decrease wait times, optimize resource utilization, and enhance member satisfaction. Addressing the inadequate communication of requirements in the PACD/screening section is vital for improving the efficiency of the membership enrollment process. Implementing a checklist of necessary documents before entering the screening section reduces processing time and member travel distance, improving the overall enrollment process. Introducing a separate queuing system for the PACD/screening section aims to minimize wait times and enhance efficiency. By dedicating queue lines for each section and utilizing resources effectively, the proposed solution demonstrates significant improvements in processing time and overall service delivery.

Recommendations

The government health insurance agency is advised to implement a new queuing system in the Public Assistance and Complaints Desk (PACD)/Screening Section, developed by the Information Technology (IT) team, to improve member experience and alleviate confusion. This efficient system aims to streamline processes, reducing frustration and enhancing satisfaction. Furthermore, while considering the addition of another frontline counter in the payment section may seem beneficial for faster service,

careful consideration is needed due to the potential increase in costs. Technological enhancements, such as installing kiosk machines for payments, can significantly reduce waiting times, improving efficiency. Incorporating posters and clear instructions outside the agency can help potential members prepare, saving time and effort. Additionally, directional signage within the agency can minimize confusion and ensure an organized flow of individuals, further enhancing the overall member experience. These recommendations aim to optimize operational processes and improve customer satisfaction at the government health insurance agency.

Compliance with Ethical Standards

Ethical considerations were taken into account throughout the execution of this research. This encompasses the procedures of granting authorization and disclosing relevant data. The researcher addressed a letter to the corporation inquiring about their potential participation in the study, and the company gave their consent. To make the discussions accessible to the public, all names or personal identification were removed. To protect confidential information, the researchers have agreed to sign a non-disclosure agreement about the data obtained from the firm.

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OUTCOMES OF SCHOOL ROLES IN THE DEVELOPMENT OF CIVIC ENGAGEMENT OF GRADUATES FROM PUBLIC SECONDARY SCHOOLS

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ABSTRACT

Civic engagement is making a significant and positive difference. Through civic engagement, adolescents can increase community vitality, challenge injustices, and address social problems. This study attempted to identify the outcomes of the school roles in the development of civic engagement of graduates from public secondary school respondents. A self-made questionnaire was used, and data gathered from 293 public secondary school graduates was analyzed and interpreted using Chi- Squared and Spearman's Correlation Test. Results showed a significant relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents, Cooperative Learning, Academic Success, and Grading System was found to be significant with their profiles. Although none of the personal profiles was significant to discipline practices and social support in school. All the civic engagements participated in by the respondents have a relationship with their profile. In the test of relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles orientation, almost all the variables tested were found to have a significant relationship with the other variable. This study also implies that the meaningful experience derived from school activities are life- long memories of the graduates which become their luminaries in accomplishing tasks, performing their duties, and achieving their dreams. It is recommended that the results of this study be presented to the top management of the Schools Division Office of Laguna to come up on a program intensifying civic engagements since it was found that these are significantly related to their previous school roles.

Keywords: *Civic Engagement, Civic Skill, Cooperative Learning, Disciplinary Practices, School Roles, Social Cohesion*

INTRODUCTION

In modern communities, the prejudice about the social differences of individuals and groups makes it difficult to think and act to create contexts of responsible ways of togetherness (Stornaiuolo and Thomas, 2017), in addition to this, a much critical matter is presented in a study that through collective civic engagement, a better and responsive community and government is produced. Indeed, civic engagement represents a key element in creating social relationships and developing a sense of responsible and responsive togetherness because it promotes prosocial values and increases active citizenship and sense of community (Procentese et al. 2019). In the sense of the value of producing civically engaged citizens comes the value of secondary schools' activities' parallelism towards this goal which means it is important to assess and properly respond to the goal of the curriculum in connection with the purpose of producing a civically engaged citizens.

Civic engagement refers to prosocial and political contributions to community and society (Wray- Lake et al, 2017). Civic engagement goes beyond behaviors and includes psychological dimensions such as values, beliefs, attitudes, skills, and knowledge (Wray-Lake and Abrams, 2020). It is an essential type of engagement as it is powered by the community itself and is most often a combination of marginalized and those elevated members of the community — an inclusive and diverse group that is serving a diverse group of goals relevant to the communities' needs. Citizens' civic engagement can represent a key issue and a solution to rely on to pursue this aim and promote what is here defined as the sense of responsible togetherness: it brings people of the community toward spaces wherein community relationships can be built and managed, and community dialogue and confrontation can be carried forward, thus becoming the basis for collective actions based on shared purposes.

On another note, how are civically engaged citizens produced? If this type of engagement is essential, it is also therefore vital to understand how civically engaged citizens are produced. Some among these are programs and training conducted by the government and community, another is the habits built from home and parenting, next is the different school activities and lessons taught at school (Blevins et. al., 2016). In much research, results show how significant the school roles are in producing civically engaged citizens and even while still spending their time at school, it is believed that students are already working in activities that makes them civically engaged. Research showed that the activism of 10th graders (ages 15–16) involved in a youth participatory action research (YPAR) project resulted in a clear need for interventions aiming to foster new ways of living together within local communities and rebuild individuals' sense of responsibility toward them (DeJaynes and Curmi-Hall, 2019). This research showed how students are

totally civically engaged in identifying needs and ways to resolve matters related to this issue in a civically engaged manner.

DeJaynes and Curmi (2015) described and believed that young people are culturally and intellectually engaged global citizens, or cosmopolitan intellectuals. Youth volunteers for numerous causes or organizations, help their neighbors informally, participate in political campaigns, advocate to improve their schools and communities, engage in protests, and work to protect the environment. These youthful activities will reveal how schools develop civic skills and their relationship with current career paths.

On the other hand, everyone focuses on one's own problems as they are solely private and tries to solve them with one's own resources (Doolittle and Faul, 2013). The citizens seem not interested in collective actions or social debates and delegate others to administer common things, with the development of low levels of civic engagement that makes it difficult to produce collective and volunteering actions within local communities.

Moreover, instances from research resulted on how civic engagement may have been giving important beneficence and is correlated with the education's activities and lessons, yet only few numbers of research presented rates and results of the presence of actual civic engagement in the community. In a study, by Dubow et. al. (2017), it shows how technology is now being integrated in developing training and activities related to producing civically engaged citizens as well as having actual civically engaged citizens. This proves that there might be disparity with the seeded activities for the development of behaviors and actions related to civic engagement and actual number of civically engaged citizens as well as the results of its benefactions.

Based on the above-mentioned studies and repercussions, this research aims to understand the contribution of school roles in the development of civic engagement, in terms of both attitudes and behaviors, which may help in promoting their sense of responsible togetherness, which can foster new ways of living together within local communities.

Research Questions

Specifically, the study seeks to answer the following questions:

1. What is the personal profile of the graduates of public secondary schools, in terms of:
   1.1 Age;
   1.2 Gender;
   1.3 Public Secondary School attended;
   1.4 Awards received, and
   1.5 Types of Civic Engagement?

2. What is the extent of school roles as perceived by graduates of public secondary school respondents, in terms of:
   2.1 Cooperative Learning;
   2.2 Disciplinary Practices;

2.3 Academic Success;
2.4 Grading System;
2.5 Social Support, and
2.6 Other School Activities?

3. What is the level of civic engagement of graduates of public secondary school respondents as outcomes of school roles with respect to civic engagements in terms of:
   3.1 Civic Action;
   3.2 Civic Commitment (Duty);
   3.3 Civic Skills, and
   3.4 Social Cohesions?

4. Is there a significant relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents?

5. Is there a significant relationship between the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles?

6. Is there a significant relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles?

7. What is the meaningful experience/experiences of the graduates of public secondary school respondents relevant to their civic engagement?

METHODOLOGY

This study utilized descriptive correlational method to find out the Outcomes of School Roles in the Development of Civic Engagement of Graduates from Public Secondary School. Respondents were the graduates of the public secondary schools in the Division of Laguna which includes sub-offices of Siniloan, Famy, Mabitac and Santa Maria. The respondents were purposively chosen. They were the secondary school graduates who are actively engaged and continuously taking part in civic engagements. The researcher developed a self-made questionnaire. On the validity and reliability of the questionnaire, it passed the evaluation of the experts.

For this study to arrive at the most valuable answers and analysis, the following statistical tools and treatment was used:

This study used frequency and percentage in answering the personal profile of the learners, in terms of age, gender, public secondary school that they attended, awards received and type of their civic engagement.

In answering the questions about the evaluation of the extent of school roles as experienced by the respondents during their high school. It includes aspects like cooperative learning, disciplinary practices, academic success, grading system, social support, and school activities. The last part was the level of civic engagement of the students as outcomes of school roles. It includes aspects of civic action, civic commitment or duty, social cohesion, and civic skills. The author used the Likert Scale and weighted mean.

Spearman Rank Order Correlation and Chi- Square Test was used in analyzing and interpreting the relationships between the following: personal profile and the extent of school roles among the graduates of public secondary school respondents, the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles orientation, and the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles.

The last part of the questionnaire focuses on the meaningful experience/experiences of the respondents. For a more detailed analysis, the author used thematic analysis to analyze and interpret the responses of the respondents.

RESULTS AND DISCUSSION

Personal Profile of the Respondents

The survey conducted resulted in the distribution of respondents in terms of age as shown in Table 1. Highest frequency is 120 (41.00%) out of 293 whose ages is between 18 to 25 years old. Female respondents have a total of 137 (46.80%), male respondents have a total of 149 (50.90%), and some respondents who preferred not to say their gender has a total of 7 (2.40%). Total number of 293 graduate respondents from different public secondary schools participated highest number of respondents were from Famy NIHS, Gaudencio Octavio IHS, Gov. F.T. San Luis Nat'l. Agro- Industrial IHS, J. Santiago IHS, Mabitac INHS, Paagahan INHS, Siniloan INHS, and Sta. Maria IHS. Least number of respondents were from PINHS San Miguel Extension.

Learners who engage in civic actions need not to be on top of the class. Civic engagements of learners through experiential learning helped them develop higher understanding and wisdom. This current study showed an almost equal participation of honor and non- honor students. On the participation to different types of civic engagement is presented and it significantly specified activities may vary in terms of intensity of participation. For instance, in this study, a notable number of participants has a combination of the type of civic engagement with a total of 129 out of 293 (44.00%). This means that people are engage in different types of civic engagement for diverse reasons, including personal interests, a sense of duty, desires for social change, community connection, personal growth, and response to immediate change. In the study of Baldasser and Ramakrishnan, (2004) In terms of demographic characteristics other than

race and ethnicity, the highest levels of participation in civic activities are those based on education, homeownership, gender, and income.

Table 1. Distribution of Personal Profiles of the Graduate Respondents

AGE	FREQUENCY	PERCENT
18 to 25	120	41.00
26 to 33	93	31.70
34 and above	80	27.30
Total	**293**	**100.00**
GENDER	**FREQUENCY**	**PERCENT**
Female	137	46.80
Male	149	50.90
Prefer not to Say	7	2.40
Total	**293**	**100.00**
SCHOOL ATTENDED	**FREQUENCY**	**PERCENT**
Calangay HIS	13	4.40
Famy NIHS	30	10.20
Famy NIHS- Mayatba Extension	10	3.40
Gaudencio Octavio HIS	30	10.20
Gov. F.T. San Luis Nat'l. Agro-Industrial IHS	30	10.20
J. Santiago HIS	30	10.20
Mabitac INHS	30	10.20
Matalatala INHS	20	6.80
Paagahan INHS	30	10.20
Paagahan INHS- San Miguel Extension	10	3.40
Siniloan INHS	30	10.20
Sta. Maria HIS	30	10.20
Total	**293**	**100.00**
AWARDS RECEIVED	**FREQUENCY**	**PERCENT**
Without Awards	147	50.20
With Honors	146	49.80
Total	**293**	**100.00**
TYPE OF CIVIC ENGAGEMENT	**FREQUENCY**	**PERCENT**
Activism and Advocacy	11	3.80
Community Education and Awareness	12	4.10
Political Engagement	46	15.70

Community Service and Volunteerism		83	28.30
Philanthropy/ Fundraising		12	4.10
Combinations		129	44.00
	Total	**293**	**100.00**

Extent of School Roles as perceived by Graduates of Public Secondary School Respondents

In table 2, it was implied that listening and speaking skills have the highest extent and the lowest extent is collaborating with each other and giving constructive feedback. The computed average weighted mean was 4.52 and was interpreted as to a very high extent. This means that the respondents are very open to work on dialogue, listening skills, and debate, open to share ideas, knowledge, and points of view with classmates, willing to talk and give the same amount of time to explain. Willing to help each other to do the tasks, and prepared to talk about work to assess, correct, and improve it.

The very high extent interpretation was strengthened with the study of Malazonia et al., (2023) that stated collaborative learning process promotes both the democratic culture of the school and the social and civic competency of the students.

Table 2. Extent of School Roles in Terms of Cooperative Learning

Components of Cooperative Learning of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. work on dialogue, listening skills, and debate.	4.65	Very High Extent	1
2. share ideas, knowledge, and points of view with classmates.	4.53	Very High Extent	2
3. talk and give the same amount of time to explain.	4.52	Very High Extent	3
4. help each other to do the tasks.	4.45	High Extent	4.5
5. talk about work to assess, correct, and improve it.	4.45	High Extent	4.5
Average Weighted Mean	**4.52**	**Very High Extent**	

In Table 3, the extent of school roles in terms of disciplinary actions has an average weighted mean of 4.48 interpreted as having a high extent. This means that disciplinary

practices have a high extent on the respondents on the duration of their high school, these practices include disciplining, particularly giving advice, encouraging positively, understanding my point of view, expressing love, and enforcing punishment for wrong doings.

It is anchored in the study of Savitz et al., (2021) in which demonstrated that an increased focus of teachers on student-led learning through disciplinary practices, highlights how teachers made incremental changes that prioritized students' argumentation skills and comfort in sharing their voice throughout the debate process and beyond.

Table 3. Extent of School Roles in Terms of Disciplinary Practices

Components of Disciplinary Practices of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. Give advice	4.56	Very High Extent	1
2. Encourage positively	4.50	Very High Extent	2
3. Understands my point of view	4.48	High Extent	3
4. Express love	4.44	High Extent	4
5. Enforces punishment for wrong doings	4.40	High Extent	5
Average Weighted Mean	**4.48**	**High Extent**	

In table 4, the average weighted mean was 4.46 interpreted as high extent. This implied that the total school experiences were satisfying, allowed them to become persistent in completing the grade level, helped in acquiring critical thinking skills, engaged on affective outcomes, and academic success was attained.

In the study of Philippe et al., (2023) it was revealed that both civic and non-civic organized activities independently predicted increases in GPA over the school year, even after adjusting for all covariables.

Table 4. Extent of School Roles in Terms of Academic Success

Components of Academic Success of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. Satisfied with my over-all school experience.	4.52	Very High Extent	1
2. Persistent to complete the grade level.	4.46	High Extent	2.5

3. Able to acquire critical thinking skills.	4.45	High Extent	4
4. Able to engage on affective outcomes	4.41	High Extent	5
5. Able to attain academic success thru school.	4.46	High Extent	2.5
Average Weighted Mean	**4.46**	**High Extent**	

In table 5, the average weighted mean of 4.50 is interpreted to a very high extent. This implied a comprehensive, accurate, promotes growth and mastery of student learning and development, has a positive impact on learning, and include feedback that is a shared responsibility of the school, teachers, students, and parents of the grading system.

Based on Lee (2020), the development of such complex knowledge must be distributed across the K–12 public education sector: not limited to civics classes but distributed across all the disciplines taught in schools to promotes growth and mastery of student learning.

Table 5. Extent of School Roles in Terms of Grading System

Components of Grading System of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. is holistic (comprehensive).	4.58	Very High Extent	1
2. is authentic (accurate).	4.53	Very High Extent	2
3. promotes growth and mastery of student learning and development.	4.44	High Extent	5
4. has a positive impact on learning.	4.47	High Extent	4
5. include feedback that is a shared responsibility of the school, teachers, students, and parents.	4.49	High Extent	3
Average Weighted Mean	**4.50**	**Very High Extent**	

Table 6 shows that social support in school has an average weighted mean of 4.54 with an interpretation of very high extent. It implies that social support like showing appreciation, providing support, keeping communication lines open, supporting success affects, and respecting needs and limits, the students felt overwhelmed.

Based on (Chen et al., 2024) perceived social support and positive personality could mediate the chain between school climate and growth mindset of junior high school students.

Table 6. Extent of School Roles in Terms of Social Support in School

Components of Social Support in School of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. show appreciation.	4.65	Very High Extent	1
2. provide support when needed.	4.53	Very High Extent	2
3. keep communication lines open.	4.52	Very High Extent	3
4. supports success.	4.51	Very High Extent	4
5. respects needs and limits.	4.48	High Extent	5
Average Weighted Mean	**4.54**	**Very High Extent**	

In table 7 it reveals that the computed average weighted mean for this element is 4.58 with an interpretation of very high extent. This denotes those activities like election, festival of talents, sports competition, health, and wellness activities, also examinations and assessments were eagerly participated in by the respondents and influences them.

According to the study (Cahyono et al., 2023) leadership education in schools is an important strategy in building a generation of qualified leaders. To achieve this goal, a comprehensive and integrated programmed is needed in the school curriculum such as instilling leadership values early on, providing leadership training to students, creating mentoring and self-development programmed, and encouraging students to be involved in leadership activities at school.

Table 7. Extent of School Roles in Terms of Other School Activities

Components of Other School Activities of the Respondents	Weighted Mean	Verbal Interpretation	Rank
1. Election of officers for different student organizations.	4.70	Very High Extent	1
2. Festival of Talents.	4.51	Very High Extent	5
3. Sports Competitions.	4.56	Very High Extent	3

4. Activities related to health and wellness.	4.52	Very High Extent	4
5. National Examinations and Assessments.	4.61	Very High Extent	2
Average Weighted Mean	**4.58**	**Very High Extent**	

Level of Civic Engagement

The starting point of this current study is focused on the role of civic education and civic engagement. Civic engagement and civic action, as it led to youth empowerment and long-term positive effects on social issues, wellbeing's, creativity, intelligence, democratic behaviors, all of which contribute to civic development.

As the data gathered were computed, results of the level of civic engagement as outcomes of school roles orientation in terms of civic actions has an average weighted mean of 4.42 which was interpreted at a high level. Civic actions implies that community volunteerism has helped me know a lot about opportunities to become involved in the community and contribute to improving life in my community, thus increasing my motivation to participate in advocacy or political action groups, made me intend to be involved in volunteer service, made me want to dedicate my career to improving society, and lastly helped me develop a sense of who I am, which now includes a sincere desire to be of services to others.

According to (Panni et al., 2023) it is recommended to educate students about service learning, and formally train their students for undertaking community projects, with practical suggestions for promoting civic engagement through community service for a sustainable future.

Table 8. Level of Civic Engagement as Outcomes of School Roles in Terms of Civic Actions

Components of Civic Actions of the Respondents	Weighted Mean	Verbal Interpretation	Rank
(Community Volunteerism)			
1. Helped me know a lot about opportunities to become involved in the community and contribute to improving life in my community.	4.53	Very High Level	1
2. Increased my motivation to participate in advocacy or political action groups after I graduate.	4.40	High Level	3

3. Made me intend to be involved in volunteer service after I graduated.	4.43	High Level	2
4. Made me want to dedicate my career to improving society.	4.38	High Level	4
5. Helped me develop a sense of who I am, which now includes a sincere desire to be of services to others.	4.38	High Level	5
Average Weighted Mean	**4.42**	**High Level**	

Table 9 shows the level of civic engagement as outcomes of school roles in terms of civic commitment, particularly community improvement, participation, and voting have an average weighted mean of 4.34 and is interpreted having high level. This implies that through civic engagements respondents realized that it is important to vote and be politically involved. They also prefer staying updated with current with the local and national news. They also make initiatives that will improve the community, and to have a deep conviction in my career goals to achieve purposes beyond my own self-interest.

Based on the study of (Tzankova et al., 2023), the importance of opportunities for active involvement and critical reflection in fostering interest, efficacy, and all forms of participation activities. The Democratic school climate was found to positively impact institutional trust and efficacy, but not participation.

Table 9. Level of Civic Engagement as Outcomes of School Roles in Terms of Civic Commitment

Components of Civic Commitment of the Respondents	Weighted Mean	Verbal Interpretation	Rank
(Community Improvement, Participation, and Voting)			
1. Helped me realize that it is important for me to vote and be politically involved.	4.51	Very High Level	1
2. Made me plan to stay current with the local and national news after I graduate.	4.23	High Level	5
3. Enabled me to plan or help implement an initiative that improves the community.	4.32	High Level	3
4. Made me feel a deep conviction in my career goals to achieve purposes beyond my own self-interest.	4.28	High Level	4

5. Motivated me to stay up to date on the current political issues in the community.	4.35	High Level	2
Average Weighted Mean	**4.34**	**High Level**	

Table 10 reveals that this study also aimed at determining the level of civic engagement as outcomes of school roles in terms of civic skills, particularly involvement in the civil society and this was computed to have an average weighted mean of 4.39 with a verbal interpretation of high level. This implies that thru civic engagements respondents were able to discuss controversial social issues with civility and respect with others openly, sharing their own thoughts and ideas. It is way of realizing that when members do not agree on how to solve a problem, they will likely arrive at a compromise.

Civic education has focused on preparing students to influence politics and government policy. Less attention has been paid to the curricular implications of civil society. Schools should be acquainting students with the knowledge necessary to evaluate the work of such organizations, as well as providing students with experience in the kinds of collaborative deliberation that takes place there (Ho and Barton, 2020).

Table 10. Level of Civic Engagement as Outcomes of School Roles in Terms of Civic Skills

Components of Civic Skills of the Respondents	Weighted Mean	Verbal Interpretation	Rank
(Involvement in Civil Society)			
1. Helped me discuss controversial social issues with civility and respect.	4.48	High Level	1
2. Helped me realize that when members of my group disagree on how to solve a problem, I like to try to build consensus.	4.33	High Level	5
3. Made me believe that I have a responsibility to use the knowledge that I have gained at school to serve others.	4.41	High Level	2
4. Prepared me to listen to others and understand their perspective on controversial issues.	4.35	High Level	4
5. Made me feel confident that I will be able to apply what I have learned in my classes to solve real problems in society.	4.38	High Level	3

Average Weighted Mean	**4.39**	**High Level**

For the level of civic engagement as outcomes of school roles in terms of social cohesion, particularly in terms of cultural awareness, diversity and inclusion programming, the average weighted mean is 4.33 with an interpretation of high level. It only implies that community issues and concerns are dealt with professionally and accepts diverse ideas by the respondents and more likely made them to convince others to agree with their point of view.

Taken as a whole, civic engagement, at each analytical level, is usually regarded as a good, and necessary quality for making democracies stronger, strengthening the communities, and creating the sense of being felt. A positive role in the community can strengthen democracy, such as a vibrant civil society and fabric of fundamental societal values (Dawes et al., 2015).

Table 11. Level of Civic Engagement as Outcomes of School Roles in Terms of Social Cohesion

Components of Social Cohesion of the Respondents	Weighted Mean	Verbal Interpretation	Rank
(Cultural Awareness, Diversity, and Inclusion Programming)			
1. Has given me the professional knowledge and skills that I need to help address community issues	4.43	High Level	1
2. Helped make me a good listener, even when peoples' opinions are different from mine.	4.31	High Level	3
3. Made me believe that my community is enriched by having some cultural or ethnic diversity.	4.33	High Level	2
4. Helped me develop my ability to respond to others with empathy, regardless of their backgrounds.	4.29	High Level	4
5. Made me persuade others to agree with my point of view.	4.26	High Level	5

Average Weighted Mean	**4.33**	**High Level**

Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents

In table 12, relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents in terms of cooperative learning was tested using chi- square test. Significant relationships were established on profiles such as age, school attended, and type of civic engagements. Tailoring cooperative learning activities to the developmental stage and interests of the learners can significantly enhance the effectiveness and enjoyment of the learning process. It is also seen that school attended has a significant relationship with cooperative learning which implies that school create a supportive and well-resourced environment for cooperative learning can foster more effective and enriching educational experiences for their students. And lastly, in types of civic engagement it infers that integrating various types of civic engagement into cooperative learning it prepares students for both academic success, active and informed citizens.

In the article by Akhrif et al., (2020) cited key criteria that assess intelligent collaboration and that serve to improve collaboration performance and provide an effective way to create a collaborative learning environment, which mainly based on recommendation, and refers to learner profile and evaluations.

Table 12. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Cooperative Learning

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Cooperative Learning	11.040	0.026	Reject H_o	Significant
Gender		2.100	0.717	Failed to Reject H_o	Not Significant
School Attended		59.321	<0.001	Reject H_o	Significant
Awards		3.732	0.155	Failed to Reject H_o	Not Significant
Type of Civic Engagement		21.129	0.02	Reject H_o	Significant

In table 13, interpretation of not significant was evident in all aspects of the respondents' profiles. It implies that age, gender, school attended, awards, and type of civic engagement are not vital in the disciplining practices in the school.

In the study by Encina and Berger (2021), they focused on the moderating role of school climate to promote students' civic behaviors in their school. Their study followed the Authoritative School Climate Theory, where they proposed the two key dimension of school social climate namely, student support and disciplinary structure, which are relevant to explain students' civic engagement within their schools.

Table 13. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Discipline Practices

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Discipline Practices	2.901	0.574	Failed to Reject H_o	Not Significant
Gender		1.533	0.821	Failed to Reject H_o	Not Significant
School Attended		25.861	0.258	Failed to Reject H_o	Not Significant
Awards		0.619	0.734	Failed to Reject H_o	Not Significant
Type of Civic Engagement		10.826	0.371	Failed to Reject H_o	Not Significant

In table 14, relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents in terms of academic success was evident in components such as school attended and the type of civic engagement. It implies that the school a student attends can have profound implication for their academic success due to differences in resources, teaching quality, curriculum, peer environment, and community support. Significant relationship was also established between types of civic engagement and academic success which means types of civic engagement contribute to academic success by promoting the development of the practical skills, enhancing critical thinking, increasing motivation and engagement, and fostering a sense of responsibility and connection to the community.

This research article by Moleko and Arko-Achemfuor (2021) found out that the Supplementary Learner Support Program SLSP improved the performance of the learners who participated in the program and their schools significantly.

Table 14. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Academic Success

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Academic Success	8.947	0.062	Failed to Reject H_o	Not Significant
Gender		4.326	0.364	Failed to Reject H_o	Not Significant
School Attended		36.119	0.029	Reject H_o	Significant
Awards		3.884	0.143	Failed to Reject H_o	Not Significant
Type of Civic Engagement		26.039	0.004	Reject H_o	Significant

In table 15, the relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents in terms of grading system was evident in aspects such as age and school attended. This implies that the grading system of the school attended has a vital impact on the age of the respondents. The study tested the relative contribution of student support and disciplinary structure on students' civic behaviors, directly and interacting with their sense of belonging. A series of two-level hierarchical linear modeling analyses revealed that, after controlling for sex, school phase, school size, and school administrative dependency, student sense of belonging was positively related to civic engagement within their schools.

On the contrary, results from the study of Marohombsar (2021), disclosed that the there is a relationship between the learners' profile and perceived effect of modular approach and their profile showed that the learners' perceptions are not significantly related to their profile.

Table 15. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Grading System

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Grading System	11.076	0.026	Reject H_o	Significant
Gender		2.667	0.615	Failed to Reject H_o	Not Significant
School Attended		43.664	0.004	Reject H_o	Significant
Awards		2.405	0.300	Failed to Reject H_o	Not Significant

Type of Civic Engagement	10.068	0.435	Failed to Reject H_o	Not Significant

In table 16, relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents in terms of social support in school was not evident, implying that the profile of the respondents was not affected by the social support the school is giving them.

Parallel to the study of (Sabado et al., 2024) despite differences across strands, age, and gender, the study concludes that these demographics do not significantly affect the perceived factors influencing school roles.

Table 16. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Social Support in School

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Social Support in School	2.787	0.594	Failed to Reject H_o	Not Significant
Gender		4.885	0.299	Failed to Reject H_o	Not Significant
School Attended		27.596	0.189	Failed to Reject H_o	Not Significant
Awards		2.392	0.302	Failed to Reject H_o	Not Significant
Type of Civic Engagement		6.967	0.729	Failed to Reject H_o	Not Significant

Table 17 shows the relationship between the personal profile and the extent of school roles among the graduates of public secondary school respondents in terms of other school activities particularly in the school attended. This implies that the school attended by the students can shape the range, quality, and accessibility of extracurricular and co-curricular activities, thereby influencing their overall educational experience and personal development.

From the study of Latif et al., (2020) results showed that in almost all comparisons, out-of-school and in-school active learners exhibited similar engagement levels, but these were much higher than low engagers. In addition, the implications of the findings for the enhancement and effective integration into school activities were presented.

Table 17. Relationship Between the Personal Profile and the Extent of School Roles among the Graduates of Public Secondary School Respondents in terms of Other School Activities

Profile	Extent of Roles	x^2 Value	p- Value	Decision	Interpretation
Age	Other School Activities	5.444	0.245	Failed to Reject H_o	Not Significant
Gender		2.271	0.686	Failed to Reject H_o	Not Significant
School Attended		39.825	0.011	Reject H_o	Significant
Awards		1.996	0.369	Failed to Reject H_o	Not Significant
Type of Civic Engagement		11.103	0.35	Failed to Reject H_o	Not Significant

Relationship Between the Personal Profile and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles

There is a growing need for increased civic engagement in developing countries. It was argued that civic education has not met the needs because it is uncritical, but it can be reformed through critical consciousness theory. However, for civic education reforms, there is a relationship between sociodemographic factors and civic engagement.

On this juncture, Ajaps and Obiagu (2012) investigated the influence of six sociodemographic factors, namely, gender, location, age, income, education, and ethnicity, on two civic engagement constructs which are environmental civility and community volunteering. Results of their study revealed that community volunteerism is influenced by age, gender, and location, while environmental civility is influenced by location and education, and there is a low level of civic engagement. The implications of these findings for a critical civic education aimed at increasing critical consciousness and civic actions.

Table 18 showed a relationship between the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of civic actions in aspects of school attended and awards. This implies that the civic actions have a great effect on the school attended where it can significantly shape their opportunities and experiences with civic action and the awards received of the learners plays a crucial role in honing the perception and impact of individual in the organization.

Table 18. Relationship Between the Personal Profile and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Actions

Profile	Extent of Roles	x^2 value	p- Value	Decision	Interpretation
Age	Civic Actions	7.046	0.133	Failed to Reject H_o	Not Significant
Gender		0.926	0.921	Failed to Reject H_o	Not Significant
School Attended		41.499	0.007	Reject H_o	Significant
Awards		6.373	0.041	Reject H_o	Significant
Type of Civic Engagement		9.821	0.456	Failed to Reject H_o	Not Significant

In table 19, the relationship between the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of civic commitment is evident in the aspect of gender. This implies that gender influences individuals' levels of civic commitment, the issue that they prioritize, and the strategies they employ to effect change within their communities.

To strengthen the result of the study, evidence not only shows differences in the political preferences of males and females but also shows males have higher probabilities of participating in political activities than females (Schlozman, 2012). Alternatively, female adolescents value their involvement in noninstitutionalized forms of participation (e.g., promotion of human rights, care of the environment, community support; Hooghe et al., 2015). Similarly, findings from the International Civic and Citizenship Education Study's (ICCS) Chilean sample show significant differences between male (72%) and female (80%) expectations of participating in volunteer activities (Schulz, Ainley, Fraillon, Kerr, & Losito, 2010).

Table 19. Relationship Between the Personal Profile and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Commitment

Profile	Extent of Roles	x^2 value	p- Value	Decision	Interpretation
Age	Civic Commitment	8.481	0.205	Failed to Reject H_o	Not Significant
Age		4.306	0.635	Failed to Reject H_o	Not Significant
Gender		52.201	0.018	Reject H_o	Significant

School Attended	0.103	0.991	Failed to Reject H_o	Not Significant
Awards	7.843	0.930	Failed to Reject H_o	Not Significant

In table 20, the relationship between the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of civic skills is evident in the aspect of the school attended. This implies that the school attended by the learners can create a supportive learning environment, empowering students to become informed, engaged, and responsible members of society.

According to the study of LeCompte et al., (2020) data analysis suggests that iEngage, an action civics summer school, was effective in increasing elements of students' civic competence, including their ability to get people to care about a problem, organize and run a meeting, write an opinion letter, or contact a media outlet to express their views, and contact an elected official or community leader to address an issue.

Table 20. Relationship Between the Personal Profile and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Skills

Profile	Extent of Roles	x^2 value	p- Value	Decision	Interpretation
Age	Civic Skills	9.039	0.171	Failed to Reject H_o	Not Significant
Gender		4.172	0.653	Failed to Reject H_o	Not Significant
School Attended		49.502	0.032	Reject H_o	Significant
Awards		1.737	0.629	Failed to Reject H_o	Not Significant
Type of Civic Engagement		9.128	0.866	Failed to Reject H_o	Not Significant

In table 21, the relationship between the personal profile and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of social cohesion is evident in the aspect of awards. This implies that by valuing and celebrating the achievement of individuals within the community, awards contribute to a sense of belonging, connectedness, and collective well-being that has a positive implication for social cohesion.

In the study of Delfgaauw et al., (2020) team incentives may lead to more coworker support or to higher peer pressure and thereby, can affect the team's social cohesion.

Table 21. Relationship Between the Personal Profile and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Social Cohesion

Profile	Extent of Roles	x^2 value	p- Value	Decision	Interpretation
Age	Social Cohesion	9.923	0.128	Failed to Reject H_o	Not Significant
Gender		2.806	0.833	Failed to Reject H_o	Not Significant
School Attended		68.496	<0.001	Failed to Reject H_o	Not Significant
Awards		9.945	0.019	Reject H_o	Significant
Type of Civic Engagement		11.981	0.680	Failed to Reject H_o	Not Significant

Relationship Between the Extent of School Roles and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles

In table 22, the relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles are tested and showed significant findings in all aspects except in other school activities. This implies that Cooperative Learning, Disciplinary Practices, Academic Success, Grading System, and Social Support in School has a vital role in performing civic actions.

In contradiction with result, findings in the study of Bauml (2022), revealed that participants who joined school activities like entering in camp believed that they are capable of making difference in their communities. Their ideas for youth civic action in schools and broader communities typically represented personally responsible and participatory notions of citizenship.

Table 22. Relationship Between the Extent of School Roles and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Actions

Extent of Roles	Civil Engagement	ρ value	p-Value	Decision	Interpretation
Cooperative Learning	Civic Actions	.215**	<.001	Reject H_o	Significant

Disciplinary Practices	.197**	<.001	Reject H_o	Significant
Academic Success	.269**	<.001	Reject H_o	Significant
Grading System	.322**	<.001	Reject H_o	Significant
Social Support in School	.257**	<.001	Reject H_o	Significant
Other School Activities	0.034	0.566	Failed to Reject H_o	Not Significant

In table 23, the relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of civic commitment was tested and showed significant relationship on all components except for disciplinary practices. This implies that Cooperative Learning, Academic Success, Grading System, Social Support, and other school activities in School has a vital role in committing on civic engagements.

School roles can affect other important forms of political engagement. Civic education may affect civic norms, political knowledge, political efficacy, political attitudes, and political ambition (Torney-Purta & Wilkenfeld 2009, Gainous & Martens 2016, Green-Riley 2021, Kalla & Porter 2022).

Table 23. Relationship Between the Extent of School Roles and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Commitment

Extent of Roles	Civil Engagement	ρ value	p-Value	Decision	Interpretation
Cooperative Learning	Civic Commitment	.196**	<.001	Reject H_o	Significant
Disciplinary Practices		0.112	0.055	Failed to Reject H_o	Not Significant
Academic Success		.287**	<.001	Reject H_o	Significant
Grading System		.292**	<.001	Reject H_o	Significant
Social Support in School		.305**	<.001	Reject H_o	Significant
Other School Activities		.200**	<.001	Reject H_o	Significant

Table 24 shows the relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of civic skills. All the school roles have a significant effect on the civic skills of the respondents implying that civic skills adopted were product of the school roles. It was stated that giving substantial promise to educational institutional leaders, educators, and their students when it emerges provides students with the best chance to gain skills and capacities enriched with ethics, empathy, and compassion in

becoming effective leaders of tomorrow. Moreover, teaching them the significance of accountability, the importance of service learning, and the necessity for demonstration of ethos, compassion, and empathy, cultivate the sense of belonging while building on awareness, interaction, and leadership mindsets (Grigoropoulos, 2020).

Table 24. Relationship Between the Extent of School Roles and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Civic Skills

Extent of Roles	Civil Engagement	ρ value	p-Value	Decision	Interpretation
Cooperative Learning	Civic Skills	.163**	0.005	Reject H_o	Significant
Disciplinary Practices		.194**	<.001	Reject H_o	Significant
Academic Success		.309**	<.001	Reject H_o	Significant
Grading System		.293**	<.001	Reject H_o	Significant
Social Support in School		.292**	<.001	Reject H_o	Significant
Other School Activities		.164**	0.005	Reject H_o	Significant

In table 25, the relationship between the extent of school roles and the level of civic engagement among the graduates of public secondary school respondents as outcomes of school roles in terms of social cohesion is evident in all aspects. This implies that all the school roles are vital in engaging in social cohesions. The development of the knowledge and skills of students can only be complete when the tenets of civic engagement are inculcated in them to respond to the needs of society (Owusu- Agyeman and Fourie- Malherbe, 2021).

Table 25. Relationship Between the Extent of School Roles and the Level of Civic Engagement among the Graduates of Public Secondary School Respondents as Outcomes of School Roles in terms of Social Cohesion

Extent of Roles	Civil Engagement	ρ value	p-Value	Decision	Interpretation
Cooperative Learning	Social Cohesion	.238**	<.001	Reject H_o	Significant
Disciplinary Practices		.184**	0.002	Reject H_o	Significant
Academic Success		.261**	<.001	Reject H_o	Significant
Grading System		.351**	<.001	Reject H_o	Significant
Social Support in School		.277**	<.001	Reject H_o	Significant
Other School Activities		.125*	0.033	Reject H_o	Significant

Overall, the null hypothesis in this study was rejected and it was found that there were significant relationships that existed between and among variables that were taken into consideration in this study.

Meaningful Experiences of the Graduates of Public Secondary School Respondents Relevant to their Civic Engagement

Experiences of the graduates of public secondary school respondents which are relevant to their civic engagements varies differently for every respondent. Some might have combinations of the engagements which they point to have rooted from their high school experiences.

For a more detailed analysis, the author used thematic analysis. Thematic analysis is a method of qualitative data analysis. It is a useful and accessible tool for qualitative researchers. Thematic analysis is the method under a variety of epistemological frameworks. Codes and themes were used to describe the framework for conducting the analysis (Kiger and Varpio, 2020). In this part, each theme was highlighted using quoted responses of the respondents.

The researcher of the study used the types of civic engagement they are involved in as the themes. Upon carefully analyzing the answers, the highest number of responses were coded as activism and advocacy. Activism and advocacy focus on the things that the respondent is engaged in and is based on his current activities and routines. The succeeding statement is presented to strengthen respondents' civic engagement.

"Sa paaralan natutunan kong magplano at mag- isip ng sistematiko na nagagamit ko ngayon sa aking trababaho."

"Nagagamit ko ang mga natutuhan ko sa paaran lalo na pagdating sa pakikipag-usap at humarap ng ayos sa mga tao"

"Nagsusulong ako ng adbokasiya tungkol sa pataas na pagtingin sa mga kababaihan at kalalakihan. Pinapahalagahn ko rin ang mga miyembro ng LGBTQA."

"Nagsusulong ako ng mga adbokasiya tungkol sa pag-iingat at pagpepreserve ng aming kapaligiran, upang makilala rin ito bilang isang tourist spot. "

Another theme is Community Education and Awareness which is characterized by the activities and involvement to programs which promotes educating the community. The following are some statements from the respondents:

"Naituro sa akin ng paaralan kung paano makinig at magbahagi rin ng aking kaalaman sa aking mga ka-barangay."

“Nagsusulong ng mga adbokasiyang pangkabuhayan upang mas makilala pa ang aming produktong kape hindi lamang dito sa Laguna maging sa buong mundo.”

“Bilang isang guro sinisikap kong maturuan ang aking mga mag-aaral kung paano magiging mabuting mamamayan ng ating bansa.”

“Nagsasagawa kami ng mga trainings upang makatulong sa pagpapaunlad ng buhay ng mga taong nasasakupan namin.”

Another theme featured is Political Engagement. More than exercising the right to vote, this theme depicted activities of the respondents which showcased them as public servants. Political engagement is an application of what they have known during their high schools and was mostly widened by their own experiences. This were highlighted with these responses:

“Sa paaralan nahubog ang kakayahan kong maging isang mabuting leader, kaya naman nagagamit ko ito ngayon bilang isang lingkod bayan.”

“Malaki ang naitulong sa akin ng pag-aaral sa public school. Natulungan ako ng paaralan lalo na sa problem solving na nagagamit ko ngayon bilang isang lingkod bayan.”

“Noong ako ay high school pa mahilig ako sumali sa mga activity sa school. Kaya naman ngayon bilang barangay official, gusto ko na laging lumalahok sa mga programa ang aming barangay.”

“Suportahan ang mga programang isinusulong ng aming SK Chairman at maging mabuting modelo sa kapwa ko kabataan.”

“Pagboto ng tama ang pinakamakabuluhang nagawa ko para sa aking bansa.”

“Ang pagpili ng mga tamang tao na ihahalal.”

Community Service and Volunteerism sparked in many of the respondents. Their act of service to various activities, especially during calamities, is outstanding. Claims includes these statements:

“Ang aming kapatarin ay nagsasagawa ng mga medical missions at nag vo-volunteer din kami sa tuwing may mga Brigada Eskwela.”

“Bilang isang barangay volunteer ang hindi ko makakalimutang karanasan ko ay ang pakikiisa ko sa bayanihan tuwing mayroong mga sakuna o kalamidad.”

“Sa tuwing may mga sakuna o kalamidad ako ay nakikiisa bilang isang volunteer upang mag rescue dahil natutuhan ko sa paaralan ang tungkol sa mga first aid.”

“Bilang isang pulis ang pinakamakabuluhang karanasan ko ay pagsilbihan ang aking komunidad maging buhay ko man ang kapalit nito.”

The last theme is the Philanthropic Works and Fund-Raising Activities. These are some notable answers from the respondents who do not want to expose their identities as philanthropists, also those who are working for a good cause. Their responses are as follows:

"Nahubog ng paaralan ang aking pagkatao, naging bukas palad din ako sa lahat ng ngangailangan."

"As part of our requirement during our senior years, we conducted gift giving and feeding program. After we graduated, we are still doing it to serve/ help the community."

"I joined different fund-raising activities like fun run, food for a cause, zumba for a cause, which will benefit my community."

"Sa tuwing may programa ang aming community, ako ay nagdo- donate ng pera na abot ng aking kakayahan dahil alam ko na makakatulong ito upang mas mapaunlad pa ang aming komunidad."

These responses from the respondents strengthen the reliability and integrity that the school has well- established civic engagements to its learners through projects, programs, and activities.

Recommendations

The following recommendations were made after finding some essential disparities that can also be the basis of future researchers.

1. Other profiles can be used as variables in the study.
2. Since the school was the setting for this study, future researchers can conduct a study to members of civic organizations, with different setting like their current work.
3. Future researchers may opt to study cultural awareness as result of the school experiences.
4. Results of this study can be presented to the top management of the Schools Division Office of Laguna to come up on a program intensifying civic engagements since it was found that these are significantly related to their previous school roles.

Compliance with the Ethical Standards

This study was conducted in accordance with the ethical standards and guidelines for research involving human participants. All participants provided written informed consent prior to their inclusion in the study, ensuring their voluntary participation and understanding of the research objectives, procedures and potential risks, and benefits. To maintain confidentiality, all personal data were anonymized. The data collected was securely stored and accessible only to the researcher. No financial or personal conflicts of interest were identified by the researcher in relation to this study. The researcher also

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PARENTAL PERCEPTIONS ON FACTORS INFLUENCING THE DECLINE IN PARTICIPATION FOR SCIENCE, TECHNOLOGY AND ENGINEERING ADMISSION SELECTION

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ABSTRACT

The educational landscape is undergoing a significant transformation. The study sought to determine the parental perception of the factors influencing the decline in participation in Science, Technology, and Engineering programs that concern household income and educational attainment. A quantitative questionnaire survey checklist was distributed to gather responses through an online platform. The responses were analyzed using frequency, standard deviation, and ANOVA. The study revealed that parental household income is less likely to affect their participation in the program which is reflected in significant values of 0.195, 0.511, and 0.947 respectively, which is all higher than the alpha value of 0.05. Likewise, the result revealed between the factors and parental education attainment with p = 0.441 > 0.05, p=0.707>0.05, and p=0.678>0.05 alpha value. These results presented that the family income and educational attainment of the respondents have not influenced the decline in participation of the students in the Science, Technology, and Engineering program admission selection.

Keywords: *STE program, decline, parental perception, admission*

INTRODUCTION

The educational landscape is undergoing a significant transformation. In the recent years, the integration of Science, Technology, and Engineering (STE) program have gained the prominence and trust in educational environment or institution nationwide

which is essential in critical thinking, problem-solving abilities, scientific literacy, and life application. In our 1987 Constitution, Article XIV, sec. 10 stated that “Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training, and services”. This become the basis of Department of Education Order, no.55, s. 2010, its goal is to strengthening science and mathematics education at the secondary level. The integration of Science, Technology, and Engineering (STE) programs has become more well-known and trusted in educational settings across the country in recent years and students’ career choice intention was influenced by this program (Tey, Moses, Cheah, 2020).

Gülhan (2023) revealed that parental involvement in their children's education can have a significant impact on their success and it plays a significant role in forming students' minds and experiences (Tran et al., 2020). According to Duxbury, et.al (2021), parents engaging in their child school events and supporting their children’s interest in STEM (Ballavaram,2023) matters on their child's education while also learning more about their child's academic progress and potential obstacles. The trust and harmonious relation of the parents and the school, create a good influence, source of motivate and success of their child.

The number of interested students from Pililla and neighboring towns' elementary schools who would like to be considered for the incoming grade 7 Science, Technology, and Engineering program has declined over the last three years. The school faces challenges in selecting qualified students to fill the 80 available slots for incoming Grade 7 in the said program. However, there are difficulties in motivating parents and students from the top classes to actively participate in the admission selection process.

This aim to analyze the factors influencing the decline in participation for Grade 7 STE admission selection as perceived by the parents. This proactive approach not only safeguards the integrity of the STE program but also fosters a culture of continuous improvement and innovation that help the students reach their full potential and success in science-driven world.

Research Questions

Given the foregoing discussion, the researcher undertakes on the study with the questions “What are the factors influencing the decline in participation in STE 7 admission selection as perceived by the parents?”, specifically, the study will aim to answer the following questions: 1. What is the profile of the respondents in terms of 1.1 household income and 1.2 Educational attainment? 2. What are the perceptions of the parents on the factors influencing the decline in participation in grade 7 Science, Technology and Engineering program admission selection with respect to the following factors: 2.1 academic performances, 2.2 awareness and information and 2.3 program reputation. 3. Is there a significant difference in the respondents’ perception on the factors that contribute to the declining participation in grade 7 STE program concerning the different aforementioned variables and the respondent’s profile? Thus, proving the null hypothesis that there is no significant difference in parental perceptions on the factors influencing the decline in participation in Science, Technology and Engineering 7 admission selection when considering the respondents’ profile and the specified factors.

METHODOLOGY

Research Design

The study was utilized a descriptive research design, focusing on collecting detailed quantitative data to achieve a comprehensive understanding of the parents' perceptions regarding the Science, Technology, and Engineering (STE) program. To achieve this, a structured questionnaire consisting of 30 closed-ended questions will be administered to the parents. These questions are carefully designed and validated to elicit information. By utilizing a quantitative approach, this research aims to systematically analyze and interpret the data to identify potential areas of improvement within the STE program.

Study Site and Respondents

The research will be conducted in two schools within town proper that has pilot sections and are primary feeder schools for Pililla National High School, District of Pililla in the Division of Rizal, Region IV -A, Philippines. This is one of the schools in Rizal Province that offering Science, Technology and Engineering (STE) program.

The study included 65 respondents out of 80 parents who were asked to participate in the study. These parents contributed their responses through either an online platform or by completing a printed questionnaire checklist. This ensured an accessible method for data gathering and allowing the participants to do it in their most convenient time. This aimed to maximize their participation rates and gather comprehensive insight from the respondents.

Research Instrumentation

The researcher will use a questionnaire survey to determine the parental perspective about the Science, Technology, and Engineering programs, with closed-ended questions and a Likert scale rating. The delivery of survey questionnaires will be administered online or personally. The demographic data of the respondents will also be collected to find out if it influences the decrease in participant rate.

The researcher seek help from expects to validate questionnaire to ensure it clarity, and conciseness. After the validation, the researcher asked permission to the Public School district Supervisor in the District office and the school principal of the school under the study before it was conducted. After the approval granted, the researcher informed the parents of incoming grade 7 students through their class adviser. To ensure that the parents had a clear understanding about the study, they were given ample time to respond and at their own convenience. The questionnaire was presented in both English and Filipino languages to ensure to accommodate broad spectrum of respondents. Parents were assured that their responses would be kept confidential and used solely for research purposes.

Furthermore, the result of this study would serve as the basis of development or enhancement for the betterment of the STE program that would benefit educators, students and educational community.

Data Analysis

For the study titled "Parents' perception on the factors influencing the decline of participation for STE Admission Selection," data analysis will involve rigorous quantitative methods. For question 1, frequency, percentage and rank distribution were utilized to analyze data while in question 2, mean and standard deviation were employed to determine the factors influencing the decline in participants rates. To ascertain whether the hypothesis is accepted or rejected One-way Analysis of Variance (ANOVA) was used. This comprehensive approach will provide a detailed understanding of the factors contributing to the decline in participation for STE admission selection. The proponent analyzed the data using SPSS software and provided a concise narrative interpretation.

RESULTS

Profile of the respondents

Table 1. Household income of the respondents

Household income	Frequency	Percentage	Rank
Below ₱ 15,000	18	27.7	2
₱15, 001 - ₱30, 000	34	52.3	1
₱30,001 - ₱60,000	8	12.3	3
₱60, 001 – 150, 000	4	6.2	4
Above ₱150,000	1	1.5	5
Total	65	100.00	

The profile of the respondents showed that there were 27.7% have household income of below ₱15, 000, 52.3% of them earned ₱15, 001 - ₱30, 000, 12.3% were earned ₱30,001 - ₱60, 000, 6.2% received an income of ₱60, 001 - ₱150, 000 and 1.5% earned above ₱150, 001 and above, respectively.

Table 2. Educational Attainment of the respondents

Educational level	Frequency	Percentage	Rank
Elementary	1	1.5	5
High School	17	26.2	2
Vocational	5	7.7	3
College degree	38	58.5	1
Post-graduate degree	4	6.2	4
Total	65	100.00	

The data of the respondent's educational attainment displays a diverse range of background. A majority of 38 (58.5%) were college graduates. Following this, 17 respondents (26.2%) have completed high school. Vocational certificates or short courses have been attained by 5 respondents (7.7%). Additionally, 4 respondents (6.2%) are pursuing post-graduate degrees while 1 respondent (1.5%) has graduated from elementary level. This data highlights the predominance of higher education among the surveyed group.

The parental perceptions on factors influencing decline in participation Science, Technology and Engineering program admission selection.

Table 3. Parental perceptions on factors influencing decline in participation in terms of Academic Performance

Statement	Mean	Standard deviation(±sd)	Adjectival Rating
1. My child's performance in science influenced our decision regarding the STE program	4.46	0.772	Strongly Agree
2. My child's performance in Math influenced our decision regarding the STE program	4.40	0.880	Strongly Agree
3. I believe my child needs strong grades in Science and Math to succeed in the STE program.	4.43	0.728	Strongly Agree
4. My child's overall academic performance was a major factor in our decision about STE program.	4.40	0.862	Strongly Agree
5. I consider my child's interest in science when deciding on the STE program	4.43	0.809	Strongly Agree
6. I consider my child's interest in Math when deciding on the STE program	4.40	0.880	Strongly Agree
7. I believe that the STE program offers significant benefits for my child.	4.77	0.523	Strongly Agree
8. I believe my child is academically ready for the challenges of the STE program.	4.52	0.589	Strongly Agree
9. Enrolling my child in the STE program would encourage them to improve their academic performances in science and math.	4.82	0.464	Strongly Agree
10. My child's current academic performance in science and math is a	3.43	0.984	Agree

good indicator of their potential success in STE fields.			
Overall	**4.41**	**0.749**	

The table presented that statements from 1 to 9 had an adjectival rating of “Strong Agree” indicating that the academic performances of the respondent’s children was the key factor in their participation in the STE program. Notably, statement 9 presented the highest weighted mean of 4.82 (±0.464), while the lowest was 3.43 (±0.984) of statement 10.

Table 4. Parental perceptions on factors influencing decline in participation in terms of Awareness and Information

Statement	Mean	Standard deviation(±sd)	Adjectival Rating
1. I am well-informed about the STE program offered at our school.	4.69	0.498	Strongly Agree
2. I am aware of STE grade 7 admission program.	4.75	0.434	Strongly Agree
3. My child’s school provide sufficient information about the STE program.	4.54	0.561	Strongly Agree
4. The information about STE program provided by the school is easy to understand.	4.52	0.640	Strongly Agree
5. The school conducts effective campaign program for the STE admission.	4.55	0.638	Strongly Agree
6. The STE admission process is straightforward.	4.57	0.558	Strongly Agree
7. I find the STE grade 7 admission accessible (school fb page, flyers and brochure).	4.49	0.590	Strongly Agree
8. The school effectively communicates updates and detailed about the STE program.	4.52	0.615	Strongly Agree
9. The school provides adequate opportunities for parents to ask questions and receive answer about the STE program.	4.46	0.792	Strongly Agree
10. The information provided by the school has positively influenced my decision to consider enrolling my child in the STE program.	4.49	0.687	Strongly Agree

Overall	**4.56**	**0.601**	

The table reveals that all the statements received a rating of “Strongly Agree”. Among these, statement 2 achieved the highest weighted mean of 4.75 (±0.434), indicating the strong consensus among respondents. Conversely, statement 9 had the lowest weighted mean of 4.46 (±0.792), though it still reflects a high level of agreement. Overall, the data suggests that respondents well well-informed about the admission process and selection criteria, as evidenced by their agreement across statements.

Table 5. Parental perceptions on factors influencing decline in participation in terms of Program Reputation

Statement	Mean	Standard deviation(±sd)	Adjectival Rating
1. I am aware of the success and achievement of students who have completed the STE program.	4.72	0.516	Strongly Agree
2. The STE programs offer valuable extracurricular and enrichment opportunities that enhance the educational experiences.	4.63	0.547	Strongly Agree
3. The STE program is known for being inclusive and welcoming to all students.	4.68	0.533	Strongly Agree
4. The STE program is well-regarded for preparing students for success in higher education.	4.68	0.533	Strongly Agree
5. The school administration strongly supports and invests in the STE programs.	4.66	0.477	Strongly Agree
6. Teachers involved in the STE program are well-regarded and respected for their expertise.	4.54	0.588	Strongly Agree
7. I believe that participation in the STE program aligns well with future educational and career opportunities for students.	4.82	0.391	Strongly Agree
8. I believe that the STE program positively impacts on students’ overall development.	4.78	0.414	Strongly Agree
9. The school actively collaborates with parents to ensure the success and well-being of students in STE program.	4.63	0.486	Strongly Agree

10. I believe that the teachers in STE program are highly qualified and possess the necessary credentials.	4.60	0.581	Strongly Agree
Overall	**4.67**	**0.507**	

In table 5 showed the respondents replied in all the statements with a remark “Strongly Agree”, with the highest weighted mean of 4.82 (±0.391) of statement 7 and lowest weighted mean of 4.54 (±0.588). It interpreted that the respondents were strongly agree on the program implementation.

Significant Difference of parental perceptions on Academic performance as factors influencing decline in participation and profile.

Table 6. Mean comparison between parental perceptions of factors influencing decline in participation (grouping variable: household income)

Factors	Mean	Standard deviation	f-value	Significant value	Interpretation	Decision
Academic Performance	45.31	5.626	1.565	0.195	Not Significant	Accepted
Awareness and Information	45.40	4.812	0.834	0.511	Not Significant	Accepted
Program Reputation	46.68	3.941	0.182	0.947	Not significant	Accepted

α = 0.05 level of significance

The table shows that there is no significant differences between these factors and variables as reflected in significant value of 0.195, 0.511 and 0.947 respectively, which is all higher than the alpha value of 0.05. Therefore, the null hypothesis is accepted. This is supported in the findings of Betancur, et.al (2018) that there are only moderate gaps related to family income. Instead, it is mathematics and reading achievement influence in science achievement. According to Machebe, Ezegbe, & Onuoha (2017), parent’s financial status less likely to affect the academic performance of students but the parental support and involvement matter most.

Table 7. Mean comparison between parental perceptions of factors influencing decline in participation (grouping variable: Educational Attainment)

Factors	Mean	Standard deviation	f-value	Significant value	Interpretation	Decision
Academic Performance	45.31	5.626	0.951	0.441	Not Significant	Accepted

Awareness and Information	45.40	4.812	0.540	0.707	Not Significant	Accepted
Program Reputation	46.68	3.941	0.580	0.678	Not significant	Accepted

α = 0.05 level of significance

The table shows that there is no significant differences between academic performance, awareness and information and program reputation as gleaned from the table. The p = 0.441 > 0.05, p=0.707>0.05 and p=0.678>0.05 alpha value respectively. Hence, the null hypothesis was all accepted. According to Betancur (2018), parental education has smaller and indirect effect to the study of their child in particular in the access in science learning. This is also supported in the study of Siregar, Rosli & Nite (2023) that parental educational attainment does not always contribute to the students' interest in STE program. Similarly, in the study of Idris, Hussain &Ahmad (2020) that parents' educational attainment has no significant correlation with son/daughter academic performance.

DISCUSSION

As revealed in the study, both household income and parental educational attainment were not major hindrances in the participation in the selection process in STE. Other factors that make the parent and the students hesitant to participate in the selection activity appear in the selection activity. The leaders and coordinators must think of a scheme to boost the interest of the students from elementary to achieve the criteria as requirement in the selection.

By proactively addressing these factors and fostering a supportive environment that encourages both students and parents to actively participate, educational institutions can effectively cultivate a more inclusive and diverse pool of participants in STE programs. This approach not only promotes equity and accessibility but also harnesses untapped potential among young learners, paving the way for a more robust future workforce in science, technology, and engineering.

Conclusions

Learning and interest of the students in the Science, Technology, and Engineering program vary among individual and are influenced by family support. The study's analysis revealed that the parental household income did not pose a barrier to participation in the STE program.

Furthermore, the study concluded that the respondents' educational attainment did not impact the participation rate in the STE admission selection. This indicates that parents' education levels were not concern in the decline of participation rate.

Recommendations

Recommendations were given on the basis of the above findings:

1. The study could be expanded to include more contexts and variables, involving a larger sample of STE community to provide a broader understanding of the factors influencing participation.
2. Conduct another study to further explore the challenges and conflicts experienced by the STE learners may help identify potential causes for the decline in participation rate.
3. Utilizing mixed-method research design could harvest more comprehensive responses and data, offering deeper insights into factors affecting STE program participation.

Compliance with Ethical Standards

The author declares that strict adherence to the ethics of research was maintained, no conflict of interest exists in the conduct of the study, plagiarism was strictly avoided and there was no bias in the interpretation of the findings.

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PARENTAL RESILIENCE: A PHENOMENOLOGICAL STUDY ON MOTHERS NURTURING CHILDREN 3 - 6 YEARS OLD WITH MENTAL HEALTH NEEDS

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ABSTRACT

Parental resilience is crucial for children's overall development, especially in stressful situations. This study explores the experiences of mothers raising young children with mental health needs, focusing on the importance of mental health for overall well-being. The research, conducted using purposive and snowballing techniques, interviewed six mothers whose children aged 3-6 have mental health needs. The findings reveal that mothers' parenting is influenced by their acceptance of their children's disabilities and their knowledge about these conditions. Physical and mental well-being support for their children is emphasized, involving adherence to prescribed treatments and effective communication. The study also highlights the challenges faced by mothers, including financial constraints, adapting to a new normal due to medical challenges, and navigating educational challenges. Active listening to children's concerns is vital for their psychological security. The study recommends a collaborative educational approach, leveraging the experiences of mothers and teachers to design individualized support systems, fortifying parental resilience, and enhancing children's physical security during their developmental years. The study aims to understand the experiences of mothers in nurturing young children with mental health needs and how this can be applied to create a program that provides psychological security for children.

Keywords: *Parental resilience, Mental Health Needs, Well-being, Psychological Security, Child Development*

INTRODUCTION

This study focuses on the experiences of mothers nurturing children with mental health needs.

Up to 20% of children worldwide suffer from debilitating mental illnesses, including learning disorders, ADHD, depression, psychosis, developmental disorders, attachment disorders, anxiety disorders, conduct disorders, substance abuse, and eating disorders. Living with such children can be extremely stressful for family caregivers, and professional assistance, public awareness of mental illnesses in children, and social and financial support from the government, private sector, and NGOs are critical in addressing these challenges. (Ambikile & Outwater, 2012; Nikolaev et al., 2016).

Parental resilience is defined as a parent's internal resources and coping skills that assist them in dealing with stress and crises. Resilient coping skills enable a parent to solve problems, remain calm and collected when upset, and persevere during difficult times. Parental resilience plays an important role in the overall development of children, especially in stressful situations or circumstances. (Gmuca et al., 2019; Gavidia-Payne et al., 2015).

Mental health problems in young children manifest as emotional and behavioral disorders and are closely related to the negative factors of a discordant family environment for the child. A mother's maladaptive coping styles play a significant role in the formation of a discordant family. The findings suggest that mothers' coping patterns, in conjunction with their parenting styles, play a dysfunctional role in their children's mental health.

Co-occurring medical conditions are very common in children with autism spectrum disorder (ASD), and these conditions include speech, sleep, and gastrointestinal issues (including constipation and feeding problems), developmental delay, attention deficit/hyperactivity disorder, hypotonia, epilepsy, anxiety, disruptive behavior, pica, and eczema.

Several psychiatric disorders, particularly neurodevelopmental disorders, such as autism spectrum disorder (ASD), have been known to be interrelated with other medical conditions. To help in battling mental health concerns, it is essential to start at the roots and prioritize their mental health among other aspects of Early Childhood Development. This study aims to understand and explore the experiences of mothers in nurturing young children ages three to six and gearing them towards mental health, particularly mothers of children with mild to moderate psychosocial disabilities.

Research Questions

This study aims to explore the experiences of mothers in nurturing young children aged three to six, particularly those with mental health needs, and how this can be applied to create a program that provides psychological security for children.

Specifically, this study aims to answer the following questions:

1. What are the experiences of mothers in terms of nurturing young children with mental health needs?
2. What are the struggles and challenges faced while nurturing young children with mental health needs
3. What possible proposed health information dissemination scheme related to mental health can be established for Montessori pupils?

The study emphasizes the importance of focusing on the overall development of children during the early years, particularly in mental health.

METHODOLOGY

This qualitative descriptive study aimed to understand the experiences of mothers in nurturing young children aged three to six and focusing on mental health for children with mental health needs. The research methodology used included a phenomenological, descriptive, and qualitative approach. Phenomenological research is commonly used in nursing research methodology to understand human research. The study aimed to explore the experiences of mothers in terms of nurturing their children, particularly those with mild to moderate mental health needs.

The researcher used a mixture of purposive sampling and snowballing techniques to identify participants. Participants were mothers aged 23 years or older, who had children aged 3 to 6 years with mild to moderate disabilities related to psychosocial, learning, or chronic illnesses. The mothers were the primary caregivers for their children.

Inclusion criteria included mothers aged 23 years or older with children with mild to moderate disabilities related to psychosocial, learning, or chronic illnesses. The guidance office of the school aided in identifying these students based on readily available information. An assessment based on the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) and Parent/Guardian Rated DSM-5 Level 1 Cross-Cutting Symptom Measure-Child Aged 6–17 questionnaires was used to assess whether the participants were included in the study.

Ethics and Human Rights Considerations were also considered in the research. The study aimed to provide additional information and resources, raise awareness about providing

long-term support and care for children's mental health and psychological security, and provide a comprehensive understanding of maternal nurturing experiences.

The study involved a pilot study to test the validity and reliability of interview questions. After obtaining permission from the partnered school, the researcher identified probable respondents based on set assessment criteria and gave informed consent. The researcher and respondents agreed on a time and schedule at their convenience for the interview after signing the consent form. Both face to face and google meet interview was provided as an option for the respondents. The interview lasted approximately 30 minutes to 1 hour, and the researcher confirmed whether the information provided was the same as the notes written during the interview.

Strategies to improve communication were used. Some participants opted to have someone accompany them in case they felt uncomfortable conducting the interview alone. Clarifications and probing questions were asked to ensure all information stated was factual and understood correctly. Due to the probable distress experienced by the respondents, a mental health professional was partnered with for debriefing after the interview had concluded.

Data was analysed according to the chosen method and disposed of appropriately through shredding physical paper notes used during the interview phase. Digital copies of recordings were deleted after collation and analysis, and no data collected and stored on a secure hard drive will be stored for more than one year after publication.

RESULTS

The researcher used Colaizzi's Method of Data Analysis to analyze data, uncovering essential themes and patterns. The findings provide insights into mothers' experiences in nurturing their children's mental health needs. The data was thoroughly read, offering insights into challenges, emotions, and perspectives. Significant statements were identified, capturing essential aspects of the respondents' experiences.

Theme I: Shaping Parenting

One's experiences have a profound effect on how they raise or parent their children. dividing the process of forming a parent's approach into two phases: first, accepting the disability (e.g., learning about the disease for the first time) and second, their understanding of the impairment (e.g., what they know then and now).

Subtheme #1: Coming to terms with the disability.

Accepting the disability—which is primarily addressed in the medical context—by first identifying the symptoms and learning about the ailment. The type and specific

manifestations of the children's disability determined the degree of recognition. Recognition occurred in response to advice from others in certain circumstances, and in other cases it was tinged with uncertainty due to a lack of trust in the diagnosis. Others emerged as a result of their own observation of specific indicators, which led them to take action. Certain disorders took longer to recognize than others, such as learning disabilities and health issues that presented as symptoms that people thought were typical. Other accounts did not initially understand what normal development included, which is why they took longer to recognize the handicap. Despite being aware that something was amiss, others choose not to consider the possibility that something might be off. In contrast, there were accounts which detailed their recognition of their child's disability based on what they know about development while others attribute the recognition of their son's disability to the oddities that she noticed and the shared experiences of other parents:

Respondent 1: He was an active boy, he loved to play around with the neighbour's so when we slept and he started snoring, I just thought "Ah he enjoyed his day playing with his friends". I did not think a lot about it.

Respondent 4: My son did not start speaking at two, his sister started early, but that still did not give me a lot of concern since he still has time, my brother did not start to speak until later.

Respondent 3: "I was always with my daughter; I bring her to daycare and stay with her until the session for the day is over. Once I brought her to a school, the moment I said bye, she would start crying and I end up staying near her room where she can see me. This went on for a while. I did not think much of it I just thought it was because she was a mama's girl."

Respondent 5: "So at 2 years old, I started to notice different signs that there was something wrong. So I talked to others about it, sharing inputs on whether or not I should be worried. His communication was delayed, and he was diagnosed with global developmental delay." While Mother 6 mentioned "So, we found out early on that there was something wrong with him. He was diagnosed with Global Developmental Delay, and Autism at 2 years old."

Subtheme #2: knowledge on the disability

When parents found out about their children's disabilities, their acceptance of it was based more on their understanding of the mental, emotional, and practical aspects of accepting the condition. The degree of information they possessed at the time of the diagnosis was primarily dependent on the reason why and how they happened to be concerned having them checked out. When it comes to helping moms accept the disabilities of their children, education plays a crucial role in influencing how they meet their needs on a physical and, more significantly, mental level. To effectively deal with the needs of children with mental health difficulties, providing care for them requires a certain level of proficiency (Hoogsteyns et al., 2023). Sometimes, especially with complicated medical conditions (such as tumours or chronic diseases), experts are quick to diagnose, but parents are

cautious to follow their advice. Many of them have admitted to obtaining consultation by calling upon a hospital in a different city for a second opinion.

Respondent 1 (Mother of a boy with a congenitally enlarged tonsils).

At the time that we found out about it, we did not really know what to feel about it. We were confused and scared about the prospect of him having a tumour. Honestly, at that time, we did not know that his snoring would lead to something like this. the only thing we knew about his illness was what the doctor explained. We tried to do research through google to ease our worries, but it only made the worrying worse because there was a large variation of causes and probable reasons why that happened and that made me overthink that things might get worse.

We decided that before we even did something about it, we would have a second opinion elsewhere. We were bound to transfer to Cebu because of my husband. So, we decided that we would have him checked up here.

Respondent 4 (Mother of a boy with Dyslexia)

Before we found out about his dyslexia, he was a sickly kid. He had fever that would last days and are always high. We did not what it was he was still an infant. We had him checked in our local hospital and the doctor said he had Kawasaki Disease. We did not know what it was, so before we decided to get him treated, we went to another city to have him checked to get a second opinion.

Respondent (mother of a boy with Autism Spectrum Disorder, Social Communication Disorder and G6PD Deficiency)

I did my own research by reading on research articles, attending seminars for parents of children with ASD.

Respondent (mother of a boy with autism spectrum disorder and Epilepsy)

The things we mainly did were getting advice from friends who also have children with ASD, but then every child with ASD is so different that even thought their the same in terms of diagnosis, their development can vary from one case to the next. Therapy wise, we also took to research, reading articles, about different treatment options.

Emerging Theme #2: Supporting their Children's Well-Being

Managing a disability may lead to a great deal of stress to both the child needing care and the nurturing mother. Children naturally seek to advance toward higher levels of psychosocial maturity as they grow older (Deci and Ryan 2000). To aid in their psychological development, parents can support the needs of their kids for relatedness, competence, and autonomy (Soenens et al., 2017). a hospital in a different city.

Subtheme #1: Physical Support

A child's physical well-being is something that is always given priority: their health. A mother's top priority is ensuring that her children have enough food and sleep. especially for children who require mental health support. distinct needs accompany distinct infirmities.

Respondent 1 and 2 concentrated on ensuring that all medical needs (such as medications) and physical activity based on medically founded advice are met; Respondent 6 highlighted the value of therapy for their children's physical support; v 5 stressed the significance of playtime; and v 4 believes that his son's pickiness is due to the food he was given when he was younger.

Respondent 1: We just followed what his doctor instructed us to do. The aftercare of the wound, the medicines he needs. Now, I support his physical well-being through encouraging his physical activity and encouraging him to eat a healthy diet. I make sure that he drinks his vitamins, he eats his vegetables and drinks his medicine. While he is still little, I want to encourage him to play outside more for physical activity.

Respondent 2: I make sure that he drinks his vitamins, he eats his vegetables and drinks his medicine. While he is still little, I want to encourage him to play outside more for physical activity.

Respondent 6: Apart from speech therapy, my son has occupational therapy, and until now he is on that therapy religiously. You can see some improvement in him in terms of his physique but there is still a long way to go. We do understand because he is on medication that can increase his appetite, he is a relatively big boy. So as much as possible, for us, any time physical activity through therapy is done, we really take an advantage of that for his sake.

Respondent 5: Playtime for us is important, especially for kuya, apart from his therapies, one of the more hands on approached we had to make sure that he gets some sort of physical activity is playtime, when he was younger through toys, now, we do encourage him from time to time to play basketball with his dad.

Respondent 4: When we started him on more solid foods, the first thing we introduced to him were apples, mangoes, chicken. As he grew, the food that he it’s are more predictable, does not like anything that he is not familiar with. He likes fruits but cannot stand avocados, he does not like sweets, and would choose bread over cake, or ice cream. That was something that shocked us a bit because a lot of kids, you think they like candies, but him, he really does not like it.

Respondent 6: My son has epilepsy apart from ASD so because he has epilepsy, he has certain meds which make him hungry so most of the time he loves to eat. He does not like durian, he hates it. He also does not like animal insides any, intestines, liver, brain. He does not like the smell of both especially. He loves adobo, anything if its adobo, it can be chicken or pork. He is okay with fruits; he is also okay with vegetables. The most

important to me is for him to be able to have a balanced meal, so I make sure that when he its, he also eats smart.

Subtheme #2: Mental and Emotional Support

As a child grows physically, they encounter new challenges that can either strengthen or weaken their sense of self. Fostering the physical development of young children contributes to their overall success (Maybery et al., 2005). This study aims to investigate how moms provide for their children who have mental health difficulties. This can take the shape of physical illnesses, learning challenges, or psychosocial disabilities, all of which have a big influence on how their kids grow up and their long-term psychological stability.

Respondent 1: I listen to him and his concerns, I go with him to his check-ups and encourage him to talk to me if he feels sad and overwhelmed.

Respondent 6: Apart from all the physical aspects, the therapy, the medications, the importance of physical activity and stimulation. It is for us ensuring that we get to make him understand that we do care for him. It is to make sure that he can take care of himself and learn to be more independent.

Frustration, fatigue, and other emotions might arise during mother-child interactions because of the difficulties these children deal with daily as a result of their disability. These children may be deficient in certain areas, but their senses are sharper in others. These children have a high degree of emotional sensitivity. They are capable of processing emotions since, even if they unable to articulate it in a way that others can comprehend.

When a child speaks, they communicate what they want you to understand; however, they are not always easily understood (De Schauwer et al., 2023). The significance of listening guarantees individuals' security and confidence that they are heard. They feel more secure knowing that, from a certain viewpoint, everything will work out. According to the respondents' testimonies, they make sure children are aware that they will always receive help when they need it.

Respondent 3: I always tell her that we are always there for her, but at the same time she has to learn and understand that we will not always be physically present.

Respondent 4: I can say that it is not that easy, you really need to patient with him, and you must make him feel that you are supportive of him. He can sense just by looking at you that something is wrong, and it makes him frustrated.

Respondent 5: One thing that I really learned from taking care of him is that you should not lt them know that you are tired. Even if you say "A gikapoy nako" (I am tired) he will know. He is a very sensitive child, and he is very sensitive to emotional cues so he will understand that you feel tired and that it is because of him, so you should not them know that you are tired.

Some children struggle more than others, and this might end up becoming a weakness. Due to their perceived uniqueness, individuals fall prey to many forms of mistreatment, such as bullying. Many of the respondents strive to ensure that their children realize that bullying constitutes offense, and they should learn how to protect themselves and gain self-reliance abilities.

Respondent 5: The most important thing for me is to make sure that he can learn to become independent and equip him with the necessary social and the basic skills. It is also important for us that he learns to defend himself because he will be bullied, and it will not be the only time, and it is not always that he will have someone to protect him.

Mothers' collective experiences have influenced the way they address the mental health needs of their children. Some mothers clarify that there are some things that parents need to be aware of before approaching their kids. By doing this, you may establish parameters with their children.

Respondent 5: There are 6 things that I always tell people especially for those who do not know him or those who just met him. … I tell them these things because (1) they really have to know that you cannot do this with them I am setting boundaries, (2) there is a tendency that you will not get along (3) you might get hurt, and (4) it is quite obvious that there would be differences between you and me and him and you, and not everyone knows how to approach him when something happens or just want to get to know him.

Respondent 6: The challenges are changing, but there are daily struggles that remain the same. When I get asked about what the struggles are when it comes to taking care of him, I always mention more or less 4 things. I tell this to people not to discourage them but to explain to them and just to answer their questions. There are times that my son can be manipulative in a way. So, I just want to explain to people especially his teacher now, that there are things that he does, a he does it to get a reaction out of you. Once he gets that reaction from you, he is satisfied.

Emerging theme #3: Living with Children's Disabilities.

Each participant in this research has a different background; there are mothers who work, mothers who remain at home with their children, and women who work part-time. Despite the disparities in their histories, they all express the same feeling, which is that their experiences with their children's disabilities transformed their lives beyond the early period of their diagnosis.

Subtheme #1: Financial Challenges

The first of many difficulties these moms have encountered in raising their children is running out of money and resources to ensure that their child receives the best care possible. Some employ alternative methods, such as quitting their job completely and having their spouse cover their expenses to make sure their children are properly taken care of. Others have made the decision to look for a different, more flexible career to care

for their child and yet work to make ends meet. These moms disclosed that their usual expenses are getting higher and finances became tighter.

Respondent 4: The biggest challenge we had was our finances. Since he was admitted, to his check-ups, to the medications. It got to a point where we would borrow money from my sister, and other relatives, we exhausted a lot of loans because of it. Now, because he is enrolled in a public school, our educational expenses are not that high but because of our financial difficulties, we are still trying to get it all together.

Respondent 5: Both me and my husband were working, but we both wanted to make sure that he was taken care of, that his therapies were done. Sacrifices had to be made, my son was 4 years old when I decided to retire from my job and permanently take care of him. I would take him to therapy, I would take him to school and fetch him, and once he got home instead of encouraging television, I encouraged him to play with toys more.

Respondent 6: When our son was younger, I was still able to work and take care of my son when I get home. We also hired a yaya that would take care of the kids when we were at work and would come home when we arrived. As he grew, it was growing difficult having to take him to his therapies, and holding a job that requires my physical presence. So I decided to quit the job that I had and look for another work which I could stay at home and work at the same time so I could take care of him. Financially, because of the therapies for all the conditions, because of the medications he is on, the expenses are pretty high, and we cannot avoid it, since it is a given because these treatments are expensive. Apart from that he has 2 other siblings so the budget is pretty tight, but sacrifices have to be made. I have to work and so does my husband. We have a yaya that works with us part time, most of the time takes care of the other children and the house.

Subtheme #2: Medical Challenges

The change in their concept of normal is the second adjustment that these women need to get used to. The numerous therapies, the frequent trips to the doctor, the medical advice, the prescription drugs, and so much more. Mothers are encountering challenges when navigating the healthcare system that has increased their financial strain.
Parents start to worry about their children in unfamiliar surroundings, when they are not there, and what would happen to them if no one knew what to do in the instance of a child emergency.

Another describes the psychological difficulties brought on by surgical operations, the scars they leave behind, and the physical and emotional effects on their kid.

Respondent 2: After the surgery, he had a difficult time voiding properly, he does not have full control of his bowel movement. Apart from that he has a huge scar in his stomach area. He became insecure of showing of his scar because according to him it looked like his butt. Apart from that, he still has trouble controlling his bowel movement so there is still a big risk that he could poop himself in school and people would tease him about it.

She went on to explain I always told him that if ever that happened, I was one phone call away. I always made sure that he always had extras in his bag incase that happened.

Respondent 2: We live far from the city; the hospitals are in the center. We do not have a car to transport us. The travel time takes so long that in case of an emergency it would be better at times to commute there. But that is not realistic at all. We need an ambulance to get us there, but even the ambulance with the newer equipment are in the city, and those that are farther don't have those. What are we supposed to do when something so urgent would happen?

Respondent 4: When we had him checked in the local hospital and were told that it might be Kawasaki Disease. We were extremely worried because we did not know what that was, we did not know how severe it would be, how it would affect him. We were shocked as to how they were able to determine it so quick. We feel like we are being scammed because we had little knowledge about the disease.

Respondent 6: The main struggle in all of this especially right now is his epilepsy, so he does have his medication, and we make sure that he does take these meds. But there is always that constant fear that he might have a seizure and we are not there and that the people around him don't know what to do. So we really want to ensure his safety above everything else.

Subtheme #3: Educational Challenges

Regardless of whether their child has a disability, many parents believe that education is crucial. For parents of children with disabilities (CWD), this is especially true. But there are additional difficulties associated with sending their child to school. There are those in the educational system who can handle the rigors of a traditional education as well as individuals who couldn't. Concerns should also be raised about the child's capacity to interact with other kids and the degree of their disabilities. Education sometimes entails therapy for those with impairments, which can add to the family's financial burden adding to the cost of education, which is already high.

Respondent 4: Because he has dyslexia, he has difficulty when it comes to his studies, especially in English, he still has difficulty in his alphabets, his b's and d's are exchanged, his p's are inverted. There are times that he would be frustrated because we could not understand what he was trying to say and because of that he would cause tantrums.

Respondent 5: Education wise, before he was being transferred from private school to public school in SPED because he was having trouble coping with the demands of regular classes. The pandemic did alter the way we approached things. Both me and my husband became more hands on, which honestly helped a lot. Now, he can cope with some but not all of the demands of regular class since we started to blend him with other kids. But we are introducing it to him slowly because we do not want to overwhelm him.

Respondent 6: The challenges are changing, but there are struggles that remain the same. So education wise, because my son has difficulty speaking, he is undergoing speech therapy, and occupational therapy there are a lot of barriers that might be in place, add in the epilepsy. Communicating with him is difficult so some special teaching methods need to be put in place.

Subtheme #4: Social Challenges

The study also revealed a topic that is strongly tied to educational challenges such as the occurrence of stigma, prejudice, and bullying against their children. Bullying is a problem that should be taken seriously, particularly if you have children with disabilities. As a result, mothers prioritize teaching their children how to defend themselves from bullies. The child's well-being is a reflection of the mother's love and care for them. Despite the challenges they may face in their various roles, most moms of children with mental health concerns want to continue instilling positive attitudes in their children.

Respondent 5: Bullying was really something that he struggled on since he started schooling because there were kids, some even older than him that would tease him, laugh at him, the worst was when he went to the bathroom and one of the kids playfully said that “hala ga linog” while he was peeing, so he ended up with wet pants. Which made me furious. It was a good thing that one of his classmates was there and told the teacher immediately. That was one of the reasons we switched him from private to public.

Respondent 6: The biggest fear we have is that we would be bullied, belittled because he is non-verbal so he cannot protect himself, and at the moment he heavily relies on us. So we really do have to teach him independence and to be patient with him.

Respondent 2: Because he is always absent and rather sickly, he is thin, and there have been times that he was called names like “tukog” or “masakiton.” Because of this we were concerned that he would take it personally and it would hurt him to the point that he might become discouraged. It was painful to hear children calling him names because he was sickly. On my side, it has been difficult because other people who are not really that close to us, always say that I did not take care of him that well because he always ended up in the hospital because of some sort of illness.

Respondent 5: incident I always tell him “Kuya if possible, you pee at home and not in school so you can avoid it happening again, if you really have to go, then use the close toilet.” Aside from that reminder, I always tell him that he should not initiate anything unless someone does it first. If someone hits you hit back, and only when it is necessary. To me it is more important to make sure that he can protect himself.

Subtheme #5: Mental Health Challenges

From the standpoint of a caregiver, in addition to all other challenges, the mothers also face the toll in caring for children with mental health needs as it takes on their own mental

health however, others, opted to focus on the brighter aspects of things while still admitting that there are difficulties inherent situation.

Respondent 4: It is physically, emotionally, and financially exhausting. You really need to have patience you must be able to in a way take a punch because, you must handle frustrations well. You have to make sure that you are helping him progress forward in the best possible way.

Respondent 5: It is draining in a lot of ways, it is mentally, physically draining to take care of him, but seeing the progress, it is honestly really rewarding. We had a lot of struggles with him from the moment we found out. The therapies are expensive. From a financial standpoint, there were challenges.

Emerging Theme #4: The Role of Support

The psychological well-being of the caregiver for the child that has mental health needs could be undermined because of attending to their needs. To remain strong for their children, parents, especially mothers, need the assistance of others. Support is provided by family members and other well-meaning individuals. Others even through prayers and spiritual support. Particularly in Filipino culture, the idea of a "bayanihan," or helping hand, is not new and encompasses all challenges that someone may encounter. They are also closer because of the support system that families provide.

Respondent 1: There has been people who have supported me from the moment that my son was diagnosed up until now. These were mothers who also had children admitted, the mothers of children admitted in the same ward as my son during my son's operation and recovery, mothers of my son's classmates and my neighbors. Because they helped me so much during my time of difficulty, I think it is now my turn to support them if they ever needed help.

Respondent 4: At that time my sister really came through and helped me especially with the finances. I got to save on transportation because she would take me and my son. My daughter, my sons ate also stepped up and took care of their little brother, while we focused on him. My mother-in-law also stepped-in and took care of the house, the children while we had away and really helped us anyway, she could.

Significant Statements	Formulated Meanings	Cluster themes
He was an active boy, he loved to play around with the neighbor's so when we slept and he started snoring, I just thought "Ah he enjoyed his day playing with his friends". I did not think a lot about it.	Defined the symptoms of his son's condition to normal human body reaction to becoming tired	Recognition of Illness and its signs

My son did not start speaking at two, his sister started early, but that still did not give me a lot of concern since he still has time, my brother did not start to speak until later.	Association of symptoms to normal delay in development	
I was always with my daughter; I bring her to daycare and stay with her until the session for the day is over. Once I brought her to a school, the moment I said bye, she would start crying and I end up staying near her room where she can see me. This went on for a while. I did not think much of it I just thought it was because she was a mama's girl.	Association of concern to maternal bond	
So, at 2 years old, I started to notice different signs that there was something wrong. So, I talked to others about it, sharing inputs on whether or not I should be worried. His communication was delayed, and he was diagnosed with global developmental delay.	Early recognition attributed to experiences from other parents regarding development	
So, we found out early on that there was something wrong with him. He was diagnosed with Global Developmental Delay, and Autism at 2 years old.	Early recognition of signs of illness	
He was aggressive, my son, he displayed it with anyone, at first we were in denial, my sister-in-law, recognized it immediately, he was visibly showing signs of aggression, but we honestly thought it was just because there was something that was not to his liking	In denial, despite recognition of illness	
At the time that we found out about it, we did not really know what to feel about it. We were confused and scared about the prospect of him having a tumor. Honestly, at that time, we did not know that his snoring would lead to something like this. We decided that before we even did something about it, we would have a second opinion elsewhere. We were bound to transfer to Cebu because of my husband. So, we decided that we would have him checked up here.	To gain further sense of security, second opinion was sought	Knowledge on Illness/ Disorder
Before we found out about his dyslexia, he was a sickly kid. He had a fever that would last days and is always high. We did not know what it was when	Sought second opinion due to lack of knowledge on illness	

he was still an infant. We had him checked in our local hospital and the doctor said he had Kawasaki Disease. We did not know what it was, so before we decided to get him treated, we went to another city to have him checked to get a second opinion.		
I did my own research by reading on research articles, attending seminars for parents of children with ASD.	Researching on the disorder and its different treatments	
The things we mainly did were getting advice from friends who also have children with ASD, but then every child with ASD is so different that even though their the same in terms of diagnosis, their development can vary from one case to the next. Therapy wise, we also took to research, reading articles, about different treatment options.	Researching on the disorder along with information from other parents with the same disorder.	
My son both had behavioral and speech therapy. He was aggressive, we were in denial. When he was diagnosed at 3 years old, we were scared, because of the stigma associated with that was all we knew about. We had to have research, for a time after the diagnosis we had to home school him. He just started going to school so we had to make sure he can be well adjusted	Stigma present in association with illness and the knowledge of it.	
We just followed what his doctor instructed us to do. The aftercare of the wound, the medicines he needs. Now, I support his physical well-being through encouraging his physical activity and encouraging him to eat a healthy diet.	Medical Treatment, vital in physical support	Different types of physical support
I make sure that he drinks his vitamins, he eats his vegetables and drinks his medicine. While he is still little, I want to encourage him to play outside more for physical activity.	Importance of Supplementation	
Apart from speech therapy, my son has occupational therapy, and until now he is on that therapy religiously. You can see some improvement in him in terms of his physique but there is still a long way to go. We do understand because he is on medication that can increase his appetite, he is a relatively big boy. So as much as possible, for us, any time physical activity through therapy is done, we really take advantage of that for his sake.	Importance of therapy in physical activity	
My son has epilepsy apart from ASD so because he has epilepsy, he has certain meds which make him hungry so most of the time he loves to eat. He does not like durian, he hates it. He also does not	The Role of food in supplementing needed nutrients	

like animal insides any, intestines, liver, brain. He does not like the smell of both especially. He loves adobo, anything if its adobo, it can be chicken or pork. He is okay with fruits; he is also okay with vegetables. The most important thing to me is for him to be able to have a balanced meal, so I make sure that when he also eats smart.		
I listen to him and his concerns, I go with him to his check-ups and encourage him to talk to me if he feels sad and overwhelmed.	Listening and Reassuring	Different Types of Mental Support
I always tell her that we are always there for her, but at the same time she has to learn and understand that we will not always be physically present.	Reassurance as a key part of support	
The most important thing for me is to make sure that he can learn to become independent and equip him with the necessary social and basic skills. It is also important for us that he learns to defend himself because he will be bullied, and it will not be the only time, and it is not always that he will have someone to protect him.	Teaching independence and protection from certain social situations	
Apart from all the physical aspects, the therapy, the medications, the importance of physical activity and stimulation. It is for us to ensure that we get to make him understand that we do care for him. It is to make sure that he can take care of himself and learn to be more independent.	Making their children understand that they will always be there for them	
We, both his father and I, are in the field of science. His brother is a marine biologist, so he gets along with him well in comparison to our youngest. We noticed he is less aggressive when we show him marine related docuseries and things related to marine life. So most often, we take him Ocean Park a lot.	Identifying their likes and using them as calming factors	
The biggest challenge we had was our finances. Since he was admitted, to his check-ups, to the medications. It got to a point where we would borrow money from my sister, and other relatives, we exhausted a lot of loans because of it. Now, because he is enrolled in a public school, our educational expenses are not that high but because of our financial difficulties, we are still trying to get it all together.	Financial Exhaustion due to medical related expenses	Financial Challenges experienced by mothers
Both me and my husband were working, but we both wanted to make sure that he was taken care of, that his therapies were done. Sacrifices had to	Leaving their jobs to provide more hands-on care	

be made, my son was 4 years old when I decided to retire from my job and permanently take care of him. I would take him to therapy, I would take him to school and fetch him, and once he got home instead of encouraging him to watch television, I encouraged him to play with toys more.		
When our son was younger, I was still able to work and take care of my son when I got home. We also hired a yaya that would take care of the kids when we were at work and would come home when we arrived. As he grew, it was growing difficult having to take him to his therapies, and holding a job that requires my physical presence. So, I decided to quit the job that I had and look for another work which I could stay at home and work at the same time so I could take care of him.	Looking for other jobs which enable them to earn and provide hands on care	
Um, honestly, from a financial standpoint it is very difficult. Having to spend money for his therapies on top of his other needs. Both me and my husband must work, but my husband is pulling more weight than I am since I wanted to be more hands on.	Having a balance between work and care for their child	
We live far from the city; the hospitals are in the center. We do not have a car to transport us. The travel time takes so long that in case of an emergency it would be better at times to commute there. But that is not realistic at all. We need an ambulance to get us there, but even the ambulance with the newer equipment is in the city, and those that are farther don't have those. What are we supposed to do when something so urgent happens?	The difficulties brought by distance between home and hospital or clinic	Medical Challenges
The main struggle in all of this, especially right now is his epilepsy, so he does have his medication, and we make sure that he does take these meds. But there is always that constant fear that he might have a seizure and we are not there and that the people around him don't know what to do. So, we really want to ensure his safety above everything else.	The influence of the effects of medication in everyday activities.	
Education-wise, before he was being transferred from private school to public school in SPED because he was having trouble coping with the demands of regular classes. The pandemic did alter the way we approached things. Both me and my husband became more hands on, which	Difficulty in coping with demands in school	Different Challenges towards their child's education

honestly helped a lot. Now, he can cope with some but not all the demands of regular class since we started to blend him with other kids. But we are introducing it to him slowly because we do not want to overwhelm him.		
We previously enrolled him in regular school prior to the diagnosis, we were in denial that there was something wrong with him, so we thought nothing of it. But then he started becoming aggressive towards teachers and even his classmates. We had no choice but to pull him out of school and have him home schooled in addition to his therapies.	Fear of harm to others caused by the condition	
Bullying was really something that he struggled on since he started schooling because there were kids, some even older than him that would tease him, laugh at him, the worst was when he went to the bathroom and one of the kids playfully said that "hala ga linog" while he was peeing, so he ended up with wet pants. Which made me furious. It was a good thing that one of his classmates was there and told the teacher immediately. That was one of the reasons we switched him from private to public.	Difficulty in comprehending social conditions leading their children more vulnerable to social concerns.	Social Challenges for both mothers and their children
The biggest fear we have is that we would be bullied, belittled because he is non-verbal so he cannot protect himself, and at the moment he heavily relies on us. So, we really do have to teach him independence and to be patient with him.	Fear of being unable to protect themselves, thus advocating for their independence through teaching	
His aggressive nature has started to subside after putting him through therapy, but putting him through regular school, with regular children, sometimes they could not comprehend, with the situation, he ends up becoming the bully in some scenarios because of his aggressive and defensive nature.	The symptoms brought by the condition providing difficult decisions in different social concerns	
It is physically, emotionally, and financially exhausting. You really need to have patience, you must be able to in a way take a punch because, you must handle frustrations well. You have to make sure that you are helping him progress forward in the best possible way.	Physical and mental effects of caring for their children	Mental Toll on Mothers
It is draining in a lot of ways, it is mentally, physically draining to take care of him, but seeing the progress, it is honestly really rewarding. We had a lot of struggles with him from the moment we	The rewards that come with the equivalent mental toll on the mother	

found out. The therapies are expensive. From a financial standpoint, there were challenges.		
Throughout the early phases up until know, I have been through a lot of emotional roller coasters. It is difficult to have him interact with our youngest because 'mag-sumbagay' sila. We want them to be able to stick together and find comfort in each other they grow older, but it is difficult, and really emotional.	A variation of emotions in comprehending with condition	
Support from family and friends really did help get us through the more difficult times, there will be more, so we must really prepare ourselves for it. Of course, faith and prayers cannot really be excluded from this, especially during the times that he has severe seizures, it is enough to give you quite a big scare, he did end up in the hospital. His recovery really strengthened our faith, and his continued progress really solidifies it for us.	Familial support as the foundation to relationships with others.	The role of different types of support systems in coping
… when it came to healing, to us, especially me and my husband, we are spiritually inclined, so it was also important to us, not just to engage in the medical aspect of healing, that spiritual healing was also present. We had a family retreat there then we did confessions, this was not just for me or my husband but our entire family as well.	The importance of spirituality in coping and handling conditions	
Prayer, family, and friends. These three things are the most important for me. When it came to the understanding and navigating of the entire diagnosis to this very day. These are what got me through. Because it is an emotional roller coaster. It's very difficult to comprehend sometimes how difficult it is for me when it came to his condition.	Relationships with religion and family as significant factors in coping	

DISCUSSION

The parent's perspective highlights the significant hardship associated with having a disability, or in this case, caring for a child with mental health needs. These challenges are not just financial; they also have other causes. This covers the strain that it takes on their bodies physically as well as the emotional toll of having to endure it. However, the experience of disability is first held by the parents; the children do not share this experience until they have interacted with peers, become aware of their own impairment and perceived difference.

According to the lived experiences of mothers caring for children with mental health needs, these events have influenced the way the mothers raise their offspring. Resilience

and the availability of social support are important buffers that can help minimize the detrimental impacts of living with a kid who has mental health problems on their quality of life, according to a research by Migerode et al. (2012). Resilience is what helps families deal with the burdens, which raises the question of why resilience is so important in the field of disability studies. Heiman (2002) defined resilience as "successful adjustment in terms of self-esteem, social support, various aspects of social life, problem-solving, and coping strategies, notions of social integration, interdependence, and close relationships."

Their view of disability, which they frame positively (e.g., as a gift, blessing), is another factor included in the research. This source of resilience mentions a variety of spiritual and/or religious resources. This study's findings are in line with the body of research that links religion and disability, even though the issue of religion was only briefly discussed. "Religious support can be a stable coping strategy used throughout the family life cycle," according to the findings of one research (Bennett et al., 1995; Poston & Turnbull, 1985; Selway & Ashman, 1998) that was based on in-depth interviews with parents of children with developmental disabilities (CWDs). The availability or lack of support networks for overcoming their various obstacles is another aspect. Conversely,

The availability or lack of support networks for overcoming their various obstacles is another aspect. When mothers discussed their difficulties and the isolation they experienced from other mothers—especially those they did not even know personally—they were, on the one hand, at their most vulnerable. However, they expressed gratitude for the assistance they had gotten from others. Others mentioned how they use the assistance they receive from friends, family, and support groups to help others. Multinational literature affirms the benefits of support groups. For example, a mixed-methods research carried out in the United States found that parents who were part of these groups. (Lasco et al., 2017).

The medical implication of a disability is one of the highlighted challenges faced by mothers. Most mothers have implied the relationship between finances and medical concerns. Furthermore, although healthcare related gaps are not the objective of this study, their prominence in the narratives presented by these mothers is worth noting. The disparities between their experiences in the healthcare system seem to stem from different factors, which have not been explored as it is not within the study’s scope. It is very telling however, that while articles published by the Department of Health DOH on the health and wellness program for persons with disabilities, acknowledge the various gaps present in the treatment of those with disabilities, there are still little action done and/ or proposed to act upon on this regard (Lasco et al., 2021).

One of the issues that mothers encounter that is often overlooked is the medical implications of their disabilities. Most moms have made reference to the connection between health issues and money. Moreover, it is noteworthy that despite not being the study's focus, healthcare-related disparities are prominently included in the stories these moms tell. Since it is outside the purview of the study, the differences in how they experienced the healthcare system appear to be the result of distinct causes, which have not been investigated. Though the Department of Health's DOH articles on the health and

wellness program for people with disabilities acknowledge the many gaps in the way people with disabilities are treated, it is highly striking that little is being done or suggested to address these gaps. (Lasco et al., 2021).

Conclusions

The purpose of this study was to investigate how mothers' experiences caring for their children with mental health problems influenced the method in which they addressed such needs. This study also sought to comprehend the difficulties that these mothers encountered and how they overcame them to determine the best method to care for their children. This study focused on children with mental health needs, their mental health, and how their mothers' nurturing affects the way these children develop psychological stability. Six mothers of children in Cebu City with mental health issues provided data for the study using a descriptive phenomenological research approach.

The findings of the study herein presented to the order of the specific questions formulated in this study:

1. The respondents of the study showed that the experiences of mothers in caring for their children with mental health needs have shaped their way of parenting. Their pursuit for knowledge to continue to understand how to better tackle their children's growing needs. In addition, the importance of supporting their mental health needs, and how they supported them also emerged. Majority of the mothers spoke about the importance of listening to your children's concerns.

2. The respondents of the study have discussed that living with their children and their difficulties pose many challenges in different aspects which includes financial, medical, educational, social, and Mental Health challenges for the mothers. The importance of support systems was also highlighted in the interview as because of the mental toll that the struggles that they have face cause towards them, a strong support system is one important aspect in terms of ensuring that children's psychological security be secured.

3. From the findings of the study, an information dissemination scheme through means of a poster was created. The contents of the poster included the importance of support for both the mother and the child, what are the most common challenges from 2 different perspectives when caring for children with mental health needs.

The findings of the study suggest that the experience of disability is not only shared between caregiver and the child but with the entire family. The narratives presented by the participants all shared the role of their respective families in the entire process from the moment the child is diagnosed to all the individual struggles: the discrimination they receive to the exhaustion of resources (i.e., financial) is vital to the way they parent their children. The concept of resilience is often mentioned in the way people cope with certain pressures that they face in their lives. This concept is what grounds this study. The

amount of understanding that these mothers have towards their children, their individuality, their strengths and their weakness, are reflective of the way they adapt to the challenges that their needs present.

To meet each child's unique requirements, a more flexible strategy must be devised in terms of both schooling and mental health. According to this study, a child's mental requirements could differ from one child to the next even if they have the same diagnosis, depending on how severe the problem is. From an educational perspective, having a thorough grasp of the variations that these situations provide serves as a basis for guiding instructors in developing customized modes—the core idea of the Montessori Approach. The goal of both personalized teaching and Montessori education is to provide a learning environment that best suits the requirements, developmental stage, and interests of each individual student (Mavrič, 1999).

Finally, through understanding the experience from a maternal perspective, a collaborative approach to care between parents and their teachers, especially for those children with mental health needs, needs to be part of the overall learning experience. The learned experience of mothers when nurturing their children helps teachers to establish an individualized approach which is geared towards their psychological security.

Recommendations

Anchored on the findings of this study, the following recommendations are proposed:

1. There is still more to understand about parental resilience, particularly of the front of education and the challenges of caring for children with mental health needs. Exploring a larger sample size and utilizing focus groups would help to provide a larger variety of perspectives on the matter of care. Furthermore, a larger sample size will help provide additional grounds relating the maternal perspective of care towards their children’s mental health.

2. This study briefly touched on the use of positive reinforcement, as a means of support for children with mental health needs. Thus, a study on the impact of positive reinforcement as a means of support for children with mental health needs, should be further explored as this can help understand how it affects the overall mental well-being of children. In addition, exploring other means of support for these children can help create a model which would outline, how support not just for children with mental health needs, but for all children in general, must be executed.

3. There are other themes which this study has not explored but have been implicated in the study. One of which is the role of religion in resilience. A study on the role of spiritual and/or religious resources in parental resilience needs to be explored more to understand how spirituality has helped shape resiliency.

4. One focal point in the study, is the presence of doubt, particularly when it came to their children being diagnosed. Over the recent years, outside the health care system, trust in the health care workers is always shifting, most understand that they are important in ensuring that treatment is done and followed through. However, a study on the looming doubts of parents over the health care system should be explore further. This study could help in understanding how parents react when they are given medical related news, and how this shapes the way they navigate through these.

In actuality, a lot of work needs to be done to shed light on parents' actual experiences with children who have disabilities, but through the findings gathered in the study, it can be said that in order to provide psychological security for children, particularly those with mental health needs, a personalized approach based on collaborative effort between the caregiver (i.e., mother) and the teacher should be done, as lived experiences can teach one a lot about how to approach a particular scenario in different settings for different individuals.

Compliance with Ethical Standards

The researcher obtained approval from the Dean of the School of Healthcare Professions and obtained informed consent from respondents. The study's goals, beneficiaries, and risks were disclosed, and the collected information was used for educational purposes. Respondents were informed of their voluntary participation. Confidentiality was maintained.

The study may present minimal psychological risk but may cause distress due to sensitive questions. To mitigate this, measures like psychological debriefing were taken. Respondents were concerned about privacy and confidentiality, but the researcher assured them the data was secure. Prejudice was also a concern, but these were addressed through a communication restriction assessment to ensure the data's authenticity and reliability.

The interview data was kept confidential, with no responses or participant information released without written consent. Confidentiality was ensured through informed consent and a letter page. Participants were given a code number, and access to identifying data was restricted to a limited number. Data disposal was promptly after gathering information.

Incidental findings in a qualitative study were kept confidential and stored securely. The research adviser was involved in decision-making, including sensitive topics like child

mental health stories, ensuring the study's flexibility and adherence to confidentiality standards.

The study used the Four-Dimensions Criteria (FDC) to assess rigor and trustworthiness in qualitative research. Credibility was established through prolonged engagement with participants, while transferability was achieved through diverse experiences. Dependability was achieved through a detailed description of the study's purpose and research methods. Confirmability was achieved through audio recording and notes, with clarification provided through questions as needed. This approach ensures the study's credibility and trustworthiness.

The study ensured data security by securely storing and storing the collected data. The researcher and adviser only had access to the data, with hard copies stored in a locked cabinet and digital data on a USB with a password. The researcher assessed the importance of incidental findings and consulted with advisers. Data disposal involved shredded hard copies of transcribed records, deleted digital data, and the informed consent form. Participants had the right to withdraw or withhold information after consent, and non-participation was not considered against them or others. The study's data management was carefully managed to maintain confidentiality and privacy.

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PERCEIVED EFFECT OF LISTENING TO MUSIC TOWARDS STUDY HABIT OF GRADE 11 STUDENTS IN MINDANAO STATE UNIVERSITY-SULU

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ABSTRACT

Listening to music toward study habits has become a usual practice of most students. Generally, music plays a vital part when studying and it affects the students regarding their academic performance either negatively or positively. The purpose of this study is to answer the question: What is the perceived effect of listening to music toward study habits? The study determined the perceived effect of listening to music and how is it connected to study habits of the students, particularly the grade 11 students. This research was conducted in Mindanao State University – Sulu, Senior High School on the second semester academic year 2024 - 2025. The researchers utilized using the quantitative research under the method of descriptive correlation design to describe the characteristics, average, and trends of the respondents. The researchers used the 25% each of the total population of GAS and STEM strand of the grade 11 student where they were assessed by a conducted survey question. A survey method was used to evaluate the results for the study in a form of questionnaires. There were one hundred (100) respondents that has been randomly selected out of the total population of the grade 11 students and majority of the respondents agreed to the perceived effect of listening to music toward study habits. This means that the respondents are affected by the effect of listening to music toward study habits. However, there is no significant relationship between the two variables which are the: effect of listening to music and study habits, when categorized according to gender and strand. Therefore, listening to music is not bad at all. It is helpful to some students while studying their lesson. The researchers recommended to the readers, students, teachers that listening to music while studying, they just need to limit their time and exposure to music while studying.

Keywords: *Listening to Music, Perceived Effect, Study Habits, Academic Performance*

INTRODUCTION

Listening to music while studying became a usual practice in the student's population. This pattern raises concerns. How can music affect one's concentration and performance when studying, according to Dolegui (2013), there is a well-known expression The term 'The Mozart effect' was coined to describe how listening to classical music, such as Mozart, can aid boost intelligence. IQ in spatial reasoning. Even in today's time, listening to music whilst studying and completing assignments appear to be a worldwide phenomenon.

According to Pollard & Courage (2017), it is further suggested that students who can realistically gauge their multitasking skill will perform better across different multitasking activities. In addition, music is one of the great important things in the students.

Regardless of the student's perception towards the effect of listening to music among the Grade 11 students in Mindanao State University-Sulu Senior High School, evaluating the effects of listening to music towards study habits is essential for further analyzation if the music influences the students' study habits or not. Hence, listening to informational music serves as a way of learning for others and learning is an important aspect in education as uttered by Sabbaha et. al., (2024) cited by Jailani et. al., (2024) Abdulmajid et. al., (2024), Balla et. al., (2024) Jarak et. al., (2024), Sabbaha et. al., (2024), Sasapan et. al., (2024), Sabbaha et. al., (2024), Basir et. al., (2024) and Sakili et. al., (2024) With this, the researchers provided these statements; The demographic profile of the students according to gender and strand, the effects of listening to music towards study habits, and the significant differences between listening to music and study habits when categorized according to gender and strand.

Based on the researcher's initial review of related literature and considering the specific context, it has been observed that there is a lack of research on the topic Perceive Effect of Listening to Music Towards Study Habits. While there is existing literature on the perception of listening to music towards study habits, in various educational settings, there is a need to investigate its prevalence, impact, and unique factors specifically among senior high school students. The researcher may have learned from experience or through literature review that perception on listening to music while studying can have detrimental effects on students' academic performance, concentration, and overall well-being However, no study has been conducted to explore the specific manifestation. Addressing these perceptions and its research gap will provide valuable insights into the experiences of these students and contribute to the development of targeted interventions and support systems to alleviate studying with music and enhance students' ability on their cognitive performance.

Research Questions

The researchers were able to seek out the effects of listening to music towards study habits of the selected 100 Grade 11 students of both STEM and GAS strands of Mindanao State University-Sulu Senior High School.

With this, the researchers provided the following questions:
1. What is the demographic profile of the students according to gender and strand?
2. What are the effects of listening to music towards study habits?
3. Is there a significant difference between listening to music and study habits when categorized according to gender and strand?

METHODOLOGY

Research Locale

This study was conducted in Mindanao State University-Sulu specifically at Senior High School Department among grade 11 students of STEM and GAS strand where they were assessed by conducting survey questions. The Mindanao State University-Sulu Senior High School is located at Capitol Site, Patikul, Sulu. The study was conducted in the second semester of the academic year 2024-2025.

Sampling Method

The researcher used 25% each of the total population from GAS and STEM strand grade 11 students at Mindanao State University - Sulu Senior High School. Only 100 samples were used in the study. The researcher then used the stratified random sampling technique to determine the quantity of samples for each selected section.

Research Instrument

A questionnaire was used as the study's instrument. The questionnaire and data were gathered by conducting a survey. A survey method was used to evaluate the results for the study. The researchers choose questionnaire in a form of survey to assisted them in determining as well as evaluating the perceptions of 11th grade learners both from GAS and STEM strand of Mindanao State University- Sulu Senior High School regarding the perceive effect of listening to music towards study habit. The questionnaire was divided into three parts, the first part deals with respondent's demographic profile which includes their name, gender, strand, & section. The second part deals with the corresponding queries on Female and Male actors that evaluate their perception regarding the effect of listening to music toward study habit. Lastly, the third part consists of the differences between listening to music and study habits according to the genders of the respondents.

The main component of surveys is questionnaires/ checklists. These are lists of questions/statements to collect data from a large group. In survey research, the questions are primarily closed-ended or include rating scales to collect data in a unified fashion.

Statistical Treatment of Data

After data collection, the data was analyzed using appropriate statistical techniques. Descriptive statistics were used to summarize the data, such as frequencies, means, and standard deviations. Inferential statistics, such as t-tests or regression analysis, were used to examine relationships between variables and test hypotheses.

Data Gathering Procedure

The research instrument will be approved by the members of the panel. Once approved, the researchers will prepare a formal letter to the SHS director for his approval in the conduct of the survey, consequently, the questionnaire will then be reproduced and will be distributed to the research respondents respectively and will be retrieved immediately after they finish answering.

RESULTS AND DISCUSSION

The results of this research are presented coherently to facilitate a clear understanding of the findings. The data collected from students in Mindanao State University-Sulu provide insights to the Perceive Effect of Listening to Music Towards Study Habits of Grade 11 Students.

Table 1.1

Demographic Profile of the Students in terms of Gender

Gender	Frequency	Percentage
MALE	48	48%
FEMALE	52	52%
TOTAL	**100**	**100%**

Table 1.1 illustrates the frequency and percentage distribution of values in terms of gender. As shown in the table 48% of the respondents are males and 52% are females. This means that majority of the respondents are females.

Table 1.2

Demographic Profile of the Students in terms of Strand

Strand	Frequency	Percentage
STEM	50	50%
GAS	50	50%
TOTAL	**100**	**100%**

Table 1.2 illustrates the frequency and percentage distribution of values in terms of strand. The survey questionnaire was distributed equally to both strands. As shown in the table the STEM and GAS strand contains 50% each of the 100% respondents.

Table 2

Effect of Listening to Music Towards Study Habits

Statements	Mean	Sd	Description
1.Listening to music helps me feel relaxed.	1.7	.7	Strongly Agree
2. Listening to music helps me be energized.	1.8	.7	Agree
3. Listening to music helps me keep awake while studying.	2.0	.8	Agree
4.Listening to music motivates me while doing my assignments.	2.0	.8	Agree
5.Listening to music brings nothing but best ideas.	2.0	.7	Agree
6.Listening to music encourages me to finish my school task smoothly.	2.0	.8	Agree
7.Listening to music helps a lot in terms of retention.	2.1	.7	Agree
8.Listening to music keeps new information or innovates ideas.	2.1	.8	Agree
9.Listening to music boost my memorization skills.	2.3	.8	Agree
10.Listening to music helps me focus on the subject matter.	2.5	2.1	Disagree
GRAND MEAN	2.05	8.9	Agree

Legend: 1.00-1.75=SA;1.76-2.50=A;2.51-3.25=D;3.26-4.00=SD

Table 2 illustrates the effect of listening to music towards study habits of the students. The grand mean obtained 2.05 with the verbal description of Agree. This implies that listening to music is a positive effect to the students learning.

As shown in the table, the statement one obtained 1.7 with the verbal description of Strongly Agree. Which means that listening to music helps them feel relaxed while they're studying, and from statement number two until nine obtained a mean that falls under the verbal description of Agree ,which means the respondents agreed that listening to music helps them feel energized, keep them awake while studying, motivates them while doing their assignments, brings best ideas, encourages them toto finish their school task smoothly, helps in terms of retention, innovates new ideas, and boost their memorization skills. However, the statement ten obtained 2.5 with the verbal description of Disagree, which means that listening to music doesn't help them focus on the subject matter. But overall, the total of the verbal description is agreed. Which means that the students of Grade 11 both in STEM and GAS strand agreed to the effect of listening to music towards study habits. And it indicates that listening to music has a satisfaction to

the study habits of Grade 11 STEM and GAS strand.

This finding is related to the study of Pollard and Courage (2019) some other techniques that this study methodology agreed to the impact of listening to music on cognitive tests, they found out that listening to music has positive impact to the study habits of the students.

Table 3.1

Significant Difference Between Listening to Music and Study Habits when categorized according to Gender

Variable	Male		Female		t	p-value
	M	SD	M	SD		
Gender	2.1	0.7	2.0	0.5	.350	.730

**Significant at p<0.05*

Table 3.1. A t-test or independent sample was performed to determine the significant difference of the two variables and as shown in the table the findings showed that there is no significant difference in the mean scores of Male (2.0750) and Female (2.0327) respondents; t (.350) =98, the calculated P-value resulted. 730 which is higher above than the original P-value of 0.05 which means that there is no significant difference between the two variables when categorized according to gender and the null hypothesis is accepted which implies that there is no significant difference on the effect of listening to music towards study habits when categorized according to gender (Male and Female).

This study is related to the study of Alley & Greene 2008, Cauchard et al (2012) that tests under specific conditions had a greater effect on female participants who frequently listen to music when studying. It was conducted under subsequent conditions and nowadays, music is a constant and easily available alternative in daily life, particularly because it has the power to affect our feelings and emotions.

Table 3.2

Significant Difference Between Listening to Music and Study Habits when categorized according to Strand

Variable	STEM		GAS		t	p-value
	M	SD	M	SD		
Strand	2.0	0.7	2.1	0.5	.350	.730

**Significant at p<0.05*

Table 3.2 illustrates the significant relationship between the two variables; Effect of Listening to Music (Independent Variable) and Study Habits (Dependent Variable) when categorized according to strand. A T-test or independent sample was performed to determine the significant difference of the two variables and as shown in the table the findings showed that there is no significant difference in the mean scores of the strands; STEM (2.0200) and GAS (2.0860) ; t (.350)=98, the calculated P-value resulted. 730 which is higher above than the original P-value of 0.05 which means that there is no significant relationship between the two variables when categorized according to strand and the null hypothesis is accepted which implies that there is no significant difference on

the effect of listening to music towards study habits when categorized according to strand (STEM and GAS).

Conclusions

This study was conducted, and the result reveals the following findings that imply significant effect to the beneficiaries of this study. The demographic profile of the student's gained 48% of the respondents are males and 52% are females and the survey questionnaires distributed equally to both STEM and GAS strand that contains 50% each of the 100% respondents.

Majority of the respondents resulted agree to the effect of listening to music towards study habits that obtained the grand mean of 2.05. This indicates that listening to music had been proven a positive effect to the respondents.

However, the two variables signify that there is no significant difference between listening to music and study habits when categorized by gender and strands when it comes to their perception about listening to music toward study habits based on the result.

Recommendations

Based on the findings of this research, the followings are recommended:

1. For the School Administration: Since the respondents agreed that listening to music is effective. It was recommended to the school administrator to have speakers on the library, it would be helpful to the students to be energized and relaxed when doing their schoolwork.
2. For the teacher: Due to the positive effect of the music based on the study, it was recommended to the teachers to play soft music while conducting quizzes and exams.
3. For the students: Since listening to music while studying claimed to be effective based on the study, it was recommended to the students to play music while studying to help them stay awake and energized when studying.
4. For the future researchers: It was recommended to conduct a study and examine the significant differences between the integration of music in classroom activities and no music at all.

Compliance with Ethical Standards

Research ethics is a set of principles and guidelines that ensure the protection of human subjects in research studies. It is essential to consider ethical issues when conducting research, as the well-being of participants is of paramount importance. In this research study, the focus is on the effects of listening to music on the study habits of Grade 11 students at Mindanao State University-Sulu Senior High School.

The following are some of the ethical considerations that should be considered

when designing and conducting this research:

1. **Voluntary participation:** Participation in the study should be voluntary, and participants should have the right to withdraw from the study at any time without any consequences.
2. **Informed consent:** Participants should be informed about the purpose of the study, the procedures involved, and any potential risks or discomforts. They should also be given the opportunity to ask questions and express concerns.
3. **Confidentiality:** All personal information collected during the study should be kept confidential. This includes names, addresses, and any other identifying information.
4. **Privacy:** Participants should have their privacy respected during the study. This includes not being observed without their consent and having their personal space respected.
5. **Anonymity:** Whenever possible, participants should remain anonymous in the study. This means that their identities should not be linked to their data.
6. **Beneficence:** The research should be conducted in a way that is beneficial to the participants. This includes providing them with any necessary information, support, or resources.

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PERCEIVED PUPILS' READINESS TO LEARN AND TEACHER EFFECTIVENESS: TWO KEY FACTORS IMPACTING MATHEMATICS ACHIEVEMENT

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ABSTRACT

This study examined the perceived readiness to learn among Grade VI pupils and teacher effectiveness in teaching mathematics in Clusters 5 and 6 of the Schools Division of the City of Ilagan during the 2023-2024 school year. Using a descriptive research design and total enumeration technique, the study involved 36 mathematics teachers and 344 pupils. Data were collected using the Collective Efficacy Scale-Short Form and tailored survey questionnaires. Results showed that teachers generally believe pupils are ready to learn, despite concerns about motivation, safety, and substance abuse. Pupils perceive their teachers as effective, with high mean scores indicating strong agreement on teachers' ability to reach and motivate students. Academic performance data revealed that the majority of pupils achieved "*Outstanding*" or "Very Satisfactory" results in mathematics. Statistical analysis using Pearson's R demonstrated a significant positive relationship between pupils' perception of teacher effectiveness and their mathematics achievement ($r = 0.81$, $p < 0.05$), highlighting the importance of effective teaching. However, no significant correlation was found between teachers' perceptions of pupils' learning readiness and academic performance. These findings emphasize the critical role of teacher effectiveness in enhancing mathematics achievement and suggest areas for targeted interventions to improve educational outcomes.

Keywords: *Teacher effectiveness, Pupil Readiness, Mathematics Achievement, Perception, Educational outcomes, Motivation*

INTRODUCTION

Mathematics is foundational to everyday life, providing the framework for activities across diverse professions, including agriculture, cooking, mechanics, medicine, commerce, music, engineering, science, and even magic. Nature itself reveals mathematical patterns, fostering endless discoveries. Engaging with mathematics nurtures mental discipline, enhances logical reasoning, promotes critical analysis, sparks inventiveness, cultivates abstract and spatial thinking, sharpens problem-solving skills, and improves communication abilities (Burns, 1995; NCTM, 2000). Mastery of mathematics enables individuals to approach various challenges systematically, thereby enriching their lives.

However, recent educational assessments highlight significant challenges in mathematics education in the Philippines. The Trends in International Mathematics and Science Study (TIMSS) 2019 reported an average score of 297 in mathematics for Filipino students, placing the country among the lowest-performing out of 58 participants (Mullis et al., 2020). Similarly, the Program for International Student Assessment (PISA) ranked the Philippines second lowest in mathematics and science among 79 countries, with scores of 353 and 357, respectively. These results emphasize the urgent need for educational reforms to elevate standards and improve learning outcomes nationwide (OECD, 2020).

In response, the Department of Education launched the *"Sulong Edukalidad"* initiative, which outlines strategic reforms such as the K to 12 curriculum review, enhancement of learning facilities, improved professional development for teachers and school heads, and strengthened stakeholder engagement. These efforts aim to ensure no Filipino student is left behind, calling for national collaboration and commitment to advancing the quality of basic education (Department of Education, 2020).

Addressing these issues requires understanding the root causes of poor mathematics performance and implementing swift remedial actions. The primary level is crucial for developing mathematical proficiency, which serves as the cornerstone of education across all levels. Students with strong numeracy skills are more likely to excel in advanced mathematics, whereas those lacking foundational skills may lose interest and struggle (Dowker, 2005). Schools must recognize the factors influencing math learning, particularly readiness to learn and teacher effectiveness.

Mathematical readiness, influenced by a supportive home and community environment, is essential for future academic success. Mastery of prerequisite skills through consistent practice is necessary to build a strong foundation in mathematics. Without these skills, students may experience hindered learning and diminished interest in the subject (Boaler, 2008). Enhancing overall math proficiency requires addressing these challenges early on.

Teacher effectiveness is another critical factor impacting math learning outcomes. Research shows that effective teaching practices significantly influence student

achievement, surpassing the effects of financial investments, class sizes, and other educational initiatives. Teachers' sense of efficacy is directly linked to student engagement and academic success (Hattie, 2009; Marzano, 2003). Engaging teaching methods, strong teacher-student interactions, and teacher empowerment create a positive learning environment where students can thrive (Ferguson, 2012).

The theoretical framework for this study is grounded in Bandura's (1978) social cognitive theory, which posits that behavior, personal factors, and environmental influences interact in a reciprocal, cause-and-effect relationship. In an educational context, this means that teacher-student interactions and the learning environment significantly shape students' self-efficacy and academic outcomes. According to Bandura (1989), resilient self-efficacy develops through overcoming challenges with persistent effort. Students who encounter only easy successes may struggle with setbacks, whereas those who persevere through difficulties build stronger self-efficacy. This interaction highlights the importance of creating a supportive and challenging learning environment to foster student achievement (Bandura, 1989).

Edmonds (1979) identified five school properties that predict student achievement, including high expectations and an orderly environment, aligning with the principles of social cognitive theory. These findings suggest that fostering a positive school environment and involving students in their education can enhance engagement and academic success. Incorporating student feedback on teacher effectiveness can increase their voice in education, promoting a democratic partnership between students and educators (Doda, 2011; Lounsbury, 2017; Newton, 2014).

To enhance mathematics education, schools should integrate interactive activities, mathematical games, and peer teaching methods into the curriculum. These approaches promote active learning, clarity of concepts, and collaborative problem-solving skills among students (Van de Walle et al., 2010). Emphasizing a clear understanding of mathematical concepts from the early stages and fostering enthusiasm for math through engaging activities are crucial steps toward improving math education outcomes.

This study aimed to address the Department of Education's goal of enhancing math education by investigating the lower math performance in Clusters 5 and 6 compared to other clusters. It assessed learners' first and second-quarter math grades and gathered insights from students and their mathematics teachers on readiness to learn and teacher effectiveness—key factors influencing math achievement. By focusing on these clusters within the Schools Division City of Ilagan (SDCI), the research aims to strengthen student readiness and teacher effectiveness in math teaching, ultimately contributing to ongoing efforts to improve academic outcomes in mathematics.

Research Questions

This study looked into the teacher's perception of pupils' readiness to learn and pupils' perception of teachers' effectiveness in teaching Grade VI Mathematics in Clusters 5 and 6 of the Schools Division of the City of Ilagan during the school year 2023-2024.

Specifically, the study attempted to answer the following questions:

1. What is the perception of the teachers on pupils' readiness to learn?
2. What is the perception of the pupils on the teacher's effectiveness?
3. What is the academic achievement in mathematics of the pupils?
4. Is there a significant relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement?
5. Is there a significant relationship between the pupils' perception of teacher effectiveness and their mathematics achievement?
6. Is there a significant relationship between the pupils' perception of the teachers' effectiveness and the teacher's perception of pupils?

METHODOLOGY

Research Design

The descriptive method of research was employed in this study. According to Williams (2007), this method involves a fact-finding approach with accurate and adequate interpretation of the findings. It emphasizes describing what exists, such as current conditions, practices, situations, or phenomena. Given that the study focused on the present status of teacher perceptions of pupil readiness to learn and pupil perceptions of teacher effectiveness, the descriptive method was deemed the most appropriate.

Respondents of the Study

The study included all members of the population using the Total Enumeration technique. In clusters 5 and 6, there are 18 schools, 36 teachers who teach grade 6 mathematics, and 344 grade 6 pupils. The study was conducted during the School Year 2023-2024.

Data Gathering Instruments

The Collective Efficacy Scale-Short Form, developed by Goddard (2002), was used in this study. This instrument is both valid and reliable for gauging teacher perceptions of faculty members' collective efficacy. It consists of 12 items across two factors, with responses measured on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree).

The study made use of survey questionnaires as the main instruments to gather the needed data. These are the following:

Collective Efficacy Short Form was used with pupils, and reliability and factor analyses were run to determine the feasibility. It was a 12- 12-item instrument composed of two factors. The first factor measured by this instrument was faculty group competence. The second factor measured by this instrument was task analysis. This variable measured pupil readiness to learn.

Teacher Survey. The first factor measured by this instrument was faculty group competence. There were six survey items total that measured group competence, half of which were reverse-scored. Sample statements include: “Teachers in the school can get through to the most difficult pupils,” and “Teachers here are confident they will be able to motivate their pupils.”

The second factor measured by this instrument is task analysis. This variable measured pupil readiness to learn. Six total survey items measured pupil readiness to learn, half of which were reverse-scored. Sample statements from this factor include: “These pupils come to school ready to learn,” and “Pupils here just are not motivated to learn” (reverse scored).

Pupil Survey. Statistical analysis of the factor structure and reliability analysis for this instrument, when used with pupils, were included in the results. Factor analysis yielded one reliable factor. All six items loaded into this variable were derived from the faculty group competence section of the original survey. Items from the task analysis section of the survey did not demonstrate a sufficient Cronbach’s alpha level to merit inclusion and accordingly were removed from the pupil version of this survey. The results yielded a single-factor six-item instrument measuring pupil perception of teacher effectiveness. Items from this factor were: teachers in the school can get through to the most difficult pupils; teachers here are confident they will be able to motivate their pupils; if a pupil does not want to learn teachers here give up (reverse scored); teachers here do not have the skills needed to produce meaningful pupil learning (reverse scored); teachers in this school believe that every pupil can learn; and teachers in this school do not have the skills to deal with pupil disciplinary problems (reverse scored).

Data Gathering Procedure

Permission to conduct the study was sought by the researcher from the office of the Schools Division Superintendent of the City Division of Ilagan, Isabela before the study started to ensure its approval.

When the request was granted, the researcher approached the heads of the selected respondent schools. He showed them the approval of the study and informed them of the objectives and process of the study. The questionnaires were personally distributed and explained to the teacher respondents by the researcher. The questionnaires for pupil-respondents were translated into Tagalog, which was widely used by respondents. They were assisted in answering the questionnaire. Contact with the teachers was made in their classrooms during convenient schedules (usually lunch breaks or in the afternoon after classes) in order not to disturb classroom sessions.

Retrieval of the questionnaire followed immediately after needed clarifications of responses were made to ensure the accuracy and completeness of needed data. The researcher reviewed the entire total of questionnaires to see that all instructions were followed accurately. The data were collated, then tabulated for interpretation and analysis, and statistical treatment.

Statistical Treatment of Data

The data gathered were analyzed and interpreted using the following statistical tools:

Mean and Standard Deviation were used to identify to identify pupils' academic performance using the following scales as follows: (based on K to 12 standards)

Grading Scale	Description
90-100	Outstanding
85-89	Very Satisfactory
80-84	Satisfactory
75-79	Fairly satisfactory
Below 75	Did not meet expectations

Pearson's R was used to explore the relationship between teacher perceptions of pupil readiness to learn and mathematics achievement; the relationship between the pupil perception of teacher effectiveness and school mathematics achievement; and the relationship between pupil's perception of teacher's effectiveness and teacher's perception of the pupil.

Weighted Mean was used to analyze the teacher perceptions of pupil readiness to learn and mathematics achievement and pupil perception of teacher effectiveness and middle school mathematics achievement. Responses were measured on a six-point Likert scale with responses ranging from 1 (strongly disagree) to 6 (strongly agree).

Weight	Range	Description
6	5.50-6.0	Strongly Agree
5	4.50-5.49	Agree
4	3.5-4.49	Slightly Agree
3	2.5-3.49	Slightly Disagree
2	1.5-2.49	Disagree
1	1.0-1.49	Strongly Disagree

RESULTS AND DISCUSSION

The Teachers' Perception of the Students' Readiness to Learn

As shown in Table 1, the majority of teachers express confidence in students' preparedness for learning, as evidenced by the high mean scores and low standard deviations associated with items one and four (Mean = 5.69, SD = 0.47, and Mean = 5.44, SD = 0.50 respectively). Additionally, there is a shared belief in the beneficial influence of community resources on student learning, as reflected in the responses to item two (Mean = 5.47, SD = 0.70).

Table 1. Teachers' perceptions regarding student readiness to learn

ITEM #	Statement	Mean	Standard Deviation	Description
1	These pupils come to school ready to learn.	5.69	0.47	Strongly Agree
2	Home life provides so many advantages that pupils here are bound to learn.	5.47	0.70	Agree
3	Pupils here just aren't motivated to learn.	2.44	1.32	Disagree
4	The opportunities in this community help ensure that these pupils will learn.	5.44	0.50	Agree
5	Learning is more difficult at this school because pupils are worried about their safety.	3.25	1.57	Slightly Disagree
6	Drug and alcohol abuse in the community makes learning difficult for pupils here.	5.14	0.80	Agree
	Overall Mean	**4.57**	**0.42**	**Agree**

However, the divergence in perceptions becomes apparent when considering student motivation, as highlighted in item three (Mean = 2.44, SD = 1.32). Here, teachers exhibit varied viewpoints, with some expressing concerns about student motivation levels. This discrepancy underscores the complexity of factors influencing student engagement and highlights the need for targeted interventions to foster motivation and enhance learning outcomes.

Furthermore, items five and six draw attention to external factors that may impede student learning, such as safety concerns and substance abuse. While there is some

acknowledgment of these challenges, there is also variability in the extent to which teachers perceive them as significant barriers to learning.

In summary, while teachers generally perceive students as ready to learn and acknowledge the supportive role of the community, there are nuanced challenges related to student motivation and external factors that warrant further investigation and intervention. Addressing these challenges is crucial for enhancing teacher effectiveness and ultimately improving student achievement in mathematics.

Table 2. Pupils' perception of teacher effectiveness along various dimensions of teaching practices and interactions within the educational context

Item #	Statement	Mean	Standard Deviation	Description
1	Teachers in the school can get through to the most difficult pupils.	5.89	0.35	Strongly Agree
2	Teachers here are confident they will be able to motivate their pupils	5.49	0.75	Agree
3	If a pupil doesn't want to learn teachers here give up (reverse scored).	3.37	1.53	Slightly Disagree
4	Teachers here don't have the skills needed to produce meaningful pupil learning (reverse scored)	3.41	1.53	Slightly Disagree
5	Teachers in this school believe that every pupil can learn	5.85	0.50	Strongly Agree
6	Teachers in this school do not have the skills to deal with pupil disciplinary problems (reverse scored).	3.54	1.54	Slightly Agree
	Overall mean	**4.59**	**0.71**	**Agree**

Based on the above table, firstly, item 1, "Teachers in the school can get through to the most difficult pupils," received a notably high mean score of 5.89, indicating strong agreement among pupils regarding teachers' effectiveness in reaching challenging students. This perception is reinforced by the low standard deviation of 0.35, suggesting a high level of consensus among respondents.

Similarly, item 2, "Teachers here are confident they will be able to motivate their pupils," garnered a favorable response from pupils, with a mean score of 5.49, indicative of agreement, albeit with a slightly higher standard deviation of 0.75, suggesting some variability in perceptions among respondents.

Conversely, items 3 and 4, which are reverse-scored, suggest a more nuanced perspective among pupils. While item 3, "If a pupil doesn't want to learn teachers here

give up," yielded a mean score of 3.37, indicating slight disagreement, the higher standard deviation of 1.53 suggests greater variability in perceptions regarding teacher persistence. Similarly, item 4, "Teachers here don't have the skills needed to produce meaningful pupil learning," also received a mean score of 3.41, suggesting slight disagreement among pupils, with a standard deviation of 1.53, indicating variability in perceptions regarding teacher competence.

Moreover, item 5, "Teachers in this school believe that every pupil can learn," garnered a high mean score of 5.85, indicating strong agreement among pupils, complemented by a low standard deviation of 0.50, indicating a high level of consensus. Finally, item 6, "Teachers in this school do not have the skills to deal with pupil disciplinary problems," received a mean score of 3.54, suggesting slight agreement among pupils, with a standard deviation of 1.54, indicating variability in perceptions regarding teacher proficiency in managing disciplinary issues.

In summary, while pupils generally perceive teachers as effective in reaching challenging students and fostering motivation, there are nuanced views regarding teacher persistence, competence, and disciplinary skills. These findings underscore the importance of understanding pupil perspectives to inform strategies aimed at enhancing teacher effectiveness and improving overall educational outcomes.

Table 3. Pupils' academic achievement in mathematics

Academic Performance	Frequency	Percent
Fairly Satisfactory	33	9.6
Satisfactory	56	16.3
Very Satisfactory	111	32.3
Outstanding	144	41.9
Total	344	100.0

	Mean	**Standard Deviation**	**Description**
Academic Achievement	85.00	4.73	Very Satisfactory

The academic achievement in mathematics among the pupils is predominantly high, with the majority of students achieving notable success. Specifically, the highest frequency of academic performance falls under the "Outstanding" category, with 144 pupils, accounting for 41.9% of the total. This indicates that nearly half of the pupils excelled in mathematics, demonstrating superior understanding and proficiency in the subject.

On the other end of the spectrum, the lowest frequency is observed in the "Fairly Satisfactory" category, with 33 pupils, representing 9.6% of the total. This suggests that a smaller portion of the student population is performing at a level that indicates a need for improvement.

The mean score of 85.00 suggests a very satisfactory level of academic achievement, with a relatively low standard deviation of 4.73, indicating a moderate degree of variability in individual achievement scores.

In summary, the data highlights a strong overall performance in mathematics, with a significant portion of students achieving “Outstanding” results, while only a small fraction falls into the “Fairly Satisfactory” range. This suggests a positive trend in academic achievement in mathematics among the pupils.

Table 4. Relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement

Variables	Pearson r	ρ-value	Decision	Remark
Teacher’s Perception of pupil’s readiness to learn Vs. mathematics achievement	-0.052	0.76	Accept Ho	The relationship is not significant

The Pearson correlation coefficient (Pearson R) of -0.052 indicates a very weak negative correlation between these variables. The p-value of 0.76 suggests that this correlation is not statistically significant.

Based on the statistical analysis, the decision to "Accept Ho" (accept the null hypothesis) is made, indicating that there is no significant relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement. This implies that the perceived readiness of pupils to learn, as perceived by teachers, does not have a meaningful impact on their actual academic achievement in mathematics.

In summary, the statistical analysis concludes that there is no significant relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement. These findings provide valuable insights into the dynamics between teacher perceptions and student academic outcomes, informing future research and educational interventions aimed at enhancing student achievement in mathematics.

As discussed in the review of the literature, the results have contradicted the study of Lumpkin (2007), that there is no significant relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement Students' and teachers' perceptions of one another influence student learning. Lumpkin (2007) discovered that pupils who see their teachers as caring are more motivated and perform better than their classmates who do not have a positive attitude toward their teachers. Competence and concern are especially crucial in primary schooling. "Effective teachers are adept educators who organize and conduct classes and evaluate pupil learning," Virtue (2007) stated. When teachers feel positive about their students, this makes the teacher more likely to be able to disseminate information effectively. Thus, the espousal of confidence in these students’ readiness to learn may positively impact the teacher’s ability to teach. It is also possible that students may be picking up on their teachers’ perceptions. If students perceive that their teachers believe they can learn, they may be more likely

actually to learn. This study adds to the extant literature by demonstrating that teacher perceptions of student readiness to learn are significantly related to the mathematics achievement of the pupils. Both new and experienced teachers agreed that pupils who felt comfortable turned in significantly greater work. Greater pupil aspirations and accomplishments are possible in safe environments when parents organize the neighborhood and support their children (Gaitan, 2012).

Also, the results have contradicted the study of that there is no significant relationship between teachers' perception of pupils' readiness to learn and their mathematics achievement Students' and teachers' perceptions of one another influence student learning. Boz and Boz (2010) discovered that teachers who exhibit high efficaciousness tend to exhibit higher levels of enthusiasm in the classroom. concluded that this enthusiasm translates to a teacher who works harder to assist struggling students. Conversely, those who exhibit low levels of teaching efficacy tend to be more teacher-centered and have a weak commitment to the profession (Boz & Boz, 2010). They further suggested that teachers need to be specifically taught to satisfy the academic, social, and emotional needs of their students. School administrators have the responsibility to observe classroom instruction regularly and to provide substantive feedback and support to their faculty (Goldhorn, Kearney, & Webb, 2013). Feedback becomes particularly important in pupils when pupils often struggle in the affective domain (Ross & Willson, 2012).

Table 5. Relationship between pupils' perception of teacher effectiveness and their mathematics achievement

Variables	Pearson R	ρ-value	Decision	Remark
Pupil's perception of teacher effectiveness Vs. mathematics achievement	0.81	0.00	Reject Ho	Relationship is significant

The Pearson correlation coefficient (r) of 0.81 indicates a very strong positive relationship between pupils' perception of teacher effectiveness and their mathematics achievement. This suggests that as pupils perceive their teachers to be more effective, their mathematics achievement tends to be higher.

The ρ-value of 0.00 (which is likely rounded from a very small number) indicates that this correlation is statistically significant. In statistical terms, a p-value less than the conventional significance level (typically 0.05) suggests strong evidence against the null hypothesis (Ho), leading to the rejection of the null hypothesis. In this case, it means there is sufficient evidence to conclude that there is a significant relationship between pupils' perception of teacher effectiveness and their mathematics achievement.

This finding underscores the importance of how pupils perceive their teachers in influencing their academic outcomes in mathematics. When students believe their

teachers are effective, they are likely to engage more deeply in learning, exhibit higher motivation, and achieve better results in mathematics.

The results affirm the study of (Lumpkin, 2007). The results demonstrated that when students perceive their mathematics teachers as being effective, their scores rise. Students perform well for their teachers when they have an affinity for their teachers, so it is possible those students who have an affinity for their teachers rated their teachers' effectiveness more highly and performed better for these teachers (Lumpkin, 2007). It is also possible that students accurately perceived their teachers' abilities. Those they perceived as effective in mathematics are competent. The perception students and teachers have about one another impacts student learning. Lumpkin (2007) found that students who perceive their teachers as caring tend to be more motivated and perform better than their peers who do not indicate an affinity for their teachers. Competence and care are particularly important in middle-level education. As Virtue (2007) noted, "Effective teachers are apt instructors who plan and implement lessons and evaluate student learning . . . [and] are also skilled at establishing and cultivating constructive human relationships" (Virtue, 2007, p. 243). Teachers who have high opinions of their students tend to get higher results. These student outcomes could be due, in part, to the Pygmalion effect which occurs when achievement rises for students about whom teachers are told their students are in the highest ability group when they are, in fact, previously low performing (Rosenthal & Jacobsen, 2003).

Also, another possibility is found in literacy studies and is known as the "Peter effect" (Applegate & Applegate, 2004). Essentially, teachers cannot give students what they do not have. If the teachers are not proficient in delivering pedagogy or in mathematics, they cannot engender proficiency in their students. Students tune into the competency levels of teachers and draw their conclusions.

By establishing motivational processes in the mathematics classroom—inclusive of self-efficacy, task interest, and school connectedness (Cleary & Kistantas, 2017)—educators can ameliorate some of the lack of preparation teachers may face. Motivational processes, coupled with professional development to increase teacher proficiency in mathematic strategies, can be an incredibly powerful tool that may yield significant increases in student mathematics achievement.

Table 6. Relationship between teachers' perception of pupils' readiness to learn and pupils' perception of teacher effectiveness

Variables	Pearson R	p-value	Decision	Remark
Teacher's Perception of pupil's readiness to learn Vs. pupils' perception of teacher effectiveness	-0.14	0.40	Accept Ho	The relationship is not significant

The analysis explores the relationship between teachers' perception of pupils' readiness to learn and pupils' perception of teacher effectiveness.

The Pearson correlation coefficient (Pearson R) between these variables is -0.14, indicating a weak negative correlation. However, the p-value associated with this correlation is 0.40, which exceeds the typical threshold for statistical significance (usually set at 0.05). Consequently, the decision is made to "Accept Ho" (accept the null hypothesis), suggesting that the observed difference is not significant.

In summary, based on the statistical analysis, there is no significant relationship between teachers' perception of pupils' readiness to learn and pupils' perception of teacher effectiveness. These findings suggest that, according to the data examined, there is no meaningful association between how teachers view students' readiness to learn and how students perceive teacher effectiveness

.

The results contradict the study of Yazzie-Mintz (2010) that there is no meaningful association between how teachers view student's readiness to learn and how students perceive teacher effectiveness. Yazzie-Mintz (2010) Student readiness to learn and teacher competence are linked. A survey of 42,754 high school students, reported a majority of students stated that the material presented in class was not interesting, which contributed to their disengagement in class. Further, 35 percent of the students surveyed stated their boredom stemmed from a lack of interaction with their teacher. Both the student's readiness to learn and the teacher's competence are essential to student learning.

It negates the study of Bandura (1978) and Edmonds (1979) which states that the relationships between teachers and students matter. Also, when students have a greater voice in their education, their level of engagement and academic success increases (Lounsbury, 2017; Newton, 2014). Asking students for feedback on teacher effectiveness is a useful way to increase student voices and involve them as democratic partners in their education (Doda, 2011). Kearney, Webb, Goldhorn, and Peters (2013) found a correlation between mathematics scores and critical feedback in a study of 87 mathematics classrooms in Texas. Specifically, teachers who received appraisal scores from their principals indicating high levels of critical feedback to students had higher mathematics achievement scores for their classrooms than their peers.

Naturally, teachers' professional competence has a demonstrable effect on students' ability to learn (Baumert et al., 2010). School principals play an important role in this process when they embrace the responsibility of instructional leadership to ensure that faculty are life-long learners perpetually refining their craft (George, 2000). Instructional leaders, "participate fully in training, care deeply about the results, and follow up with supervision that integrates teacher training and classroom observations" (George, 2000, p. 44). Efficacy also appears to play an important role in mathematics achievement. Students who espouse a high level of belief in their mathematics abilities tend to demonstrate high levels of mathematics achievement (Siegle & McCoach, 2007).

Similarly, Goddard and Goddard (2001) conducted a study of 438 teachers in 47 schools in a large urban school district in the United States and found that schools in which teachers espouse high levels of faculty members' collective efficacy have been shown to produce high student achievement scores. To be sure, many other factors have the potential to influence student achievement. One such factor is student readiness to learn.

Conclusions

This study investigated the impact of pupils' readiness to learn and teacher effectiveness on mathematics achievement in Clusters 5 and 6 within the Schools Division City of Ilagan. The findings indicated that while teachers generally perceive students as ready to learn and supported by their community, issues like student motivation, safety concerns, and substance abuse present significant challenges. A notable discovery was the strong positive correlation between pupils' perception of teacher effectiveness and their mathematics achievement, emphasizing the critical role of effective teaching in academic success. However, there was no significant relationship between teachers' perception of pupil readiness and students' actual performance, suggesting that teacher effectiveness plays a more pivotal role in influencing academic outcomes. These insights underscore the importance of enhancing teacher effectiveness and addressing external factors to improve mathematics achievement, highlighting areas for targeted interventions to foster better educational outcomes.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. School heads are strongly urged to implement comprehensive professional development programs focusing on effective teaching strategies, classroom management, and motivational techniques. These programs should equip teachers with the skills necessary to engage students, manage diverse classroom dynamics, and address challenges related to student motivation and external factors like substance abuse and safety concerns.

2. Schools and community organizations like the Parents and Teacher Associations (PTAs) should strengthen partnerships to create supportive environments for students. Community resources should be mobilized to address issues such as student safety and substance abuse, thereby removing external barriers to learning and enhancing the overall readiness of students to engage in their studies.

3. The School Guidance Office is encouraged to design and implement targeted interventions aimed at boosting student motivation. This could include mentorship programs, extracurricular activities, and motivational workshops. Encouraging a growth

mindset and providing positive reinforcement can help increase students' intrinsic motivation and engagement in their learning processes.

4. Schools are to establish mechanisms for regularly gathering and analyzing student feedback on teacher effectiveness. This feedback should be used to inform teacher evaluations and professional development, ensuring that teachers continuously refine their teaching practices based on the needs and perceptions of their students.

5. The schools should adopt a holistic approach to student development that goes beyond academic achievement. This involves addressing social-emotional learning, providing mental health support, and ensuring a safe and inclusive school environment. By fostering a well-rounded development, students are more likely to perform better academically and build resilience against external challenges.

Compliance with Ethical Standards

As the authors of this study, we hereby declare that all ethical considerations were meticulously observed throughout the research process. Informed consent was duly obtained from all respondents before their participation, ensuring that they were fully aware of the study's purpose and procedures. Respondents were granted the freedom to withdraw from the study at any time without any repercussions. The anonymity of all respondents was strictly maintained to protect their privacy, and their well-being was consistently safeguarded. Furthermore, we affirm that there is no conflict of interest in the conduct of this study. We have diligently avoided any form of plagiarism and ensured that the interpretation of findings was free from bias. The results obtained from this study have been used solely for research purposes, adhering to the highest standards of academic integrity.

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PERFORMANCE IN GENERAL MATHEMATICS OF GRADE 11 LEARNERS IN COLLEGE OF SCIENCES, TECHNOLOGY AND COMMUNICATIONS, INC., (CSTC): BASIS FOR THE DEVELOPMENT OF SUPPLEMENTAL INSTRUCTIONAL MATERIALS

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ABSTRACT

This study delved into the assessment of General Mathematics performance among Grade 11 learners in the College of Sciences, Technology and Communications, Inc., (CSTC) at Atimonan, Lucena, and Sariaya Campuses, Quezon Province, Philippines. A sample of two hundred ninety (290) learners were selected using stratified random sampling from a population of one thousand one hundred seventy-five (1,175) Grade 11 learners across various CSTC campuses. Seven (7) qualified educators provided insights and validation for Supplemental Instructional Materials (SIM). Analysis revealed persistent difficulties in mathematical modeling, function operations, and problem-solving involving rational, inverse, exponential, and logarithmic functions. The mean composite score for the least mastered competencies was 4.26, indicating a high difficulty level. The SIM's validity assessment yielded a mean score of 16.29 across various focuses, indicating strong validity. Recommendations include targeted Supplemental Instructional Materials, curriculum revision, utilization of validated SIM, and prioritizing the development of tailored SIM. Future research should focus on long-term effectiveness studies and alternative teaching methods.

Keywords: *General Mathematics, Performance Assessment, Supplemental Instructional Materials*

INTRODUCTION

The provision of quality education serves as a fundamental cornerstone for the progress and development of a nation. This unwavering commitment to education is deeply enshrined in the Constitution of the Philippines, which unequivocally affirms that "the State shall protect and promote the right of all citizens to quality education at all levels" (Constitution of the Philippines, 1987). In the Philippines, this relentless dedication to education is firmly embedded in the constitution. The Philippine government has embarked on an ambitious initiative to enhance the quality of education known as the K to 12 Basic Education Curriculum. This visionary endeavor seeks to prepare students for global competitiveness by providing a comprehensive curriculum that aligns with international standards (Republic Act No. 10533, 2013).

At the secondary education level, a crucial juncture in the academic journey, students lay the foundation for higher education and future career paths (Smith, 2019). Mathematics takes center stage during this critical phase, serving as an indispensable element for success in various professions, including science, engineering, business, and economics (Johnson & Lee, 2020). Given its pivotal role, the level of academic achievement in General Mathematics has risen to the status of a national concern. Recent data from the Department of Education (2021) indicates that only 45% of secondary students in the country achieve proficiency in mathematics. This statistic underscores the urgency of addressing performance gaps in General Mathematics for individual student success and the nation's overall competitiveness in critical sectors.

Over the past five years, from the school years 2019-2020 to 2023-2024, the item analysis data for General Mathematics has shown distinct trends in student mastery across various competencies. In the earlier years, such as 2019-2020 and 2020-2021, there were significant challenges, with many competencies falling into the "Very Low" and "Low" mastery categories. However, starting from 2021-2022, there have been notable improvements in certain areas, such as the representation of rational functions and the understanding of exponential functions, which reached "Mastered" and "Moving Toward Mastery" levels by 2023-2024. Despite these advancements, students have consistently struggled with solving problems involving functions and equations, as well as real-life applications of these concepts. Competencies in performing operations on functions and distinguishing between different types of functions have remained areas of low mastery throughout this period. The data over these years indicates a need for sustained and targeted interventions, including enhanced contextual learning, the integration of technology, and frequent low-stakes assessments, to build foundational skills and improve overall student performance in these critical areas.

Recognizing the profound impact of General Mathematics proficiency, stakeholders in education are prompted to collaborate and implement Supplemental Instructional Materials (SIM) to improve student outcomes in this subject. The imperative to address these difficulties is underscored by the understanding that proficiency in General Mathematics not only shapes individual educational trajectories but also has

broader implications for the nation's workforce and competitiveness. By focusing on targeted initiatives and fostering a comprehensive understanding of the significance of mathematics at the secondary level, educators and policymakers can work together to ensure a higher percentage of students acquire the essential mathematical skills needed for their future academic and professional pursuits.

Accurately constructing mathematical models to represent real-life situations using functions is crucial in various fields, including physics, engineering, economics, and social sciences. This ability allows us to analyze and predict outcomes, make informed decisions, and better understand complex phenomena.

Rational functions are essential in various domains because they can realistically describe and solve real-life situations. The difficulties associated with comprehending and implementing these functions, on the other hand, underscore the want for more efficient instructional methods and resources.

Inverse, exponential, and logarithmic functions form the bedrock of mathematical tools used in many real-world applications. Their diverse uses, from physics to finance and computer science to engineering, exemplify their instrumental role in advancing our ability to tackle complex problems with precision and accuracy. These mathematical concepts are pillars of scientific and technological progress, enabling us to navigate the intricate web of difficulties in an increasingly complex world.

The concern of learning gaps in mathematics performance is a prominent issue not only in the Philippines but on a global scale. Globally, studies such as the Program for International Student Assessment (PISA) have consistently highlighted significant disparities in mathematical abilities among 15-year-old students from different countries, indicating the presence of pronounced global learning gaps (OECD, 2019). These gaps often result from complex factors, including teaching practices, curriculum design, and socio-economic disparities (Mullis et al., 2016).

Within individual countries, the difficulties persist, leading to national and regional learning disparities. For instance, in the United States, the National Assessment of Educational Progress (NAEP) exposes variations in mathematical proficiency among students across different states, with some consistently outperforming others (NCES, 2019). Influential factors shaping these national and regional disparities include educational policies, teacher quality, and resource allocation (Loveless, 2016).

In the Philippine context, the issue of learning gaps in mathematics performance is also evident, as reflected in the National Achievement Test (NAT) results. These results reveal disparities in mathematics achievement among various regions and socio-economic backgrounds (DepEd, 2019). These gaps contribute to inadequate teacher training, limited access to educational resources, and cultural attitudes toward mathematics (Bautista, 2019; Sarmiento, 2017).

It is imperative to adopt a comprehensive approach to address these learning gaps. The literature suggests a range of strategies that can be applied, such as improving teacher quality through targeted professional development programs, enhancing curriculum design to foster conceptual understanding and critical thinking, ensuring equitable distribution of educational resources, promoting parental involvement in mathematics education, and addressing socio-economic disparities through targeted interventions (Darling-Hammond et al., 2017; Hiebert et al., 2018; UNESCO, 2017; Fan & Chen, 2020; OECD, 2021). It was implementing these strategies that can contribute to narrowing the learning gaps in mathematics performance, thereby creating a more equitable and inclusive educational environment.

These findings establish a significant gap in mathematics performance that threatens the prospects of students and the community's economic development. To address this pressing issue, it is imperative to conduct a comprehensive study to identify the specific difficulties and factors contributing to poor performance in mathematics (Davis, 2019). The study aims to assess the current state of mathematics education at the secondary level, investigate potential causes of underperformance, and propose effective interventions to help bridge the gap and empower students to succeed in their academic and future career pursuits (Anderson & Martinez, 2022).

In a separate context, Supplemental Instructional Materials (SIM) emerge as potent tools for educational settings. The Supplemental Instructional Materials (SIM) comprises a set of instructional resources meticulously designed to enhance teaching and learning by offering personalized support and interventions. SIM is grounded in pedagogical and instructional principles that have been thoroughly researched and developed to address the specific learning needs of students (Eskay, 2018), which enables students to grapple with complex concepts and enhance their performance in particular subjects. In General Mathematics, the development and implementation of SIM have emerged as potentially valuable means to bridge learning gaps and improve the overall academic experience.

Numerous studies have demonstrated the effectiveness of SIMs in improving student learning outcomes. A study conducted by Smith and Johnson (2017) found that students who used SIMs as supplementary materials achieved significantly higher test scores than those who did not. The researchers attributed this improvement to the targeted and focused nature of SIMs, which allowed students to concentrate on specific areas of weakness.

In addition, a meta-analysis by Davis and Thompson (2019) examined the impact of SIMs on student achievement across multiple studies. The analysis revealed a consistent positive effect of SIMs on learning outcomes, with students who used SIMs outperforming their peers who did not. The researchers concluded that SIMs significantly impact student learning and recommended their integration into instructional practices. While SIMs offers numerous benefits, there are some difficulties and considerations that educators should be aware of. One challenge is the development and availability of high-quality SIMs. Creating effective SIMs requires careful planning, research, and alignment

with curriculum standards. Educators need access to well-designed SIMs aligned with their instructional goals and meet the specific needs of their students.

General Mathematics is one of the core subjects of the senior high school curriculum. Mathematics contents include Numbers and Number Sense, Measurement, Geometry, Patterns & Algebra and Statistics and Probability. Numbers and Number Sense as a strand include concepts of numbers, properties, operations, estimations, and their applications. The Grade 11 learners demonstrate an understanding of critical concepts of functions, rational functions, inverse functions, exponential functions, and logarithmic functions.

The competency expected to develop in the learners is representing real-life situations using functions, including piecewise functions, evaluating a function, performing addition, subtraction, multiplication, division, composition of function, and solving problems involving functions. In addition, it represents real-life situations using rational functions and solves problems involving rational functions, equations, and inequalities. Lastly, it represents real-life situations using one-to-one functions, solves problems involving inverse functions, solves problems involving exponential functions, equations, and inequalities, represents real-life situations using logarithmic functions, and solves problems involving logarithmic functions, equations, and inequalities, respectively.

Supplemental Instructional Materials (SIM) serve as an academic aid and a dynamic tool capable of instilling genuine enthusiasm for the subject. Its role extends beyond conventional support, empowering teachers to guide students through academic difficulties, fostering success, and nurturing essential mathematical skills crucial for their future educational and professional journeys. The availability of additional assistance and resources through SIM has significantly simplified the process for educators to facilitate comprehensive learning experiences.

The evaluation of the academic accomplishments of Grade 11 learners studying general mathematics in private institutions holds paramount importance. It represents a pivotal stride towards ensuring the delivery of high-quality education mandated by the state. By conducting an in-depth examination of the performance of Grade 11 learners in General Mathematics within private schools in the College of Sciences, Technology and Communications, Inc., (CSTC) this study aspires to bridge the existing educational gap in the region.

The primary objective of this research is to contribute to developing Supplemental Instructional Materials designed to elevate the teaching and learning of Mathematics. This endeavor involves a thorough investigation into the current state of the learners, identifying their strengths, recognizing areas that require improvement, and pinpointing specific aspects that demand refinement. The overarching aim aligns with the broader goal of enhancing the overall quality of education and improving student outcomes in the private school at College of Sciences, Technology and Communications, Inc., (CSTC) Quezon Province, Philippines.

By undertaking this study, the researcher creates targeted intervention materials that address the learners' immediate educational needs and pave the way for sustained improvement. The rationale behind developing SIM is rooted in the commitment to understand, support, and enhances the educational experiences of Grade 11 learners in all College of Sciences, Technology and Communications, Inc., (CSTC) campuses.

Research Questions

This research aimed to determine the performance in General Mathematics of Grade 11 learners in College of Sciences, Technology and Communications, Inc., (CSTC) as basis for the development of Supplemental Instructional Materials (SIM).

It also sought to answer the following problems:

1. What are the least mastered competencies in General Mathematics of Grade 11 learners in College of Sciences, Technology and Communications, Inc., (CSTC) for the last five school years?
2. What are the difficulties encountered by the Grade 11 learners in learning competencies in General Mathematics in terms of:
   2.1 Accurately construct mathematical models to represent real-life situations using
   functions;
   2.2 Accurately formulate and solve real-life problems involving rational functions; and
   2.3 Apply the concepts of inverse functions, exponential functions, and logarithmic
   functions to formulate and solve real-life problems with precision and accuracy?
3. What Supplemental Instructional Materials (SIM) can be developed based on the least mastered competencies and difficulties encountered?
4. What is the validity of Supplemental Instructional Materials (SIM) in terms of:
   4.1 Content;
   4.2 Equity and Accessibility;
   4.3 Assessment;
   4.4 Presentation and Organization;
   4.5 Instructional Design and Support; and
   4.6 Replicability?
5. What are the recommendations given by the validators to improve the output and address the students' performance on the least mastered competencies in General Mathematics?
6. What enhancements in the developed Supplemental Instructional Materials (SIM) should be included as recommended by the validators?

METHODOLOGY

This chapter elucidated the methodologies and protocols that enable the researcher to carry out the study effectively. This chapter focused on various aspects of the research study, including the research design, research locale, research population and sampling, research instrument, data gathering procedure, and statistical treatment.

Research Design

This study employed a mixed-method approach, integrating both qualitative and quantitative methods for data collection and analysis to comprehensively understand students' experiences with difficulties in general mathematics (Creswell & Creswell, 2017). This mixed-methods design is preferred for its ability to provide a more nuanced and holistic perspective than relying solely on one method.

Concurrently, the quantitative component utilizes a survey to systematically analyze the validity of Supplemental Instructional Materials (SIM) for General Mathematics. This survey instrument collects quantitative data through standardized questions, enabling statistical analysis and comparison of results across a larger sample of respondents (Creswell & Creswell, 2017). The quantitative data gathered through the survey complements the in-depth qualitative exploration, providing statistical insights that reinforce and broaden the understanding of the research questions and allowing for identifying trends and patterns among participants. The researcher adopted a descriptive research design with a quantitative approach to data collection. According to Neuman (2020), a descriptive research design will be employed when the study focuses on the present condition and aims to discover new truths. It was beneficial when the data to be collected pertains to the current situation, providing factual information and emphasizing the most critical aspects to be reported.

Moreover, the descriptive research method was selected for this study due to its applicability to the research's nature. This method is believed to be the most effective in obtaining comprehensive information about the performance in General Mathematics of Grade 11 learners and identifying the least mastered competencies in College of Sciences, Technology and Communications, Inc., (CSTC).

The quantitative approach provided a structured framework for the study, enabling the researcher to systematically analyze and present the data. It was allowed for a detailed examination of learners' performance in General Mathematics and identifies specific areas needing improvement to inform the development of tailored SIM.

Research Locale

This study was conducted in the Province of Quezon, situated in the southern part of Luzon, the Philippines' largest island, and holds a prominent place in the country's geography and history. As one of the key provinces in the CALABARZON region, Quezon is recognized for its diverse landscapes, rich cultural heritage, and economic significance. Bordered by the provinces of Aurora to the north, Camarines Norte and Camarines Sur

to the east, and Batangas to the west, Quezon Province is uniquely positioned to contribute to the nation's cultural and economic tapestry.

One of the striking features of Quezon is its expansive coastal areas along the western coast, facing the South China Sea. This coastal region is not only a source of livelihood for many of its residents, particularly in the fishing industry, but it also offers picturesque beaches and scenic spots that attract tourists. The province is also characterized by lush forests, rolling hills, and agricultural landscapes. These diverse geographical features and tropical climates contribute to the province's agricultural productivity. Quezon is known for producing various farm products, including coconut, rice, corn, and fruit crops, contributing significantly to the country's agricultural sector.

Furthermore, Quezon Province boasts a rich cultural heritage, with a fusion of influences from its history of colonization and interactions with indigenous communities. The province is home to ethnic groups with traditions and practices. This cultural diversity is reflected in the local cuisine, festivals, and art, making Quezon a vibrant hub for artistic exploration. The Niyugyugan Festival, for example, celebrates the province's deep connection to coconuts and showcases various cultural performances and exhibits.

The private school included in the study is the College of Sciences, Technology and Communications, Inc., (CSTC) in Atimonan, Lucena, and Sariaya Campuses., and were selected as research sites due to their diverse characteristics and solid educational contributions to the institutions. Each institution offers a unique perspective on the research area, making it a suitable choice for gathering comprehensive data.

The selection of these schools is driven by the significance of assessing the performance in General Mathematics of Grade 11 learners. Moreover, developing tailored Supplemental Instructional Materials (SIM) for the specific needs of the district's learners is a critical aim. The research locale provides a valuable context for understanding the educational landscape in the area. It enhances mathematics education for the learners in Atimonan, Lucena, and Sariaya Quezon Province, Philippines.

Population and Sampling

The research was focused on the Grade 11 learners in General Mathematics from private school in CSTC Atimonan, Lucena, and Sariaya Campuses Quezon Province, Philippines. The research population consists of these specific learners essential to cater to the study's objectives.

The study population is one thousand one hundred seventy-five (1,175) Grade 11 learners from different campuses of CSTC. Using a stratified random sampling, two hundred ninety (290) were selected as the sample for this research to determine the difficulties experienced in general mathematics. Stratified random sampling involves dividing a population into school subgroups, selecting random samples from each subgroup, and combining them to create a representative sample, ensuring that each subset is represented enrolled in the private schools within the Atimonan, Lucena, and Sariaya Districts. The selected sample size is representative and manageable for data collection and analysis.

The inclusion criteria for the sample include Grade 11 learners currently enrolled in the CSTC Campuses and those taking the General Mathematics subject. Conversely, learners were not enrolled in private schools, and those not taking the General Mathematics subject are excluded from the study.

The Population of the Study

CSTC Campuses	The population of Grade 11 Learners	Percentage	Sample Size
Atimonan Campus	182	16	45
Lucena Campus	249	21	61
Sariaya Campus	744	63	184
	N = 1,175	**100**	**n = 290**

Moreover, the study's population comprises seven (7) qualified educators specializing in Mathematics, including Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers with expertise in Mathematics education. The purposive sampling method was selected representatives from each category, ensuring diversity in educational levels and school contexts. The validators are Master Teachers specializing in Mathematics from various schools. Department heads overseeing mathematics departments was purposefully chosen to provide administrative perspectives and regular mathematics teachers from secondary levels was sampled to capture a broad range of experiences. This targeted approach aims to gather insights from validators with the requisite expertise to assess the Enhancements of Supplemental Instructional Materials (SIM) validity.

Research Instrument

The primary research instrument utilized for this study is a Teacher-Constructed for Trend Analysis Data Retrieval and Secondary Data Analysis of five (5) five-year Item Analysis results to comprehensively evaluate the least mastered competencies of learners in General Mathematics of Grade 11 learners. A meticulous validation process has been employed to ensure the Item Analysis's validity and reliability.

It is important to emphasize that Trend Analysis Data Retrieval was used as a data for assessing the least mastered competencies. The number of hours allotted for a single quarter, as outlined in the curriculum guide, plays a pivotal role in shaping the test's structure and content. Each standard within the curriculum guide dictates the allocation of items in the examination, ensuring a thorough and competency-based assessment.

The second section focuses on capturing the diverse difficulties faced by Grade 11 learners in General Mathematics at College of Sciences, Technology and Communications, Inc., (CSTC) closed-ended questions encourage students to articulate

specific difficulties encountered and how these difficulties impact their overall learning experiences.

In the third section, learners are invited to contribute to developing potential Supplemental Instructional Materials (SIM) by suggesting additional learning materials or resources they believe would aid in overcoming the identified difficulties in General Mathematics. This section also seeks insights into the type of support or SIM deemed most effective by the students. By incorporating the learners' perspectives, this section enriches the study with valuable qualitative data, providing a basis for proposing targeted SIM that aligns with the students' perceived needs and preferences.

Five-point Likert Rating Scale Interpretation

Scale	Range Interval	Verbal Interpretation	Qualitative Description
5	4.20 – 5.00	Always Encountered (AE)	Learners are consistently encountered in their learning competencies in General Mathematics. They always encountered difficulties that lead to least mastered competencies of Grade 11 learners.
4	3.40 – 4.19	Often Encountered (OE)	Learners are regularly encountered in their learning competencies in General Mathematics. They often encountered difficulties that lead to least mastered competencies of Grade 11 learners.
3	2.60 – 3.39	Sometimes Encountered (SE)	Learners are frequently encountered in their learning competencies in General Mathematics. They sometimes encountered difficulties that lead to least mastered competencies of Grade 11 learners.
2	1.80 – 2.59	Rarely Encountered (RE)	Learners are seldom encountered in their learning competencies in General Mathematics. They rarely encountered difficulties that lead to least mastered competencies of Grade 11 learners.
1	1.00 – 1.79	Never Encountered (NE)	Learners are least encountered in their learning competencies in General Mathematics. They never encountered difficulties that lead to least mastered competencies of Grade 11 learners.

Data Gathering Procedures

The data-gathering procedure for this study unfolds through a systematic process encompassing various stages. First and foremost, identifying the least mastered competencies in General Mathematics among Grade 11 learners is initiated. This involves meticulously examining academic records, assessments, and teacher feedback spanning the last five years. Subsequently, a structured survey was administered to quantitatively assess the difficulties experienced by Grade 11 learners. The survey covers various aspects, including conceptual difficulties, problem-solving difficulties, and motivational or anxiety-related obstacles.

Following identifying difficulties, the study proposes Supplemental Instructional Materials (SIM). Collaborative efforts with educational experts, curriculum developers,

and Mathematics teachers aim to align these proposed materials with the identified least mastered competencies and the overall curriculum. Subsequently, the study shifted its focus to the validation of SIM validity. A comprehensive questionnaire and rating scale were crafted to assess the proposed SIM's validity, with a panel of Mathematics experts, including Master Teachers, Department Heads, and Regular Mathematics teachers serving as validators. This validation process scrutinizes content alignment, equity, accessibility, assessment effectiveness, presentation, organization clarity, instructional design, and support suitability.

Upon the completion of data collection, a robust analysis ensues, combining both quantitative and qualitative methods. Survey responses are quantitatively analyzed using statistical tools to discern trends and patterns in difficulties experienced by Grade 11 learners. Simultaneously, focus group discussions and expert feedback were qualitatively analyzed to glean in-depth insights into the nature of problems and the validity of the proposed SIM. This triangulation of data sources enhances the reliability and validity of the study's findings. The culminating step involves compiling the gathered data, analyzing the results, and meticulously documenting the comprehensive findings in a detailed research report. The report unequivocally presents the identified least mastered competencies, the spectrum of difficulties experienced by learners, the proposed SIM, and the results of the validity assessment across various dimensions.

Statistical Treatment of Data

The Teacher-Constructed Trend Analysis Data Retrieval results are conveyed to data users using Mean Percentage Scores (MPS) and descriptive equivalent for data utilization to create Supplemental Instructional Materials (SIM). Specified below is the mastery level:

Legend	Descriptive Equivalent
96% - 100%	Mastered
86% - 95%	Closely Approaching Mastery
66% - 85%	Moving Towards Mastery
35% - 65%	Average
15% - 34%	Low
5% - 14%	Very Low
0% - 4%	Absolutely No Mastery

For the validity assessment of the proposed SIM, a response from the panel of validators was quantitatively analyzed. The weighted mean was employed to summarize the ratings on content alignment, equity, accessibility, assessment effectiveness, presentation and organization clarity, instructional design and support suitability, and replicability.

Likert Scale for the Evaluation Criterion for SIM Validation

Mean Interval	Verbal Interpretation
4.20 – 5.00	Outstanding (O)
3.40 – 4.19	Very Satisfactory (VS)
2.60 – 3.39	Satisfactory (S)
1.80 – 2.59	Less Satisfactory (LS)
1.00 – 1.79	Unsatisfactory (U)

RESULTS

Part I. The Least Mastered Competencies in General Mathematics of Grade 11 Learners in College of Sciences, Technology and Communications, Inc., (CSTC).

Table 1

The Least Mastered Competencies in General Mathematics across Academic Years of 2019-2020 to 2023-2024.

Most Essential Learning Competencies with K to 12 Curriculum Guide Code	Mean Percentage Score	Descriptive Equivalent	School Year
Solve exponential equations and inequalities. **(M11GM-Ie-f-1)**	30	Low	2023-2024
Represent real-life situations using functions, including piece-wise functions. **(M11GM-Ia-1)**	24	Low	2023-2024
Solve problems involving functions. **(M11GM-Ia-4)**	18	Low	2023-2024
Solve rational equations and inequalities. **(M11GM-Ib-3)**	21	Low	2023-2024
Find the domain, and range of a logarithmic function. **(M11GM-Ii-3)**	21	Low	2023-2024
Solve exponential equations and inequalities. **(M11GM-Ie-f-1)**	12	Very Low	2022-2023
Solve problems involving logarithmic functions, equations, and inequalities. **(M11GM-Ij-2)**	12	Very Low	2022-2023
Solve rational equations and inequalities. **(M11GM-Ib-3)**	15	Low	2022-2023
Determines the intercepts, zeroes and asymptotes of a logarithmic function. **(M11GM-Ii-4)**	15	Low	2022-2023
Solve logarithmic equations and inequalities. **(M11GM-Ih-i-1)**	27	Low	2022-2023
Solve rational equations and inequalities. **(M11GM-Ib-3)**	6	Very Low	2021-2022
Solves exponential equations and inequalities. **(M11GM-Ie-f-1)**	6	Very Low	2021-2022
Solve problems involving exponential functions, equations, and inequalities. **(M11GM-Ig-2)**	9	Very Low	2021-2022
Find the domain, and range of an inverse function. **(M11GM-Id-4)**	12	Very Low	2021-2022
Solve logarithmic equations and inequalities. **(M11GM-Ih-i-1)**	36	Average	2021-2022
Solve problems involving exponential functions, equations, and inequalities. **(M11GM-Ig-2)**	16	Low	2020-2021
Solve problems involving inverse functions. **(M11GM-Ie-2)**	14	Very Low	2020-2021
Solves exponential equations and inequalities. **(M11GM-Ie-f-1)**	14	Very Low	2020-2021
Determines the intercepts, zeroes and asymptotes of an exponential function. **(M11GM-If-4)**	14	Very Low	2020-2021
Solves problems involving exponential functions, equations, and inequalities. **(M11GM-Ij-2)**	27	Low	2020-2021
Solve problems involving inverse functions. **(M11GM-Ie-2)**	3	Absolutely No Mastery	2019-2020
Solve problems involving exponential functions, equations, and inequalities. **(M11GM-Ig-2)**	3	Absolutely No Mastery	2019-2020
Performs addition, subtraction, multiplication, division, and composition of functions. **(M11GM-Ia-3)**	9	Very Low	2019-2020
Solves problems involving functions. **(M11GM-Ia-4)**	9	Very Low	2019-2020
Solve rational equations and inequalities. **(M11GM-Ib-3)**	6	Very Low	2019-2020

Across several academic years, the analysis of students' performance in General Mathematics reveals consistent difficulties in mastering specific competencies. Notably, competencies related to solving equations and inequalities, spanning exponential, rational, and logarithmic functions, persistently exhibit low mastery levels. These

findings suggest potential gaps in the teaching methods or coverage of these topics within the curriculum. Despite variations across years, competencies involving functions, such as representation and problem-solving, also demonstrate relatively low mastery levels. However, there are discernible trends of improvement in certain areas over time, particularly in competencies related to solving exponential equations and inequalities.

The recurring difficulties in mastering competencies involving equations and inequalities underscore the importance of addressing these topics with a more targeted instructional approach. Educators may need to adopt differentiated teaching strategies that cater to the diverse learning needs and paces of students. Incorporating real-life applications and hands-on activities can enhance student engagement and deepen their understanding of abstract mathematical concepts, particularly those related to exponential and logarithmic functions, which may pose higher cognitive demands. By breaking down complex concepts into smaller, more manageable parts, educators can scaffold instruction to facilitate better comprehension and retention among students.

To address these difficulties effectively, a multifaceted approach is necessary. This approach encompasses ongoing professional development for teachers, regular formative assessments coupled with constructive feedback mechanisms, and periodic review and alignment of the curriculum with learning outcomes. Professional development workshops can equip teachers with effective methodologies for teaching complex mathematical topics, while collaborative lesson planning sessions enable the sharing of best practices and innovative teaching strategies. Additionally, integrating interdisciplinary connections and real-world applications into the curriculum can enhance the relevance and applicability of mathematical concepts for students, ultimately fostering deeper understanding and higher mastery levels over time.

Table 2

The Least Mastered Competencies in General Mathematics of Grade 11 Learners in College of Sciences, Technology and Communications, Inc. (CSTC) for the Last Five School Years.

Quarter	Performance Standards	Identified Most Trend of Least Mastered Competencies in General Mathematics in First Quarter (SY: 2019-2020 to 2023-2024)
	Accurately construct mathematical models to represent real-life situations using functions.	Represents real-life situations using functions, including piece-wise functions. **(M11GM-Ia-1)**
		Performs addition, subtraction, multiplication, division, and composition of functions. **(M11GM-Ia-3)**
		Solve problems involving functions. **(M11GM-Ia-4)**
	Accurately formulate and solve real-life problems involving rational functions.	Solves rational equations and inequalities. **(M11GM-Ib-3)**
		Solves problems involving rational functions, equations, and inequalities. **(M11GM-Ic-3)**

Q1		Solves problems involving inverse functions. **(M11GM-Ie-2)**
	Apply the concepts of inverse functions, exponential functions, and logarithmic functions to formulate and solve real-life problems with precision and accuracy.	Solves exponential equations and inequalities. **(M11GM-Ie-f-1)**
		Solves problems involving exponential functions, equations, and inequalities. **(M11GM-Ig-2)**
		Solves problems involving logarithmic functions, equations, and inequalities. **(M11GM-Ij-2)**

The table presents the least mastered competencies in General Mathematics among Grade 11 learners at College of Sciences, Technology and Communications, Inc., (CSTC) over the last five (5) school years. The competencies are categorized based on specific performance standards, focusing on mathematical modeling, functions, rational equations, inverse functions, exponential functions, and logarithmic functions. Among these competencies, Grade 11 learners struggle the most with accurately constructing mathematical models to represent real-life situations using functions (M11GM-Ia-1). Additionally, they face difficulties in performing operations and solving problems involving functions (M11GM-Ia-3 and M11GM-Ia-4) and solving rational equations and inequalities (M11GM-Ib-3). Furthermore, difficulties arise in formulating and solving real-life problems involving rational functions (M11GM-Ic-3) and inverse functions (M11GM-Ie-2). Moreover, learners encounter obstacles in applying concepts related to exponential functions (M11GM-Ie-f-1 and M11GM-Ig-2) and logarithmic functions (M11GM-Ij-2) to solve real-life problems.

The identified competencies reflect areas where Grade 11 learners at College of Sciences, Technology and Communications, Inc., (CSTC) encounter difficulties in General Mathematics. These difficulties span various aspects of mathematical modeling, functions, and problem-solving techniques. The consistent trend of least mastered competencies over the past five years suggests persistent areas of weakness that require targeted interventions and instructional strategies. Applying mathematical concepts to real-life situations is crucial for developing practical problem-solving skills, and addressing these difficulties is essential for enhancing students' mathematical proficiency and overall academic achievement in General Mathematics.

The findings regarding the least mastered competencies in General Mathematics have several implications for curriculum development, instructional design, and educational support services. Educators should prioritize these areas of weakness in their teaching practices, employing differentiated instruction and scaffolding techniques to cater to diverse learning needs. Curriculum designers should revisit the sequencing and depth of coverage of mathematical topics to ensure sufficient mastery and understanding among students. Additionally, providing remedial support, supplementary resources, and targeted interventions can help address individual learning gaps and enhance students' proficiency in the identified competencies. Collaborative efforts

among teachers, administrators, and educational stakeholders are essential to implement effective strategies that support student learning and promote success in General Mathematics at College of Sciences, Technology, and Communications, Inc., (CSTC).

The results highlight the least mastered competencies in General Mathematics among Grade 11 learners at College of Sciences, Technology and Communications, Inc., (CSTC) over the past five years. Specifically, students face difficulties in accurately constructing mathematical models to represent real-life situations using functions, indicating a struggle with practical application and mathematical modeling (Anderson et al., 2018). Moreover, difficulties arise in performing operations and solving problems involving functions and rational equations, suggesting gaps in foundational understanding and problem-solving skills (Thompson & Silverman, 2022). The findings also underscore obstacles in formulating and solving real-life problems involving rational functions and inverse functions, emphasizing the need for improved comprehension and application of these concepts (Oppenheim & Schafer, 2013; Stewart, 2015).

Furthermore, Grade 11 learners encountered difficulties in applying concepts related to exponential and logarithmic functions to solve real-life problems, reflecting challenges in understanding the practical applications of these mathematical concepts (Nelson et al., 2019). Addressing these persistent areas of weakness is crucial for enhancing students' mathematical proficiency and overall academic achievement in General Mathematics, emphasizing the importance of targeted interventions and instructional strategies (Alzubi, 2021).

The implications of these findings extend to curriculum development, instructional design, and educational support services at College of Sciences, Technology and Communications, Inc., (CSTC). Educators should prioritize these areas of weakness in their teaching practices, employing differentiated instruction and scaffolding techniques to cater to diverse learning needs (Bastida, 2020; Lim, 2017). Curriculum designers should revisit the sequencing and depth of coverage of mathematical topics to ensure sufficient mastery and understanding among students, aligning with the identified competencies (Santos, 2023; de Leon, 2019). Additionally, providing remedial support, supplementary resources, and targeted interventions can help address individual learning gaps and enhance students' proficiency in the identified competencies, emphasizing the importance of collaborative efforts among educational stakeholders (Thompson & Silverman, 2022).

Part II. Difficulties Encountered by the Grade 11 Learners in Learning Competencies in General Mathematics.

Table 3

Difficulties Encountered by the Grade 11 Learners in Learning Competencies in General Mathematics in Terms of Accurately Constructing Mathematical Models to Represent Real-Life Situations Using Functions.

	Indicators	5	4	3	2	1	Mean	Verbal Interpretation	Rank
1.	I found difficulty in identifying relevant variables and parameters to construct mathematical models for real-life situations.	190	78	15	3	4	4.54	AE	1
2.	I found difficulty in selecting appropriate functions to model various relationships observed in real-life scenarios.	181	55	45	5	4	4.39	AE	4
3.	I found difficulty in interpreting and translating real-world data into mathematical language.	200	48	36	5	1	4.52	AE	2
4.	I found difficulty in understanding of how to adjust and refine mathematical models based on feedback or new information from real-life situations.	125	100	44	11	10	4.10	OE	5
5.	I found difficulty in simplifying complex real-life situations to have accurate mathematical models.	198	50	32	8	2	4.50	AE	3
				Composite Mean			**4.41**	**AE**	

Legend:

4.20 - 5.00	*Always Encountered (AE)*
3.40 - 4.19	*Often Encountered (OE)*
2.60 - 3.39	*Sometimes Encountered (SE)*
1.80 - 2.59	*Rarely Encountered (RE)*
1.00 - 1.79	*Never Encountered (NE)*

The table provides insights into the difficulties encountered by Grade 11 learners in learning competencies related to accurately constructing mathematical models to represent real-life situations using functions in General Mathematics. The difficulties are categorized into five specific areas. The most consistently encountered challenge, with a mean score of 4.54, is identifying relevant variables and parameters to construct

mathematical models for real-life situations. Learners often struggle with this fundamental aspect of mathematical modeling, indicating a potential obstacle to understanding. Additionally, learners face difficulties in interpreting and translating real-world data into mathematical language (mean score: 4.52) and simplifying complex real-life situations to develop accurate mathematical models (mean score: 4.50). Selecting appropriate functions to model various types of relationships observed in real-life scenarios is another common challenge, although slightly less pronounced (mean score: 4.39). Understanding how to adjust and refine mathematical models based on feedback or new information from real-life situations appears to be the least difficult. However, it still presents a notable challenge for learners (mean score: 4.10).

The identified difficulties shed light on areas where Grade 11 learners struggle in learning competencies related to mathematical modeling in General Mathematics. These difficulties include identifying relevant variables, selecting appropriate functions, interpreting real-world data, simplifying complex situations, and refining mathematical models based on feedback. The consistently high scores across all difficulties suggest that learners encounter potential obstacles in accurately applying mathematical concepts to real-life contexts. Addressing these difficulties requires targeted instructional strategies and support mechanisms to enhance students' understanding and proficiency in mathematical modeling.

The findings regarding the difficulties encountered by Grade 11 learners in learning competencies in General Mathematics have implications for curriculum development, instructional practices, and student support services. Educators should design learning experiences that provide ample opportunities for students to practice identifying variables, selecting functions, interpreting data, simplifying situations, and refining models in real-life contexts. Instructional approaches should be scaffolded and differentiated to accommodate diverse learning needs and facilitate deeper conceptual understanding. Additionally, providing feedback and opportunities for reflection can help students develop metacognitive skills and refine their problem-solving strategies. Collaborative efforts among teachers, administrators, and educational stakeholders are essential to implement effective strategies that address the identified difficulties and support student learning and success in General Mathematics.

The findings provide insights into the difficulties faced by Grade 11 learners in mastering competencies related to accurately constructing mathematical models for real-life situations using functions in General Mathematics. These difficulties are categorized into five specific areas, with the most consistently encountered challenge being the identification of relevant variables and parameters for constructing mathematical models, indicating a fundamental obstacle to understanding (Anderson et al., 2018). Learners also struggle with interpreting real-world data into mathematical language and simplifying complex situations to develop accurate models, highlighting the complexity of translating real-life scenarios into mathematical representations (Thompson & Silverman, 2022). Selecting appropriate functions to model various relationships observed in real-life scenarios is another common challenge, albeit slightly less pronounced. Additionally, understanding how to adjust and refine mathematical

models based on feedback or new information from real-life situations presents a notable challenge for learners, indicating a need for improved metacognitive skills and problem-solving strategies (Oppenheim & Schafer, 2013; Stewart, 2015).

These identified difficulties shed light on areas where Grade 11 learners encounter obstacles in learning competencies related to mathematical modeling in General Mathematics. The consistently high scores across all difficulties suggest significant challenges in accurately applying mathematical concepts to real-life contexts, emphasizing the need for targeted instructional strategies and support mechanisms (Nelson et al., 2019). Addressing these challenges requires curriculum development that provides ample opportunities for students to practice and apply mathematical modeling skills in authentic contexts, supported by scaffolded and differentiated instructional approaches (Alzubi, 2021). Additionally, providing feedback and opportunities for reflection can help students develop metacognitive skills and refine their problem-solving strategies, ultimately promoting deeper conceptual understanding and proficiency in General Mathematics (Bastida, 2020; Lim, 2017). Collaborative efforts among educators, administrators, and stakeholders are essential to implement effective strategies that support student learning and success in General Mathematics at College of Sciences, Technology and Communications, Inc., (CSTC).

Table 4

Difficulties Encountered by the Grade 11 Learners in Learning Competencies in General Mathematics in Terms of Accurately Formulating and Solving Real-Life Problems Involving Rational Functions.

Indicators	5	4	3	2	1	Mean	Verbal Interpretation	Rank
1. I found difficulty in identifying and interpreting rational functions within real-life contexts.	124	59	60	25	22	3.82	OE	4
2. I found difficulty in understanding the behavior of rational functions, such as asymptotes and intercepts, and applying this knowledge to solve real-life problems accurately.	125	76	55	23	11	3.97	OE	5
3. I found difficulty in discerning when to use rational functions to model real-life phenomena versus other functions.	120	95	45	18	12	4.01	OE	3
4. I found difficulty in proficiency in manipulating rational expressions and equations.	187	46	32	14	11	4.32	AE	2
5. I found difficulty in Analyzing of restrictions on variables when	200	33	32	14	11	4.37	AE	1

formulating and solving real-life problems involving rational functions.			
	Composite Mean	**4.10**	**OE**

Legend:

4.20 - 5.00	*Always Encountered (AE)*
3.40 - 4.19	*Often Encountered (OE)*
2.60 - 3.39	*Sometimes Encountered (SE)*
1.80 - 2.59	*Rarely Encountered (RE)*
1.00 - 1.79	*Never Encountered (NE)*

The table presents the difficulties encountered by Grade 11 learners in learning competencies related to accurately formulating and solving real-life problems involving rational functions in General Mathematics. These difficulties are categorized into five specific areas. The most frequently encountered challenge, with a mean score of 4.37, is analyzing restrictions on variables when formulating and solving real-life problems involving rational functions. Learners consistently struggle with understanding and applying restrictions on variables in the context of rational functions. Proficiency in manipulating rational expressions and equations is another common difficulty, with a mean score of 4.32, indicating difficulties in working with rational functions. Discerning when to use rational functions to model real-life phenomena versus other functions presents another notable challenge, with a mean score of 4.01. Learners also encounter difficulties understanding the behavior of rational functions and identifying them within real-life contexts, with mean scores of 3.97 and 3.82, respectively.

The identified difficulties highlight areas where Grade 11 learners struggle to accurately formulate and solve real-life problems involving rational functions in General Mathematics. These difficulties include identifying and interpreting rational functions, understanding their behavior, discerning when to use them, manipulating expressions and equations, and analyzing restrictions on variables. The consistently high scores across all difficulties suggest that learners face potential obstacles in effectively applying rational functions to real-life scenarios. Addressing these difficulties requires targeted instructional strategies, differentiated support, and opportunities for practice and reinforcement.

The findings regarding the difficulties encountered by Grade 11 learners in learning competencies related to rational functions in General Mathematics have implications for curriculum design, instructional practices, and student support services. Educators should develop learning experiences that allow students to explore rational functions in various real-life contexts, emphasizing the interpretation of restrictions on variables and the manipulation of expressions and equations. Instructional approaches should be tailored to address the specific needs and difficulties identified in the table, incorporating scaffolding, modeling, and guided practice to support student learning. Additionally, providing feedback, formative assessments, and targeted interventions can help students develop proficiency and confidence in formulating and solving real-life problems involving rational functions. Collaborative efforts among teachers,

administrators, and educational stakeholders are essential to implement effective strategies that address the identified difficulties and promote student success in General Mathematics.

The findings present the difficulties Grade 11 learners face in mastering competencies related to accurately formulating and solving real-life problems involving rational functions in General Mathematics. These difficulties are categorized into five specific areas, with the most prevalent challenge being the analysis of restrictions on variables, indicating a consistent struggle to understand and apply restrictions within the context of rational functions (Thompson & Silverman, 2022). Another common difficulty is proficiency in manipulating rational expressions and equations, highlighting difficulties in working with these mathematical constructs effectively (Oppenheim & Schafer, 2013; Stewart, 2015). Additionally, discerning when to use rational functions to model real-life phenomena versus other functions presents a notable challenge, indicating a need for improved conceptual understanding and application skills (Nelson et al., 2019). Learners also encounter obstacles in understanding the behavior of rational functions and identifying them within real-life contexts, suggesting a need for enhanced comprehension and application of these mathematical concepts (Alzubi, 2021).

These identified difficulties underscore areas where Grade 11 learners struggle to accurately formulate and solve real-life problems involving rational functions in General Mathematics. To address these difficulties, educators should develop learning experiences that allow students to explore rational functions in various contexts, emphasizing the interpretation of restrictions on variables and the manipulation of expressions and equations (Bastida, 2020; Lim, 2017). Instructional approaches should be tailored to meet the specific needs identified in the findings, incorporating scaffolded instruction, modeling, and guided practice to support student learning (De Guzman, 2018). Additionally, providing feedback, formative assessments, and targeted interventions can help students develop proficiency and confidence in applying rational functions to real-life scenarios, ultimately promoting deeper conceptual understanding and mastery (Santos, 2023; de Leon, 2019). Collaborative efforts among educators, administrators, and stakeholders are essential to implement effective strategies that address the identified difficulties and foster student success in General Mathematics at College of Sciences, Technology and Communications, Inc., (CSTC).

Table 5

Difficulties Encountered by the Grade 11 Learners in Learning Competencies in General Mathematics in Terms of Applying the Concepts of Inverse Functions, Exponential Functions, and Logarithmic Functions to Formulate and Solve Real-Life Problems with Precision and Accuracy.

Indicators	5	4	3	2	1	Mean	Verbal Interpretation	Rank
1. I found difficulty in understanding the concept of inverse functions and their application in real-life situations.	123	78	45	24	20	3.90	OE	5
2. I found difficulty in recognizing and applying exponential and logarithmic functions appropriately to model real-life phenomena, resulting in inaccuracies.	189	45	24	12	20	4.28	AE	4
3. I found difficulty in interpreting exponential growth and decay rates, as well as logarithmic scales, within real-world problems.	175	76	21	14	4	4.39	AE	2
4. I found difficulty in proficiency in solving equations involving exponential and logarithmic functions accurately.	214	28	20	15	13	4.43	AE	1
5. I found difficulty in analyzing of the connection between exponential growth/decay and logarithmic functions when formulating and solving real-life problems, leading to conceptual misunderstandings.	189	47	35	12	7	4.38	AE	3
Composite Mean						**4.28**	**AE**	

Legend:

4.20 - 5.00	*Always Encountered (AE)*
3.40 - 4.19	*Often Encountered (OE)*
2.60 - 3.39	*Sometimes Encountered (SE)*
1.80 - 2.59	*Rarely Encountered (RE)*
1.00 - 1.79	*Never Encountered (NE)*

The table presents the difficulties encountered by Grade 11 learners in learning competencies related to applying the concepts of inverse functions, exponential functions, and logarithmic functions to formulate and solve real-life problems with precision and accuracy in General Mathematics. These difficulties are categorized into five specific areas. The most frequently encountered challenge, with a mean score of 4.43, is proficiency in accurately solving equations involving exponential and logarithmic functions. Learners struggle to solve equations in this context, indicating difficulties in applying mathematical techniques effectively. Interpreting exponential growth and decay rates, as well as logarithmic scales, within the context of real-world problems is

another common difficulty, with a mean score of 4.39. Learners also face difficulties in analyzing the connection between exponential growth/decay and logarithmic functions when formulating and solving real-life problems, resulting in conceptual misunderstandings (mean score: 4.38). Recognizing and applying exponential and logarithmic functions appropriately to model real-life phenomena without resulting inaccuracies presents another notable challenge (mean score: 4.28). Understanding the concept of inverse functions and their application in real-life situations is also identified as a difficulty, although slightly less pronounced (mean score: 3.90).

The identified difficulties highlight specific areas where Grade 11 learners struggle in applying concepts related to inverse functions, exponential functions, and logarithmic functions to real-life problems in General Mathematics. These difficulties include solving equations accurately, interpreting growth and decay rates, analyzing connections between functions, and recognizing appropriate applications in real-world contexts. The consistently high scores across all difficulties suggest that learners face potential obstacles in mastering and applying these concepts with precision and accuracy. Addressing these difficulties requires targeted instructional strategies, differentiated support, and opportunities for practice and reinforcement.

The findings regarding the difficulties encountered by Grade 11 learners in learning competencies related to inverse functions, exponential functions, and logarithmic functions in General Mathematics have implications for curriculum design, instructional practices, and student support services. Educators should develop learning experiences that allow students to explore these concepts in various real-life contexts, emphasizing problem-solving and critical-thinking skills. Instructional approaches should be tailored to address the specific needs and difficulties identified in the table, incorporating scaffolding, modeling, and guided practice to support student learning. Additionally, providing feedback, formative assessments, and targeted interventions can help students develop proficiency and confidence in applying these concepts accurately and effectively. Collaborative efforts among teachers, administrators, and educational stakeholders are essential to implement effective strategies that address the identified difficulties and promote student success in General Mathematics.

The findings elucidate the difficulties of Grade 11 learners encounter in mastering competencies related to applying concepts of inverse functions, exponential functions, and logarithmic functions to real-life problem-solving in General Mathematics. These difficulties are categorized into five specific areas, with the most prevalent challenge being proficiency in accurately solving equations involving exponential and logarithmic functions. Learners struggle to solve such equations effectively, indicating a need for enhanced mathematical techniques (Oppenheim & Schafer, 2013; Stewart, 2015). Additionally, interpreting exponential growth and decay rates, as well as logarithmic scales, within real-world problems, presents another common difficulty, highlighting challenges in applying these concepts in practical contexts (Anderson et al., 2018). Learners also face obstacles in analyzing the connection between exponential growth/decay and logarithmic functions, resulting in conceptual misunderstandings and inaccuracies in problem-solving (Thompson & Silverman, 2022). Recognizing and

applying exponential and logarithmic functions appropriately to model real-life phenomena without resulting inaccuracies presents another notable challenge, indicating a need for improved conceptual understanding and application skills (Nelson et al., 2019).

These identified difficulties underscore specific areas where Grade 11 learners struggle in applying concepts related to inverse functions, exponential functions, and logarithmic functions to real-life problems in General Mathematics. To address these challenges, educators should design learning experiences that allow students to explore these concepts in various contexts, emphasizing problem-solving and critical-thinking skills (Alzubi, 2021). Instructional approaches should be tailored to meet the specific needs and challenges identified, incorporating scaffolding, modeling, and guided practice to support student learning (Bastida, 2020; Lim, 2017). Additionally, providing feedback, formative assessments, and targeted interventions can help students develop proficiency and confidence in applying these concepts accurately and effectively, ultimately promoting deeper conceptual understanding and mastery (Santos, 2023; de Leon, 2019). Collaborative efforts among educators, administrators, and stakeholders are essential to implement effective strategies that address the identified difficulties and foster student success in General Mathematics.

Table 6

Summary Table of Difficulties Encountered by the Grade 11 Learners in Learning Competencies in General Mathematics in Terms of Performance Standards.

Performance Standards	Composite Mean	Verbal Interpretation	Rank
1. Accurately construct mathematical models to represent real-life situations using functions.	4.41	AE	1
2. Accurately formulate and solve real-life problems involving rational functions.	4.10	OE	3
3. Apply the concepts of inverse functions, exponential functions, and logarithmic functions to formulate and solve real-life problems with precision and accuracy.	4.28	AE	2
GRAND MEAN	**4.26**	**AE**	

Legend:

4.20 - 5.00	*Always Encountered (AE)*
3.40 - 4.19	*Often Encountered (OE)*
2.60 - 3.39	*Sometimes Encountered (SE)*
1.80 - 2.59	*Rarely Encountered (RE)*
1.00 - 1.79	*Never Encountered (NE)*

The table shows that Grade 11 learners encounter various difficulties in learning competencies in General Mathematics, particularly in three key areas: accurately constructing mathematical models using functions, formulating and solving real-life problems involving rational functions, and applying concepts of inverse, exponential, and logarithmic functions to real-life situations. Inaccurately constructing mathematical models using functions, learners consistently struggle, as indicated by the highest composite mean score of 4.41, corresponding to an "Always Encountered" rating. This

suggests that learners face potential difficulties in applying mathematical concepts to represent real-life scenarios, highlighting a need for further support and instruction in this area.

Similarly, learners encounter difficulties formulating and solving real-life problems involving rational functions, as reflected by a composite mean score of 4.10, corresponding to an "Often Encountered" rating. While this challenge is slightly less pronounced than constructing mathematical models, it still potential a notable difficulty for learners. Furthermore, applying inverse, exponential, and logarithmic function concepts to real-life situations presents another significant challenge, with a composite mean score of 4.28, also corresponding to an "Always Encountered" rating, which indicates that learners struggle to understand and apply advanced mathematical functions in practical contexts, highlighting a need for targeted intervention and support.

The findings suggest that Grade 11 learners in General Mathematics may benefit from focused instructional strategies and interventions to address these identified difficulties. Educators can help learners improve their mathematical proficiency and better prepare them for applying mathematical concepts in various real-life scenarios by providing targeted support and incorporating real-world applications into the curriculum.

The findings regarding the difficulties encountered by Grade 11 learners in General Mathematics closely aligns with the learning gaps identified in the literature review (Alzubi, 2021). Notably, students struggle with accurately constructing mathematical models using functions, reflecting a gap in understanding the complexities of mathematical modeling, mainly when applied to real-world scenarios. Similarly, difficulties in formulating and solving real-life problems involving rational functions and applying concepts of inverse, exponential, and logarithmic functions highlight gaps in comprehending these fundamental mathematical concepts' practical applications, hindering effective problem-solving skills in real-life contexts.

Furthermore, the difficulties encountered by Grade 11 learners underscore the need for a more holistic approach to teaching mathematics, integrating various mathematical concepts covered in the curriculum to help students better understand the connections between different topics. Additionally, addressing these difficulties requires ensuring equitable access to educational resources, as emphasized in the literature review. While valuable resources and textbooks are available, equitable access to these materials is essential to effectively bridge learning gaps and support all students' academic success in General Mathematics.

Part III. The Supplemental Instructional Materials (SIM) can be Developed based on the Least Mastered Competencies and Difficulties Encountered.

To effectively address the least mastered competencies and difficulties encountered by Grade 11 learners in General Mathematics, a supplemental approach involving the development of targeted Supplemental Instructional Materials (SIM) is

essential. The identified difficulties, ranging from mathematical modeling to problem-solving with exponential and logarithmic functions, underscore the need for tailored interventions that provide students with focused support.

One area of focus could be mathematical modeling, where learners struggle to identify relevant variables and parameters accurately. Interactive simulations or real-life scenarios could be developed to guide students through this process, offering step-by-step guidance and feedback to reinforce their understanding. Transitioning from mathematical modeling to function operations and problem-solving, students could benefit from interactive modules that contextualize functions within real-life scenarios, providing opportunities for hands-on application of their knowledge to solve practical problems.

Moving forward, particular attention could be directed toward rational functions, where students encounter difficulties in identifying, manipulating, and solving equations. Interactive tutorials or practice exercises could be designed to target these difficulties, offering clear explanations and visual aids to support student learning. These activities could involve problem-solving with real-life situations, such as modeling economic trends or population growth, to enhance the relevance and applicability of the taught concepts.

Additionally, exponential and logarithmic functions present another area of concern, particularly in interpreting growth rates and making connections between different functions. Interactive simulations or virtual labs could be developed to allow students to explore the behavior of exponential and logarithmic functions in real-life contexts, providing opportunities for hands-on experimentation and problem-solving.

SIMs could incorporate problem-solving strategies and formative assessment tools to consolidate understanding and foster problem-solving skills. These resources would empower students to confidently navigate complex mathematical problems, providing immediate feedback and guidance to address areas of weakness. By integrating these interventions seamlessly, educators can create a cohesive learning experience that addresses the diverse needs of Grade 11 learners in General Mathematics, ultimately promoting mastery and academic success in problem-solving with real-life situations.

Part IV. The Validity of Supplemental Instructional Materials (SIM).

Table 7

The Validity of Supplemental Instructional Materials (SIM) in terms of Content as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

	Indicators	Mean	Verbal Interpretation
1.	Material aligns with curriculum and standards and is current, valid, and reliable, with real-world examples.	4.57	O
2.	Material is age-appropriate and designed to meet individual learners' needs from various skill levels.	4.14	VS
3.	Material is in-depth, enhances conceptual understanding, and engages higher-order thinking skills.	3.86	VS
4.	Material is free from bias.	4.29	VS
	Total Score	**16.86**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*
1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (U)*
12 - 20 as the total score	*Passed*

The table presents the Supplemental Instructional Materials (SIM) evaluation based on their content. Across the four focus areas, the materials demonstrate commendable strengths. The alignment with curriculum standards and relevance to real-world examples is particularly outstanding, as indicated by a mean score of 4.57. Additionally, the materials are deemed age-appropriate and accommodating to learners of varying skill levels, scoring 4.14, indicating a very satisfactory level. However, there are areas for improvement, such as the depth of content and its ability to foster higher-order thinking skills, which received a score of 3.86, falling slightly below the outstanding and very satisfactory benchmarks. Nevertheless, the materials are commendable bias-free, scoring 4.29, contributing to their overall quality. The materials have passed the evaluation with a total score of 16.86, reflecting their overall effectiveness.

The results suggest that the Supplemental Instructional Materials (SIM) is well-designed in terms of content, with strengths in their alignment with curriculum standards and relevance to real-world contexts. The high scores in these areas indicate that the materials effectively meet the educational validity and reliability criteria. However, the slightly lower score in depth of content and engagement of higher-order thinking skills indicates potential areas for enhancement. Despite this, the absence of bias is a notable positive aspect, ensuring that the materials provide equitable learning opportunities for all students. The overall passing score of 16.86 underscores the materials' effectiveness in meeting the evaluation criteria.

The analysis of the Supplemental Instructional Materials (SIM) underscores the importance of their alignment with curriculum standards and relevance to real-world contexts. These aspects contribute potential to their effectiveness in facilitating learning. However, the need to further deepen the content and foster higher-order thinking skills suggests potential areas for curriculum refinement and instructional strategies. Educators and curriculum developers can use these insights to make informed decisions about selecting and designing instructional materials, ensuring that they cater to the diverse needs of learners and promote equitable access to quality education. Additionally, the materials' passing score of 16.86 highlights their overall effectiveness, serving as a valuable resource for educators seeking evidence-based instructional materials for their classrooms.

The evaluation of the Supplemental Instructional Materials (SIM) reveals strengths and areas for improvement in their content. Notably, the materials excel in aligning with curriculum standards and providing real-world examples, indicating their relevance to students' educational needs and practical experiences. This alignment ensures that the materials meet educational validity and reliability criteria, fostering effective learning outcomes (Bastida, 2020; Lim, 2017). Furthermore, the SIM demonstrates age-appropriate content and accommodates learners of varying skill levels, enhancing their accessibility and usability in diverse educational settings. However, there is room for improvement in the depth of content and the promotion of higher-order thinking skills, suggesting opportunities for curriculum refinement and instructional strategies (Santos, 2023; de Leon, 2019).

Despite these areas for enhancement, the absence of bias within the materials is commendable, ensuring equitable learning opportunities for all students. This unbiased approach contributes to creating inclusive learning environments that support diverse learners' needs and experiences (Oppenheim & Schafer, 2013; Stewart, 2015). The overall passing score of 16.86 underscores the effectiveness of the SIM in meeting the evaluation criteria and serving as a valuable resource for educators. Educators and curriculum developers can utilize these insights to make informed decisions about selecting and designing instructional materials, thereby promoting equitable access to quality education for all students (Nelson et al., 2019).

Table 8

The validity of Supplemental Instructional Materials (SIM) in terms of Equity and Accessibility as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

	Indicators	Mean	Verbal Interpretation
1.	Material is durable, easily stored, transported, and universally accessible.	4.57	O
2.	Material is easily updated, adaptable, and customizable to match the resources of the school.	4.29	VS
3.	The material works appropriately without the purchase of additional components.	4.57	O
4.	All students can use material without extensive supervision or special assistance.	3.43	VS
	Total Score	**16.86**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*
1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (U)*
12 - 20 as the total score	*Passed*

Supplemental Instructional Materials (SIM) evaluation in terms of equity and accessibility reveals notable strengths in several key areas. Firstly, the materials are lauded for their durability, ease of storage, and universal accessibility, earning an outstanding mean score of 4.57. Additionally, the materials' adaptability and compatibility with varying school resources contribute to their overall accessibility, reflected in a satisfactory score of 4.29. Furthermore, the requirement for minimal additional components enhances the materials' usability and practicality, resulting in another outstanding score of 4.57. However, while the materials generally enable independent student use, the score of 3.43 for the need for extensive supervision or special assistance suggests potential areas for improvement in ensuring equitable access for all students. With a total score of 16.86, the materials have passed the evaluation, affirming their effectiveness in promoting equity and accessibility.

The evaluation findings highlight the potential strides in ensuring equity and accessibility in Supplemental Instructional Materials (SIM). The outstanding scores in durability, universal accessibility, and minimal additional component requirements underscore the materials' practicality and user-friendliness, making them widely accessible across diverse educational settings. Moreover, the materials' adaptability and compatibility with varying school resources further enhance their accessibility and utility. However, the slightly lower score concerning the need for extensive supervision or special assistance suggests the importance of addressing potential barriers to ensure equitable access for all students, particularly those with diverse learning needs. The overall passing score of 16.86 confirms the materials' effectiveness in promoting equity and accessibility.

The evaluation results underscore the importance of designing and selecting instructional materials with equity and accessibility considerations in mind. The outstanding scores in several vital areas demonstrate potential progress, indicating that the Supplemental Instructional Materials (SIM) is well-suited for widespread use in diverse educational settings. However, the findings also highlight the need to address potential barriers, such as the requirement for extensive supervision or special assistance, to ensure that all students can fully benefit from the materials. Educators and curriculum developers can use these insights to prioritize equity and accessibility in designing and implementing instructional materials, thereby fostering inclusive learning environments where all students can thrive. Additionally, ongoing evaluation and refinement of materials are essential to continuously enhance their accessibility and effectiveness in meeting the diverse needs of learners.

The evaluation of Supplemental Instructional Materials (SIM) in terms of equity and accessibility aligns with existing research highlighting the importance of inclusive methodologies and resources in education. The outstanding scores in durability, universal accessibility, and minimal additional component requirements reflect the materials' practicality and user-friendliness, consistent with findings emphasizing the need for accessible educational resources (Oppenheim & Schafer, 2013; Stewart, 2015). Similarly, the commendable adaptability and compatibility with varying school resources echo recommendations for designing materials that cater to diverse educational settings and resource availability (Bastida, 2020; Lim, 2017).

However, the slightly lower score concerning the need for extensive supervision or special assistance resonates with research emphasizing the importance of addressing barriers to equitable access, particularly for students with diverse learning needs (Nelson et al., 2019). This finding underscores the ongoing challenge of ensuring that instructional materials are truly inclusive and accessible to all students. The overall passing score of 16.86 confirms the effectiveness of the SIM in promoting equity and accessibility, aligning to provide all students with equitable access to quality education resources (Santos, 2023; de Leon, 2019).

Table 9

The Validity of Supplemental Instructional Materials (SIM) in terms of Assessment as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

Indicators	Mean	Verbal Interpretation
1. There is an observable performance that is relevant to real-world experience, and that can be used to measure student engagement.	3.86	VS
2. Assessment methods are appropriate and suited to the learning objectives.	3.71	VS
3. Assessment is suited to goals and student ability and quickly assesses what has been learned.	4.00	VS
4. The Materials keep an ongoing record of students' progress and allow the teacher full access to individual student monitoring of activities.	4.57	O
Total Score	**16.14**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*
1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (U)*
12 - 20 as the total score	*Passed*

The Supplemental Instructional Materials (SIM) evaluation in terms of assessment reveals a generally positive assessment framework, with strengths in several key areas. The materials demonstrate a very satisfactory level of performance in terms of relevance to real-world experiences and their ability to measure student engagement, as indicated by a mean score of 3.86. Furthermore, the appropriateness of assessment methods concerning learning objectives and the alignment of assessments with student abilities and goals also received very satisfactory scores of 3.71 and 4.00, respectively. Notably, the materials provide ongoing student progress monitoring and grant teachers full access to individual student activity tracking, earning an outstanding score of 4.57. However, while the overall assessment is positive, enhancement opportunities exist to ensure a more consistent alignment between assessment methods and learning objectives. With a total score of 16.14, the materials have passed the evaluation, reflecting their overall effectiveness in facilitating assessment practices.

The evaluation findings suggest that the Supplemental Instructional Materials (SIM) effectively incorporate assessment components that align with instructional goals and support student learning. The materials provide opportunities for observable performance related to real-world experiences, fostering student engagement and relevance. Additionally, the assessment methods are generally appropriate and suitably matched to the learning objectives, contributing to a comprehensive evaluation of student progress. The outstanding score for ongoing student progress monitoring and

teacher access to individual student activity tracking highlights the materials' commitment to facilitating informed instructional decision-making. However, the slightly lower scores in some areas suggest potential opportunities for further refining assessment methods to ensure consistent alignment with learning objectives. The overall passing score of 16.14 underscores the materials' effectiveness in promoting meaningful assessment practices.

The evaluation results underscore the importance of robust assessment practices within Supplemental Instructional Materials (SIM) to support effective teaching and learning. The positive assessment framework demonstrates the materials' commitment to facilitating meaningful and relevant learning experiences for students. Educators can leverage these assessment components to gauge student progress, identify areas of strength and growth, and tailor instruction accordingly. Furthermore, the outstanding score for ongoing student progress monitoring and teacher access to individual student activity tracking emphasizes the importance of data-informed instruction in promoting student success. Moving forward, educators and curriculum developers can continue to refine assessment methods to ensure optimal alignment with learning objectives and enhance the effectiveness of instructional materials in promoting student learning outcomes.

The evaluation of Supplemental Instructional Materials (SIM) in terms of assessment aligns with research emphasizing the importance of incorporating meaningful assessment practices into instructional materials. The materials demonstrate strengths in assessing relevance to real-world experiences and measuring student engagement, consistent with findings emphasizing the importance of authentic assessment methods (Anderson et al., 2018). Additionally, the appropriateness of assessment methods concerning learning objectives and the alignment with student abilities and goals echoes recommendations for designing assessments that accurately measure student progress (Thompson & Silverman, 2022).

The outstanding score for ongoing student progress monitoring and teacher access to individual student activity tracking reflects the materials' commitment to facilitating data-informed instruction, consistent with research highlighting the benefits of continuous assessment and feedback (Bastida, 2020; Lim, 2017). However, the opportunity for enhancement in aligning assessment methods with learning objectives suggests the importance of refining assessment practices to ensure consistent alignment and effectiveness (Oppenheim & Schafer, 2013; Stewart, 2015). The overall passing score of 16.14 affirms the materials' effectiveness in promoting meaningful assessment practices, contributing to informed instructional decision-making and student success (Santos, 2023; de Leon, 2019).

Table 10

The Validity of Supplemental Instructional Materials (SIM) in terms of Presentation and Organization as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

	Indicators	Mean	Verbal Interpretation
1.	Content and directions are clear and understandable and distinguish between critical and trivial information.	3.00	S
2.	Materials are easy to navigate through.	4.71	O
3.	There are provisions for the practice of old and new skills and for students to enter and exit materials easily.	3.29	VS
4.	Materials are interactive and provide a high-quality sensory experience for all users.	3.57	VS
	Total Score	**14.57**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*
1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (L-U)*
12 - 20 as the total score	*Passed*

The evaluation of Supplemental Instructional Materials (SIM) in terms of presentation and organization reveals strengths in certain aspects but also identifies areas for improvement. While the clarity and understandability of content and directions are deemed satisfactory, with a mean score of 3.00, the materials excel in ease of navigation, scoring outstandingly high at 4.71. Additionally, the provision for the practice of both old and new skills and the ease of entry and exit for students is rated very satisfactory at 3.29. However, the materials fall slightly short in providing an interactive and high-quality sensory experience for all users, garnering a score of 3.57. Though the overall evaluation is positive, there is room for enhancement to ensure clarity of content and directions and improve sensory experiences. With a total score of 14.57, the materials have passed the evaluation, signifying their overall effectiveness in presentation and organization.

The evaluation highlights the importance of presentation and organization in Supplemental Instructional Materials (SIM). While the materials excel in navigability and provide adequate provisions for skill practice and accessibility, there are areas where improvements can be made. Clear and understandable content and directions are crucial for facilitating practical learning experiences, and efforts should be directed toward enhancing these aspects. Furthermore, including interactive elements and high-quality sensory experiences can significantly improve user engagement and retention. Despite these areas for improvement, the overall positive assessment underscores the materials' effectiveness in presenting content and organizing resources.

The evaluation results provide valuable insights for refining Supplemental Instructional Materials (SIM) to meet presentation and organization standards better.

Efforts should focus on enhancing the clarity and understandability of content and directions and incorporating interactive elements and sensory experiences to promote user engagement. Additionally, maintaining an outstanding level of navigability and ensuring easy entry and exit for students are essential to uphold. Educators and curriculum developers can use these insights to iteratively improve the design and implementation of instructional materials iteratively, ultimately enhancing students' learning experiences. The passing score of 14.57 affirms the materials' overall effectiveness while highlighting specific areas for enhancement in presentation and organization.

The evaluation findings regarding the presentation and organization of Supplemental Instructional Materials (SIM) align with research emphasizing the importance of clear and understandable content, interactive elements, and ease of navigation in educational materials. While the materials demonstrate strengths in navigability and accessibility, consistent with findings emphasizing the importance of user-friendly design (Oppenheim & Schafer, 2013; Stewart, 2015), there is room for improvement in clarity and sensory experiences to enhance user engagement (Bastida, 2020; Lim, 2017).

The positive assessment underscores the materials' effectiveness in presenting content and organizing resources, consistent with research highlighting the significance of well-organized and engaging instructional materials in facilitating learning experiences (Santos, 2023; de Leon, 2019). However, the identified areas for enhancement in clarity and sensory experiences underscore the importance of iterative refinement to ensure optimal effectiveness (Anderson et al., 2018; Thompson & Silverman, 2022).

Table 11

The Validity of Supplemental Instructional Materials (SIM) in terms of Instructional Design and Support as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

	Indicators	Mean	Verbal Interpretation
1.	The delivery method is used appropriately and successfully engages the students.	3.86	VS
2.	Technical procedures, such as installation and set-up, are easy and error-free.	3.43	VS
3.	Technical specifications and limitations are adequately described and noted.	3.86	VS
4.	Assistance is readily available at any point on the website, and many supplemental resources are available.	4.86	O
	Total Score	**16.00**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*

1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (U)*
12 - 20 as the total score	*Passed*

The Supplemental Instructional Materials (SIM) evaluation in terms of instructional design and support indicates strengths in several key areas. The delivery method is deemed very satisfactory, scoring 3.86, marking the successful engagement of students. Additionally, technical procedures such as installation and set-up are rated very satisfactory at 3.43, suggesting ease and minimal errors in implementation. Moreover, technical specifications and limitations are adequately described and noted, receiving a score of 3.86, contributing to the effective utilization of the materials. Notably, assistance availability and the provision of supplemental resources are outstanding, scoring 4.86. While the overall evaluation is positive, ensuring consistent ease of technical procedures and providing comprehensive descriptions of technical specifications could further enhance instructional support. With a total score of 16.00, the materials have passed the evaluation, demonstrating their effectiveness in instructional design and support.

The evaluation highlights the effectiveness of Supplemental Instructional Materials (SIM) in instructional design and support. The materials engage students through appropriate delivery methods, facilitating compelling learning experiences. Additionally, technical procedures are relatively easy to execute, minimizing errors and streamlining implementation. Adequate technical specifications and descriptions inform users about the materials' capabilities and limitations, contributing to their practical use. The outstanding provision of assistance and supplemental resources further enhances instructional support, fostering a conducive learning environment. However, efforts to ensure consistent ease of technical procedures and comprehensive description of technical specifications could further optimize instructional design and support.

The evaluation results provide valuable insights for refining Supplemental Instructional Materials' instructional design and support aspects (SIM). Efforts should focus on maintaining successful student engagement through appropriate delivery methods and ensuring ease of technical procedures for seamless implementation. A comprehensive description of technical specifications and readily available assistance can further enhance users' understanding and utilization of the materials. Additionally, ample supplemental resources can enrich the learning experience and cater to diverse learning needs. Educators and curriculum developers can use these insights to iteratively improve the design and implementation of instructional materials, ultimately enhancing student learning outcomes. The passing score of 16.00 affirms the materials' overall effectiveness while highlighting specific areas for instructional design and support enhancement.

The evaluation findings regarding the instructional design and support of Supplemental Instructional Materials (SIM) align with research emphasizing the importance of engaging delivery methods, ease of technical procedures, and comprehensive support mechanisms in educational materials (Giguere et al., 2020). The positive assessment of the delivery method and technical procedures reflects the

significance of user-friendly design and seamless implementation in facilitating effective learning experiences (Anderson et al., 2018; Santos, 2023).

Furthermore, the outstanding provision of assistance and supplemental resources aligns with research highlighting the importance of comprehensive support systems in promoting student success and engagement (de Leon, 2019; Thompson & Silverman, 2022). However, the identified areas for improvement in ensuring consistent ease of technical procedures and providing comprehensive descriptions of technical specifications underscore the ongoing need for refinement and optimization in instructional design and support (Lim, 2017; Bastida, 2020).

Table 12

The Validity of Supplemental Instructional Materials (SIM) in terms of Replicability as validated by the SHS Master Teachers, Mathematics Department Heads, and Regular Mathematics Teachers.

Indicators	Mean	Verbal Interpretation
1. The material was validated before classroom use.	4.57	O
2. Developed material is based on the least mastered skill.	4.57	O
3. The material used has improved the mastery level.	3.29	VS
4. The material is easy to copy, and the cost is less.	4.86	O
Total Score	**17.29**	**Passed**

Legend:

4.20 - 5.00	*Outstanding (O)*
3.40 - 4.19	*Very Satisfactory (VS)*
2.60 - 3.39	*Satisfactory (S)*
1.80 - 2.59	*Less Satisfactory (LS)*
1.00 - 1.79	*Unsatisfactory (U)*
12 - 20 as the total score	*Passed*

Supplemental Instructional Materials (SIM) evaluation of replicability indicates significant strengths across several critical criteria. Firstly, the materials are validated before classroom use, earning an outstanding score of 4.57, demonstrating a rigorous validation process. Additionally, the development of materials based on the least mastered skill also receives an impressive score of 4.57, highlighting a targeted approach to addressing student needs. While the material's effectiveness in improving mastery levels is rated very satisfactorily at 3.29, it still positively impacts student learning. Moreover, the ease of copying the material and its cost-effectiveness are outstanding, scoring 4.86, ensuring accessibility and affordability for replication. Overall, the evaluation yields a high total score of 17.29, affirming the materials' strong replicability.

The evaluation underscores the robust replicability of Supplemental Instructional Materials (SIM) due to their rigorous validation process, targeted approach to skill development, and cost-effective nature. The outstanding scores in material validation

and development based on the least mastered skills reflect a systematic and evidence-based approach to instructional design. Additionally, the ease of copying and cost-effectiveness ensure accessibility and affordability, facilitating widespread adoption and replication. Though the materials' impact on improving mastery levels is rated satisfactorily, they still positively contribute to student learning outcomes.

The evaluation results highlight the replicability of Supplemental Instructional Materials (SIM) as a valuable resource for educators seeking effective instructional materials. The outstanding scores in material validation and development underscore their reliability and effectiveness in addressing student needs. Moreover, the ease of copying and cost-effectiveness make the materials accessible to various educational settings, promoting their widespread adoption and replication. Educators and curriculum developers can leverage these insights to replicate and adapt the materials to suit their specific contexts and student populations, enhancing learning outcomes. Additionally, ongoing evaluation and refinement of the materials are essential to ensure their continued effectiveness and relevance in diverse educational settings.

The evaluation findings regarding the replicability of Supplemental Instructional Materials (SIM) align with research emphasizing the importance of rigorous validation processes and targeted skill development in educational materials (Wang et al., 2020). The outstanding scores in material validation and development based on the least mastered skills reflect a systematic and evidence-based approach to addressing student needs, contributing to the materials' effectiveness in improving learning outcomes.

Furthermore, the ease of copying and cost-effectiveness of the materials aligns with research highlighting the significance of accessibility and affordability in promoting widespread adoption and replication (Davis and Thompson, 2019). These strengths underscore the materials' potential as valuable resources for educators seeking effective instructional materials that can be easily replicated and adapted to diverse educational settings and student populations.

Table 13

Summary of the Validity of Supplemental Instructional Materials (SIM).

Criteria	Score	Verbal Interpretation
Content	16.86	Passed
Equity and Accessibility	16.86	Passed
Assessment	16.14	Passed
Presentation and Organization	14.57	Passed
Instructional Design and Support	16.00	Passed
Replicability	17.29	Passed
MEAN	**16.29**	**Passed**

The summary table presents the overall Supplemental Instructional Materials (SIM) evaluation across six key aspects. In terms of content, equity and accessibility, assessment, instructional design and support, and replicability, the materials have all received passing scores, indicating their effectiveness in these areas. Specifically, the materials excelled in replicability, with a mean score of 17.29, followed closely by content and equity/accessibility, scoring 16.86. Assessment, instructional design, and support also received commendable scores, with means of 16.14 and 16.00, respectively. However, presentation and organization scored slightly lower at 14.57. Nevertheless, the mean of 16.29 demonstrates that the Supplemental Instructional Materials have successfully passed the evaluation across all dimensions.

The summary evaluation underscores the comprehensive effectiveness of Supplemental Instructional Materials (SIM) across various dimensions. The high mean scores in content, equity and accessibility, assessment, instructional design and support, and replicability indicate the materials' robustness and alignment with educational objectives. While presentation and organization received a slightly lower mean score, it still reflects an overall positive evaluation. This holistic assessment suggests that the materials are well-designed, accessible, and supportive of diverse learning needs, facilitating effective teaching and learning experiences.

The summary evaluation provides valuable insights into the strengths and areas for improvement in Supplemental Instructional Materials (SIM). Educators and curriculum developers can leverage these insights to enhance the materials' effectiveness and relevance further. Specifically, efforts can be directed towards improving organization and presentation to ensure clarity and user-friendliness. Additionally, ongoing evaluation and refinement of the materials are essential to ensure their continued effectiveness and alignment with evolving educational standards and practices. Overall, the passing grand mean of 16.29, along with high mean scores across variables, affirms the quality and efficacy of the materials, positioning them as valuable resources for educators striving to promote student learning and success.

The summary evaluation of the Supplemental Instructional Materials (SIM) aligns with research emphasizing the importance of comprehensive evaluation frameworks in assessing the effectiveness of educational materials (Davis and Thompson, 2019). The high mean scores across various dimensions, particularly in content, equity and accessibility, assessment, instructional design and support, and replicability, reflect the robustness and alignment of the materials with educational objectives.

The strengths identified in the summary evaluation, such as the material's effectiveness in addressing diverse learning needs and their accessibility and replicability, resonate with findings in the literature highlighting the importance of inclusive and adaptable instructional materials (Eskay, 2018). Additionally, the areas for improvement identified in organization and presentation align with research emphasizing the significance of clarity and user-friendliness in instructional materials to enhance learning outcomes (Eskay, 2018).

Part V. The Recommendations Given by the Validators to Improve the Output and Address the Students' Performance on the Least Mastered Competencies in General Mathematics.

In the Supplemental Instructional Materials (SIM) evaluation process, multiple validators provided recommendations to enhance its effectiveness. Validator 6 emphasized the importance of localizing content by replacing the dollar sign with the peso sign to increase student engagement and ensure the originality of examples and exercises. Validator 7 suggested proper formatting of equations and functions, including step-by-step solutions and using indicators for clarity. Additionally, Validator 5 highlighted the significance of utilizing MS Word to encode equations and symbols for better presentation while recommending tables for organizing solutions to improve user understanding. Validator 4 stressed the importance of aligning activities with intended objectives, whereas Validator 3 suggested the inclusion of discussions to address misconceptions and allow for topic revisitation.

Furthermore, Validator 1 emphasized the necessity of adequately writing equations, using indicators for clarity, and formatting the content for improved readability. Validator 2 added the recommendation to localize examples and exercises and avoid using dollar signs about money. These recommendations aim to enhance the SIM's engagement, authenticity, clarity, organization, and presentation, ultimately improving its effectiveness as an instructional resource for struggling learners.

Part VI. Enhancements Supplemental Instructional Materials (SIM) can be Developed Based on the Recommendations by the Validators.

Based on the recommendations provided by the validators, an enhancement version of the Supplemental Instructional Materials (SIM) can be proposed. The enhancement SIM would feature localized content, utilizing the peso sign instead of the dollar sign, to better engage students and make the material more relatable to their context. Original examples and exercises would be incorporated to maintain authenticity and ensure the content is not directly lifted from other sources.

Equations and functions would be properly written, and clear step-by-step solutions would be provided, following the recommendations of Validator 7. Indicators such as "Let x be" or "Where y is the function" would be used throughout the material to enhance clarity, as suggested by Validator 1. Additionally, the content would be formatted using justified alignment for improved readability, aligning with the recommendation of Validator 1.

Equations and symbols would be encoded using MS Word, as recommended by Validator 5, to enhance presentation and clarity. Solutions to problems would be organized in tables to facilitate understanding, as suggested by Validator 5. Furthermore, discussions would be included within the material to address

misconceptions and allow learners to revisit topics, aligning with the recommendation of Validator 3.

The activities within the SIM would be carefully aligned with the intended objectives, ensuring that they effectively measure Essential Learning Competencies (MELCs), as emphasized by Validator 4. Additionally, the Enrichment Card would extend activities without including objective types such as fill-in-the-blanks or multiple-choice, as recommended by Validator 2.

DISCUSSION

The study yielded the following findings:

1. The least mastered competencies in General Mathematics of Grade 11 learners in College of Sciences, Technology and Communications, Inc., (CSTC) for the last five school years.

In examining the performance trends over the past five years, it becomes evident that specific competencies within General Mathematics have posed persistent difficulties for Grade 11 learners at College of Sciences, Technology and Communications, Inc., (CSTC). Across various areas, including mathematical modeling, function operations, and problem-solving involving rational, inverse, exponential, and logarithmic functions, students have exhibited difficulty in achieving mastery. Specifically, difficulties in accurately constructing mathematical models to represent real-life situations, performing operations with functions, and solving equations and inequalities have emerged as recurring themes. These difficulties highlight areas where students have struggled to demonstrate proficiency and underscore the need for targeted Supplemental Instructional Materials to address these persistent difficulties.

To effectively address these difficulties, educators and administrators at CSTC must adopt a multifaceted approach that combines targeted SIM, differentiated instruction, and enhanced support mechanisms. Educators can tailor their teaching methods to provide additional support and practice opportunities by identifying specific competencies where students have historically struggled. Moreover, incorporating real-life contexts and applications into the curriculum can help students better understand the relevance of mathematical concepts and enhance their problem-solving abilities. Through collaborative efforts and a commitment to continuous improvement, CSTC can work towards improving students' mastery of General Mathematics and fostering a culture of academic excellence.

2. The difficulties encountered by the Grade 11 learners in learning competencies in General Mathematics.

The difficulties encountered by Grade 11 learners in General Mathematics, as analyzed in terms of three performance standards:

2.1 Accurately construct mathematical models to represent real-life situations using functions: This standard pertains to the ability of students to create mathematical models that accurately depict real-world scenarios. The composite mean of 4.41 indicates that learners encounter significant challenges in this aspect, with an adjectival rating of "AE," denoting a high level of difficulty. This standard ranks first among the performance standards, highlighting the importance and complexity of accurately representing real-life situations mathematically.

2.2 Accurately formulate and solve real-life problems involving rational functions: This standard focuses on the proficiency of students in formulating and solving real-world problems that involve rational functions. The composite mean of 4.10 suggests that learners face obstacles in achieving precision and accuracy in this area, as indicated by the adjectival rating of "OE," signifying a moderate level of difficulty. Despite ranking third among the performance standards, this competency remains crucial for applying mathematical concepts to practical situations.

2.3 Apply the concepts of inverse functions, exponential functions, and logarithmic functions to formulate and solve real-life problems with precision and accuracy: This standard relates to students' capability to apply various mathematical functions, such as inverse, exponential, and logarithmic functions, to solve real-life problems accurately. With a composite mean of 4.28 and an adjectival rating of "AE," this standard ranks second in terms of difficulty. Learners may encounter challenges in comprehending and applying these complex functions effectively, highlighting the need for targeted support and instruction in this area.

The grand mean of 4.26, also rated as "AE," reflects the overall level of difficulty across the three performance standards. This comprehensive analysis underscores the multifaceted nature of the challenges faced by Grade 11 learners in General Mathematics and emphasizes the importance of addressing these difficulties through targeted SIM.

3. The Supplemental Instructional Materials (SIM) can be developed based on the least mastered competencies and difficulties encountered.

To effectively address the least mastered competencies and difficulties encountered by Grade 11 learners in General Mathematics, a supplemental approach involving the development of targeted Supplemental Instructional Materials (SIM) is essential. The identified difficulties, ranging from mathematical modeling to problem-solving with exponential and logarithmic functions, underscore the need for tailored interventions that provide students with focused support. One approach could involve the creation of interactive tutorials and simulations that guide students through constructing mathematical models and manipulating functions. These materials can

offer step-by-step guidance and hands-on practice to reinforce key concepts and skills, helping students build confidence and proficiency.

Additionally, real-life problem-solving scenarios can be developed to allow students to apply their knowledge in practical contexts, enhancing the relevance and applicability of the concepts being taught. By incorporating a variety of resources and activities, educators can create a cohesive learning experience that effectively addresses the specific needs of Grade 11 learners in General Mathematics. These interventions aim to improve students' understanding and proficiency in the subject, foster critical thinking skills, and promote more profound engagement with mathematical concepts.

4. The validity of Supplemental Instructional Materials (SIM).

4.1 Content: With a score of 16.86, the Content focus passed the validity assessment. This indicates that the content of the SIM is comprehensive, relevant, and aligned with educational standards and learning objectives, ensuring its effectiveness in supporting teaching and learning.

4.2 Equity and Accessibility: Similarly, the Equity and Accessibility focus scored 16.86, passing the validity assessment. This suggests that the SIM is designed to accommodate diverse learners, including those with disabilities or limited resources, promoting inclusivity and equitable access to educational materials.

4.3 Assessment: The Assessment focus scored 16.14, indicating that the SIM incorporates effective assessment mechanisms to monitor learning progress and inform instructional adaptations. This ensures that students' comprehension and skill mastery are adequately evaluated, enhancing the overall efficacy of SIM implementation.

4.4 Presentation and Organization: With a score of 14.57, the Presentation and Organization focus passed the validity assessment. This suggests that the SIM is designed with clear instructional design, logical sequencing, and navigational aids to enhance usability and engagement, facilitating content comprehension and retention.

4.5 Instructional Design and Support: The Instructional Design and Support focus scored 16.00, indicating that the SIM incorporates effective instructional design principles and support mechanisms. This ensures that learning experiences are scaffolded and supported, promoting student autonomy and knowledge construction.

4.6 Replicability: Scoring 17.29, the Replicability focus passed the validity assessment, indicating that the SIM is designed to be adaptable, customizable, and easily replicable across diverse educational contexts. This enhances scalability and sustainability, ensuring the widespread adoption and implementation of effective educational practices.

The mean score of 16.29 indicates that the SIM successfully passed the validity assessment across all focuses. This suggests that the SIM demonstrates strong validity, ensuring its suitability and effectiveness in enhancing teaching and learning outcomes.

5. The recommendations given by the validators to improve the output and address the students' performance on the least mastered competencies in General Mathematics.

Multiple validators recommended enhancing the Supplemental Instructional Materials (SIM) during the evaluation process. Validator 6 emphasized localizing content using the peso sign instead of the dollar sign to engage students and ensure original examples and exercises. Validator 7 suggested proper formatting of equations and step-by-step solutions, with indicators for clarity. Validator 5 highlighted the importance of using MS Word for encoding equations and organizing table solutions. Validator 4 stressed aligning activities with objectives, while Validator 3 recommended including discussions to address misconceptions. Validator 1 emphasized writing equations clearly and using indicators, and Validator 2 suggested localizing examples and avoiding dollar signs. These recommendations collectively aim to improve engagement, authenticity, clarity, organization, and presentation of the SIM, benefiting struggling learners.

6. Enhancements Supplemental Instructional Materials (SIM) can be developed based on the recommendations by the validators.

The enhancements version of the Supplemental Instructional Materials (SIM) developed based on the validators' recommendations would include several key improvements. First, the content would be localized using the peso sign instead of the dollar sign to make it more relatable to students. Original examples and exercises would be used to maintain authenticity.

Equations and functions would be written clearly, and step-by-step solutions would be provided, as suggested by Validator 7. Indicators like "Let x be" or "Where y is the function" would enhance clarity throughout the material, following Validator 1's recommendation. Formatting would be adjusted for better readability, aligning with Validator 1's suggestion.

Equations and symbols would be encoded using MS Word, as recommended by Validator 5, to improve presentation and clarity. Solutions to problems would be organized in tables to aid understanding, following Validator 5's advice. Discussions would be included to address misconceptions and allow for topic revisitation, as suggested by Validator 3.

Activities within the SIM would be aligned with the intended objectives, ensuring they effectively measure the Essential Learning Competencies (MELCs), per Validator 4's emphasis. Additionally, the Enrichment Card would extend activities without including objective types like fill-in-the-blanks or multiple-choice, aligning with Validator 2's recommendation.

These enhancements aim to improve engagement, authenticity, clarity, organization, and presentation of the SIM, benefiting struggling learners.

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. Examining the least mastered competencies in General Mathematics among Grade 11 learners at CSTC reveals persistent difficulties in mathematical modeling, function operations, and problem-solving involving rational, inverse, exponential, and logarithmic functions. Identifying these difficulties underscores the importance of addressing specific competencies where students struggle to demonstrate proficiency. By targeting interventions and instructional strategies to address these persistent difficulties, educators can effectively enhance students' understanding and mastery of General Mathematics.

2. The analysis of difficulties encountered by Grade 11 learners in General Mathematics highlights various difficulties, including accurately constructing mathematical models, manipulating functions and equations, and applying concepts to real-life problems. These difficulties and conceptual misunderstandings underscore the complexity of mastering mathematical concepts in General Mathematics. By recognizing and addressing these obstacles, educators can create a supportive learning environment that fosters students' understanding and proficiency.

3. Developing targeted Supplemental Instructional Materials (SIM) based on the identified least mastered competencies and encountered difficulties are essential for effectively addressing the needs of Grade 11 learners in General Mathematics. By incorporating interactive tutorials, real-life problem-solving scenarios, and a variety of resources and activities, educators can provide students with focused support and opportunities for practice and application. These interventions aim to improve students' understanding, proficiency, and critical thinking skills in General Mathematics, ultimately fostering a culture of academic excellence and ensuring the success of all learners at CSTC.

4. In terms of content, equity and accessibility, assessment, instructional design and support, and replicability, the Supplemental Instructional Materials (SIM) have all received passing scores, indicating their effectiveness in these areas. Specifically, the materials excelled in replicability, with a mean score of 17.29, followed closely by content and equity/accessibility, both scoring 16.86. Assessment, instructional design, and support also received commendable scores, with means of 16.14 and 16.00, respectively. However, organization and presentation scored slightly lower at 14.57. Nevertheless, the overall score of 97.71 demonstrates that the Supplemental Instructional Materials have successfully passed the evaluation across all dimensions.

5. Multiple validators recommended enhancing the Supplemental Instructional Materials (SIM) during the evaluation process. Validator 6 emphasized localizing content using the peso sign instead of the dollar sign to engage students and ensure original examples and exercises. Validator 7 suggested proper formatting of equations and step-by-step solutions, with indicators for clarity. Validator 5 highlighted the importance of using MS Word for encoding equations and organizing table solutions. Validator 4 stressed aligning activities with objectives, while Validator 3 recommended including discussions to address misconceptions. Validator 1 emphasized writing equations clearly and using indicators, and Validator 2 suggested localizing examples and avoiding dollar signs. These recommendations collectively aim to improve engagement, authenticity, clarity, organization, and presentation of the SIM, benefiting struggling learners.

6. The enhancements version of the Supplemental Instructional Materials (SIM) developed based on the validators' recommendations would include several key improvements. First, the content would be localized using the peso sign instead of the dollar sign to make it more relatable to students. Original examples and exercises would be used to maintain authenticity. Equations and functions would be written clearly, and step-by-step solutions would be provided, as suggested by Validator 7. Indicators like "Let x be" or "Where y is the function" would enhance clarity throughout the material, following Validator 1's recommendation. Formatting would be adjusted for better readability, aligning with Validator 1's suggestion. Equations and symbols would be encoded using MS Word, as recommended by Validator 5, to improve presentation and clarity. Solutions to problems would be organized in tables to aid understanding, following Validator 5's advice. Discussions would be included to address misconceptions and allow for topic revisitation, as suggested by Validator 3. Activities within the SIM would be aligned with the intended objectives, ensuring they effectively measure the Essential Learning Competencies (MELCs), per Validator 4's emphasis. Additionally, the Enrichment Card would extend activities without including objective types like fill-in-the-blanks or multiple-choice, aligning with Validator 2's recommendation. These enhancements aim to improve engagement, authenticity, clarity, organization, and presentation of the SIM, benefiting struggling learners.

Recommendations

Because the identified variables, the least mastered competencies in General Mathematics, the difficulties encountered, developing Supplemental Instructional Materials (SIM), the validity of Supplemental Instructional Materials (SIM), recommendations of the validators, and enhanced Supplemental Instructional Materials (SIM), the following recommendations were drawn:

1. School administrators and teachers may address the persistent difficulties in General Mathematics for Grade 11 learners at College of Sciences, Technology and Communications, Inc., (CSTC) by implementing targeted SIM. Firstly, they may develop focused Supplemental Instructional Materials programs concentrating on problematic competencies like mathematical modeling and function operations. Secondly, they may employ differentiated instruction methods to accommodate diverse learning styles and abilities. Thirdly, they may strengthen support mechanisms such as peer tutoring and academic support centers. Fourthly, they may integrate real-life applications into the curriculum to enhance engagement and relevance. Lastly, they may foster collaborative efforts among educators, administrators, students, and parents to implement effective strategies for improving student performance in mathematics.

2. DepEd officials and teachers may collaborate closely to address the difficulties encountered by Grade 11 learners in General Mathematics. This collaboration may involve a comprehensive review and revision of the curriculum to ensure it adequately addresses the identified difficulties. Professional development workshops and training sessions may be organized to enhance teachers' pedagogical skills and content knowledge, focusing on effective strategies for teaching complex mathematical concepts. Resource allocation may prioritize providing schools with the necessary tools and materials to support effective teaching and learning. Additionally, mechanisms for monitoring and support may be established to ensure the successful implementation of SIM. Furthermore, involving parents and the broader community in supporting students' learning can enhance the effectiveness of Supplemental Instructional Materials aimed at improving students' understanding and mastery of mathematical concepts.

3. Teachers may consider utilizing the validated Supplemental Instructional Materials (SIM) for General Mathematics, as they have undergone thorough evaluation and validation by experts across key aspects. With passing scores in content, equity/accessibility, assessment, presentation and organization, instructional design and support, and replicability, these materials have demonstrated their effectiveness and suitability for classroom use. By incorporating these SIM into their teaching practices, teachers can enhance instruction, provide additional support to students, and improve learning outcomes in General Mathematics. The endorsement of these materials by institutions or private associations of schools further validates their quality and reliability, providing teachers with confidence in their utilization.

4. Educators and teachers may consider to prioritize the development of targeted Supplemental Instructional Materials (SIM) to effectively address the least mastered competencies and difficulties encountered by Grade 11 learners in General Mathematics. This approach acknowledges the identified difficulties, including mathematical modeling and problem-solving with exponential and logarithmic functions, and emphasizes the need for tailored interventions. One effective strategy is the creation of interactive tutorials and simulations that provide step-by-step guidance and hands-on practice for learners. These

materials can offer support in constructing mathematical models and manipulating functions, ultimately boosting students' confidence and proficiency. Additionally, educators may consider developing real-life problem-solving scenarios to enhancement the relevance and applicability of mathematical concepts. By incorporating a variety of resources and activities, educators may create a cohesive learning experience that addresses the specific needs of Grade 11 learners in General Mathematics, fostering deeper engagement and improving overall understanding and proficiency.

5. It is recommended to the school heads that the Supplemental Instructional Materials (SIM) resulting from the study undergo periodic evaluation to assess their effectiveness in addressing identified difficulties in General Mathematics and improving student mastery. Establishing a formal mechanism for ongoing evaluation will ensure that the SIM remains relevant and responsive to the evolving needs of Grade 11 learners.

6. Future researchers may conduct long-term studies to track the effectiveness of SIM targeting the identified least mastered competencies in General Mathematics among Grade 11 learners. They may also explore alternative teaching methods tailored to address specific difficulties encountered by learners. Additionally, researchers may focus on developing and validating innovative assessment tools aligned with identified difficulties. Understanding how contextual factors impact students' learning experiences will inform the development of effective Supplemental Instructional Materials and support mechanisms.

Compliance with Ethical Standards

The study ensured the informed consent was given to the following respondents. Freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents' well-being was safeguarded, no conflict of interests exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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PERFORMANCE OF TEACHERS-IN-CHARGE AS SCHOOL HEAD AND CLASSROOM TEACHER IN THE THIRD CONGRESSIONAL DISTRICT OF QUEZON: BASIS FOR INTERVENTION

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ABSTRACT

The study focused on the performance of Teachers-In-Charge as School Heads and Classroom Teachers in the 3rd Congressional District of Quezon. The study employed the descriptive type of research utilizing (55) respondents with an adopted standardized performance evaluation instrument as the primary data gathering tool and a statistical tool as the results measuring and analysis device. The study revealed that typical respondents are described mainly as the ages 36 to 40, female-dominated, married, bachelor's degree holders, Teacher III in position, monograde classes handler, and TIC for 1-5 years. Moreover, the level of performance of the TIC as school head in terms of the Office Performance and Commitment Review based on the Results-Based Performance Management System – Philippine Professional Standards for School Heads has a very satisfactory rating. The level of performance of the TIC as a classroom teacher when measured based on KRAs of the Individual Performance and Commitment Review has also a very satisfactory rating. Despite the very satisfactory level of performance, the research findings revealed that TICs must improve their skills in the following areas: utilization of relevant research findings in leading strategically; assisting teachers in the review, contextualization, and implementation of learning standards; and, developing self and others, which serve as the basis for intervention.

Keywords: *Level of performance, Teachers-In-Charge, School Head, Classroom Teacher*

INTRODUCTION

The school is said to be the second home for all learners. Specifically, it is the venue for all the learnings of the schoolchildren substantial to their everyday lives. According to Republic Act No. 9155, Governance of Basic Education Act of 2001, “The school shall be the heart of the formal education system.” Schools must have a single goal: to provide the greatest possible primary education for all students. According to Section 6.1, Rule VI of the Implementing Rules and Regulations of RA 9155, all public elementary and secondary schools, or a cluster thereof, must have a school head. A school head is defined under this act as "a person who is responsible for the administrative and instructional supervision of a school or cluster of schools." They serve as key leaders in the country’s education system and are indispensable in achieving the government’s aim of providing quality primary education. The primary functions of the school head, as defined in the act mentioned above, are administrative management and instructional leadership.

In the international scene, several authors from different research describe the functions and roles of the school head such as principal or any other equivalent position as the chief executive of schools who has multifarious tasks to accomplish for successful administration of the school system. Ezeocha (2000) views the roles of school head as supervision of instruction, curriculum development and evaluation, school-community relationship, staff-personnel administration, student personnel administration, management of school finance and school physical facilities. This further expounds the same extent of responsibilities given to teachers-in-charge who are designated to manage the schools without a principal.

In the Philippines, the preparation for being a full-time school head, such as a head teacher or principal, begins when a teacher becomes the teacher-in-charge of the school. Given, DepEd Order No. 85, series 2003, this states that the Schools Division Superintendent shall designate Teachers-In-Charge (TIC) in schools without principal items. A teacher-in-charge must have at least three (3) years of experience and undergo a screening process conducted by the Division Office. This was reiterated in DepEd Order No. 42, series 2007. Aside from being a classroom teacher, he or she performs the work being done by full-pledged school leaders. The current situation in the country tells us that TICs are regular teachers who serve the school with two different roles. This results in conflicts in their line of work as a classroom teacher and as a school administrator which affects both their performances.

DepEd Quezon is one of the largest divisions in Region IV-A that has many teachers-in-charge. There are four congressional districts, but they have only a few full-time school heads. Likewise, in this division, particularly in Macalelon District, out of eighteen (18) public elementary schools, fourteen (14) schools are being managed by teachers-in-charge. Most of them were in the Teacher I position. In previous years, they

were designated upon the recommendation of the school head before them and the district supervisor to the Schools Division Superintendent. At the present time, qualified teachers may apply for a TIC designation as needed. Further, they had no training as school leaders before they were designated as ones. There are different administrative and instructional supervision tasks given to them.

Role theory posits that different roles people perform and how expectations and interpretations of these roles affect people's experiences both at work and personally. A person may have competing responsibilities that take up their time, making it impossible for them to dedicate the same amount of time to activities in one role and activities in another (Greenhaus & Beutell, 1985). According to Lobel (1991), the utilitarian perspective on role investment contends that roles are compared to each other, resulting in a win-lose situation where time spent on one job reduces time spent on another. There are two ways that this could happen. First, it could be physically difficult to fulfill the demands of one function due to time constraints in another. Time constraints might sometimes lead to a preoccupation with one role while trying to fulfill the requirements of another role (Evans and Bartolome, 1979). In relation to the dual roles of the TICs, who has administrative and classroom teaching functions, this theory relates with the idea that TICs perform two different roles that might affect their performance in doing such. This may also give the context to look for its relationship because it is imperative to know what significance it may bring to make necessary intervention to improve their performances.

The researcher was motivated to conduct the study because of the problems encountered by the TICs in the locality concerning their functions as school heads and classroom teachers, which may affect their performance in doing such roles. The relationship between role overload and productivity at work stays little comprehended. Since work performance is the foundation of an organization's success, it has been established as the primary criterion for employee evaluation and reward. Understanding how and when role overload affects work performance is crucial for management scholars and practitioners. Boundary circumstances most certainly exist because the relationship between role overload and performance has been found to be beneficial in some research but negative in others (LePine et al., 2004; Gilboa et al., 2008; Bowling et al., 2015).

Research Questions

This study aims to determine the level of performance of teachers-in-charge as school heads and classroom teachers.

Specifically, it aims to answer the following questions:

1. What is the level of performance of the teachers-in-charge as school heads based on the Office Performance and Commitment Review?
    1.1 Leading Strategically
    1.2 Managing School Operations and Resources
    1.3 Focusing on Teaching and Learning
    1.4 Developing Self and Others
    1.5 Building Connections
2. What is the level of performance of the teachers-in-charge as classroom teachers

based on the Individual Performance and Commitment Review?

2.1 Content Knowledge and Pedagogy

2.2 Learning Environment

2.3 Diversity of Learners, Curriculum and Planning, & Assessment and Reporting

2.4 Community Linkages and Professional Engagement, & Professional Growth and Professional Development

3. Is there a significant difference between the performance of TIC as school head and classroom teacher when group according to?

3.1 Teaching position

3.2 Type of school handled

4. Is there a significant relationship between the performance of TIC as school head and classroom teacher?

5. What intervention could be proposed based on the result of the study?

METHODOLOGY

Research Design

This study utilized a quantitative descriptive research design method. It suited to this type of research since it aimed to describe and determine the performance of TICs as school heads and classroom teachers and its relationship to their demographic profiles. A descriptive type of research aims to gather information, present conditions, and describe the nature of the situation. It was used to describe the characteristics of a population studied. It does not answer questions about how, when, and why the characteristics occurred (Wikipedia).

Research Locale

The study was conducted in the Third Congressional District of Quezon Province. This is one of the four congressional districts of Quezon, originally known as Tayabas, referred to as the Bondoc Peninsula. Since 1987, it has been represented in the House of Representatives. The municipalities that make up the district are Agdangan, Buenavista, Catanauan, General Luna, Macalelon, Mulanay, Padre Burgos, Pitogo, San Andres, San Francisco, San Narciso, and Unisan. These municipalities are located on the southern portion of the Tayabas Isthmus, and the southwest shore of the Ragay Gulf.

DepEd Quezon is one of the largest divisions in Region IV-A CALABARZON that has many teachers-in-charge. It is indeed important to help them to improve their performance as a school head and address the issues related to their roles as classroom teachers.

Since most of the school heads in the third congressional district were teachers designated as TICs, the researcher chose this locale to be her respondents. These school heads were ordinary classroom teachers that needed help in terms of performing two different roles.

Research Population and Sample

In choosing the population and sample, the researcher applied purposive sampling, where the researcher purposely selected the TICs as respondents of this study due to the challenges met in the locality when performing the tasks of a school head and a classroom teacher at the same time. The conduct of the study utilized a combination of in-person and online platform, so the internet access of the desired number of respondents was considered.

Table 1

List of Respondents in the Third Congressional District of Quezon

Municipality	School District	Total No. of Schools with TICs	Total No. of Respondents
Agdangan	Agdangan	3	3
Buenavista	Buenavista 1	3	3
	Buenavista 2	4	3
Catanauan	Catanauan 1	4	3
	Catanauan 2	3	3
General Luna	General Luna	7	6
Macalelon	Macalelon	14	12
Mulanay	Mulanay 1	3	3
	Mulanay 2	3	2
Padre Burgos	Padre Burgos	4	3
Pitogo	Pitogo	4	3
San Andres	San Andres	4	3
San Francisco	San Francisco	4	3
San Narciso	San Narciso 1	4	3
	San Narciso 2	2	2
Unisan	Unisan	0	0
Total		**66**	**55**

Table 1 shows the study's population which was made up of TICs in the Third Congressional District in the Division of Quezon and computed with the statistician's help. The appropriate sample size, given the population size and specified combination of precision, confidence, and variability, is 55. (This represents the count or number of TICs in the selected district.)

Research Instrument

A survey questionnaire used a standardized performance evaluation tool to gather the necessary information. It was divided into three parts, with the *first* dealing with the

questions that determine the demographic profile of the respondents. The *second* part contained indicators that evaluated the performance of the school heads using the OPCR, initiated by the Division of Quezon. The *third* part contained indicators that determine their performance as classroom teachers based on the KRAs of their IPCR. The study's respondents were the TICs in the third congressional district of Quezon.

Since the study used standardized performance evaluation tools, validation was not a requirement. Pilot testing was done with several TICs outside the research locale to rehearse the research study and test the research approach with a few test participants before conducting the main study (Wright & So, 2022). The researcher prepared several letters addressed to the Division Superintendent and all district supervisors concerned to ask permission to conduct the study. A cover letter was prepared to inform respondents in the purpose of the questionnaire and to assure them that their responses would be treated with utmost confidentiality.

Data Gathering Procedure

Moreover, the researcher requests a letter to the Superintendent of the Schools Division of Quezon to approve the distribution of survey questionnaires to ensure the maximum cooperation of the target respondents. The distributions, and the retrieval, were personally conducted by the researcher using online forms and, or in-person methods. After the retrieval, the gathered data were generated by the statistician for statistical treatment and data analysis.

Statistical Treatment of Data

The data gathered through the questionnaire were classified, tabulated, and analyzed. The data that answered the specific problems were treated as follows:
The scale below was used for the analysis of the data gathered.

Weight	Range Scale	Verbal Interpretation
5	4.51-5.00	Outstanding (O)
4	3.51-4.50	Very Satisfactory (VS)
3	2.51-3.50	Satisfactory (S)
2	1.51-2.50	Unsatisfactory (US)
1	1.00-1.50	Poor (P)

A mean score was used to determine the level of performance of TICs as school heads and classroom teachers.

Mean Score

$M = \Sigma fw/n$

Where: M is the mean
f is the frequency
w is the weight
n is the number of cases

The Kruskal-Wallis H-Test was used to determine the significance of the difference.

One-Way ANOVA

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares (MS)	F
Within	$SSW = \sum_{j=1}^{k}\sum_{j=1}^{l}(x-\bar{x}_j)^2$	$df_w = k-1$	$MSW = \frac{SSW}{df_w}$	$F = \frac{MSB}{MSW}$
Between	$SSB = \sum_{j=1}^{k}(\bar{x}_j - \bar{x})^2$	$df_b = n-k$	$MSB = \frac{SSB}{df_b}$	
Total	$SST = \sum_{j=1}^{n}(\bar{x}_j - \bar{x})^2$	$df_t = n-1$		

Sp

$$\rho = 1 - \frac{6\sum d^2}{n(n^2-1)}$$

To interpret the results of Spearman Rho Correlation, the following continuum was used:

Size of Correlation	Interpretation
±1.00	Perfectly positive/ negative correlation
±0.90 – 0.99	Very high positive/ negative correlation
±0.70 – 0.89	High positive/ negative correlation
±0.50 – 0.69	Moderately positive/ negative correlation
±0.30 – 0.49	Low positive/ negative correlation
±0.01 – 0.29	Negligible correlation
0.00	No correlation at all

RESULTS

Part I. Level of Performance of the TIC as School Head in terms of the Office Performance and Commitment Review Form based on the RPMS-PPSSH

Table 2

Mean Scores of the Level of Performance of the TIC as School Head using Office Performance and Commitment Review based on the RPMS-PPSSH for Leading Strategically

Indicators	Mean	Verbal Interpretation
1. Develop with the planning team school plans aligned with institutional goals and policies	4.24	Very Satisfactory
2. Implement programs in the school that support the development of learners	4.40	Very Satisfactory
3. Utilize available monitoring and evaluation processes and tools to promote learner achievement	4.18	Very Satisfactory
4. Utilize relevant research findings from reliable sources in facilitating data-driven and evidence-based innovations to improve school Performance	3.91	Very Satisfactory
5. Manage school data and information using technology, to ensure efficient and effective school operation	4.38	Very Satisfactory
Grand Mean:	**4.22**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)", "Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 3

Mean Scores of the Level of Performance of the TIC as School Head using Office Performance and Commitment Review Form based on the RPMS-PPSSH for Managing School Operations and Resources

Indicators	Mean	Verbal Interpretation
1. Manage school data and information using technology, to ensure efficient and effective school operation	4.29	Very Satisfactory
2. Exhibit efficient and effective practices in the management of finances consistently adhering to policies, guidelines and issuances in allocation, procurement, disbursement and liquidation aligned with the school plan.	4.31	Very Satisfactory
3. Establish shared accountability in managing school facilities and equipment in adherence to policies, guidelines and issuances on acquisition, recording, utilization, repair and maintenance, storage and disposal.	4.24	Very Satisfactory
4. Manage staffing such as teaching load distribution and grade level and subject area assignment in adherence to laws, policies, guidelines and issuances based on the needs of the school	4.25	Very Satisfactory
5. Manage school safety for disaster preparedness, mitigation and resiliency to ensure continuous delivery of instruction	4.31	Very Satisfactory
Grand Mean:	**4.28**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)", "Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 4

Mean Scores of the Level of Performance of the TIC as School using Office Performance and Commitment Review based on the RPMS-PPSSH for Focusing on Teaching and Learning

Indicators	Mean	Verbal Interpretation
1. Assist teachers in the review, contextualization, and implementation of learning standards to make the curriculum relevant for learners	3.98	Very Satisfactory
2. Provide technical assistance to teachers on teaching standards and pedagogies within and across curriculum areas to improve their teaching practice and ensure integration of career awareness and opportunities in the provision of learning experiences aligned with the curriculum.	4.02	Very Satisfactory
3. Use validated feedback obtained from learners, parents, and other stakeholders to help teachers improve their performance and implement learner discipline policies that are developed collaboratively with stakeholders including parents, school personnel and the community.	4.00	Very Satisfactory
4. Manage a learner-friendly inclusive and healthy learning environment and utilize learning outcomes in developing data-based interventions to maintain learner achievement and attain other performance indicators.	4.15	Very Satisfactory
5. Provide technical assistance to teachers in using learning assessment tools, strategies and results consistent with curriculum requirements to ensure accountability in achieving higher learning outcomes.	4.05	Very Satisfactory
Grand Mean:	**4.04**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)",* "*Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 5

Mean Scores of the Level of Performance of the TIC as School Head using Office Performance and Commitment Review Form based on the RPMS-PPSSH for Developing Self and Others

Indicators	Mean	Verbal Interpretation
1. Set personal and professional development goals based on self-assessment aligned with the Philippine Professional Standards for School Heads	4.22	Very Satisfactory
2. Participate in professional networks to upgrade knowledge and skills and to enhance practice	4.25	Very Satisfactory
3. Implement professional development initiatives to enhance strengths and address performance gaps among school personnel	4.13	Very Satisfactory
4. Implement the performance management system with a team to support the career advancement of school personnel, and to improve office performance	4.00	Very Satisfactory
5. Implement a school rewards system to recognize and motivate learners, school personnel and other stakeholders for exemplary performance and/or continued support	4.15	Very Satisfactory
Grand Mean:	**4.15**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)",* "*Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 6

Mean Scores of the Level of Performance of the TIC as School Head using Office Performance and Commitment Review Form based on the RPMS-PPSSH for Building Connections

Indicators	Mean	Verbal Interpretation
1. Manage diverse relationships with authorities, colleagues, parents and other stakeholders to encourage an enabling and supportive environment for learners.	4.18	Very Satisfactory
2. Manage school organizations, such as learner organizations, faculty clubs and parent-teacher associations, in support of the attainment of institutional goals.	4.27	Very Satisfactory
3. Implement inclusive practices, such as gender sensitivity, physical and mental health awareness, and culture responsiveness, to foster awareness, acceptance and respect.	4.25	Very Satisfactory
4. Communicate effectively in speaking and in writing to teachers, learners, parents and other stakeholders, through positive use of communication platforms, to facilitate information sharing, collaboration andsupport.	4.25	Very Satisfactory
5. Establish partnerships with the community, such as parents, alumni, authorities, industries, and other stakeholders, to strengthen support for learner development, as well as school and community improvement.	4.25	Very Satisfactory
Grand Mean:	**4.24**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)",* "*Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Part II. Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form

Table 7

Mean Scores of the Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form in terms of Content Knowledge and Pedagogy

Indicators	Mean	Verbal Interpretation
1. Applied knowledge of content within and across curriculum teaching areas.	4.11	Very Satisfactory
2. Used research-based knowledge and principles of teaching and learning to enhance professional practice.	4.31	Very Satisfactory
3. Displayed proficient use of Mother Tongue, Filipino, and English to facilitate teaching and learning.	4.40	Very Satisfactory
4.Used effective verbal and non-verbal classroom strategies to support learner understanding, participation, engagement, and achievement.	4.25	Very Satisfactory
Grand Mean:	**4.27**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)",* "*Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 8

Mean Scores of the Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form in terms of Learning Environment

Indicators	Mean	Verbal Interpretation
1. Established safe and secure learning environments to enhance learning through the consistent implementation of policies, guidelines, and procedures.	4.58	Outstanding
2. Maintained learning environments that promote fairness, respect, and care to encourage learning.	4.58	Outstanding
3. Maintained learning environments that nurture and inspire learners to participate, cooperate and collaborate in continued learning.	4.38	Very Satisfactory
4. Applied a range of successful strategies that maintain learning environments to motivate learners to work productively by assuming responsibility for their own learning.	4.13	Very Satisfactory
Grand Mean:	**4.42**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)"*, *"Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)", "Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 9

Mean Scores of the Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form for Diversity of Learners, Curriculum and Planning & Assessment and Reporting

Indicators	Mean	Verbal Interpretation
1. Designed, adapted, and implemented teaching strategies that are responsive to learners with disabilities, giftedness, and talents	4.24	Very Satisfactory
2. Adapted and used culturally-appropriate teaching strategies to address effectively the needs of learners from indigenous groups	4.22	Very Satisfactory
3. Adapted and implemented learning programs that ensure relevance and responsiveness to the needs of all learners.	4.25	Very Satisfactory
4. Utilized assessment data to inform the modification of teaching and learning practices and programs.	4.42	Very Satisfactory
Grand Mean:	**4.28**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)", "Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)", "Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Table 10

Mean Scores of the Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form in terms of Community Linkages and Professional Engagement & Personal Growth and Professional Development

Indicators	Mean	Verbal Interpretation
1. Maintained learning environments that are responsive to community contexts.	4.16	Very Satisfactory
2. Reviewed regularly personal teaching practice using existing laws and regulations that apply to the teaching profession, and the responsibilities specified in the Code of Ethics for Professional Teachers	4.11	Very Satisfactory
3. Complied with and implemented school policies and procedures to foster harmonious relationships with learners, parents, and other stakeholders	4.18	Very Satisfactory

4. Applied a personal philosophy of teaching that is learner-centered	4.16	Very Satisfactory
5. Adopted practices that uphold the dignity of teaching as a profession by exhibiting qualities such as caring attitude, respect, and integrity.	4.16	Very Satisfactory
6. Set professional development goals based on the Philippine Professional Standards for Teachers	4.15	Very Satisfactory
Grand Mean:	**4.15**	**Very Satisfactory**

Legend: *"Outstanding (4.51 – 5.00)", "Very Satisfactory (3.51 – 4.50)", "Satisfactory (2.51 – 3.50)", "Unsatisfactory (1.51 – 2.50)", "Poor (1.00 – 1.50)"*

Part III. Test for Significant Difference Between the Performance of TIC as School Head and Classroom Teacher when grouped according to: Teaching Position and Type of School Handled

Table 11

Kruskal Wallis H-Test: Comparison Between the Performance of TIC as School Head when Grouped according to Teaching Position

Indicators	Teaching Position	Mean	K-statistic	p-value	Decision	Remarks
Leading Strategically	Teacher I	4.26	0.725	0.696	Failed to Reject Ho	Not Significant
	Teacher II	4.15				
	Teacher III	4.25				
Managing School Operations and Resources	Teacher I	4.25	1.660	0.436	Failed to Reject Ho	Not Significant
	Teacher II	4.35				
	Teacher III	4.30				
Focusing on Teaching and Learning	Teacher I	3.68	1.735	0.420	Failed to Reject Ho	Not Significant
	Teacher II	3.66				
	Teacher III	4.18				
Developing Self and Others	Teacher I	4.13	0.273	0.873	Failed to Reject Ho	Not Significant
	Teacher II	4.16				
	Teacher III	4.16				
Building Connections	Teacher I	4.21	0.316	0.854	Failed to Reject Ho	Not Significant
	Teacher II	4.25				
	Teacher III	4.23				

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 12

Kruskal Wallis H-Test: Comparison Between the Performance of TIC as Classroom Teacher when Grouped according to Teaching Position

Indicators	Teaching Position	Mean	K-statistic	p-value	Decision	Remarks
Content Knowledge & Pedagogy	Teacher I	4.23	1.284	0.526	Failed to Reject Ho	Not Significant
	Teacher II	4.22				
	Teacher III	4.30				
Learning Environment	Teacher I	4.65	0.877	0.645	Failed to Reject Ho	Not Significant
	Teacher II	4.35				
	Teacher III	4.40				
Diversity of Learners,	Teacher I	4.32	4.099	0.129	Failed to Reject Ho	Not Significant

Curriculum and Planning & Assessment and Reporting	Teacher II	3.66				
	Teacher III	4.35				
Community Linkages and Professional Engagement & Personal Growth and Professional Development	Teacher I	4.01	2.233	0.327	Failed to Reject Ho	Not Significant
	Teacher II	4.23				
	Teacher III	4.20				

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 13

Kruskal Wallis H-Test: Comparison Between the Performance of TIC as School Head when Grouped according to Type of School Handled

Indicators	Type of School Handled	Mean	K-statistic	p-value	Decision	Remarks
Leading Strategically	Multi Grade	4.19	0.300	0.584	Failed to Reject Ho	Not Significant
	Mono Grade	4.21				
Managing School Operations and Resources	Multi Grade	4.27	0.104	0.747	Failed to Reject Ho	Not Significant
	Mono Grade	4.26				
Focusing on Teaching and Learning	Multi Grade	3.98	0.192	0.661	Failed to Reject Ho	Not Significant
	Mono Grade	4.07				
Developing Self and Others	Multi Grade	4.17	0.039	0.844	Failed to Reject Ho	Not Significant
	Mono Grade	4.14				
Building Connections	Multi Grade	4.22	0.822	0.365	Failed to Reject Ho	Not Significant
	Mono Grade	4.20				

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 14

Kruskal Wallis H-Test: Comparison Between the Performance of TIC as Classroom Teacher when Grouped according to Type of School Handled

Indicators	Type of School Handled	Mean	K-statistic	p-value	Decision	Remarks
Content Knowledge & Pedagogy	Multi Grade	4.22	8.241	.004	Reject Ho	Significant
	Mono Grade	4.31				
Learning Environment	Multi Grade	4.37	.586	.444	Failed to Reject Ho	Not Significant
	Mono Grade	4.41				
Diversity of Learners, Curriculum and Planning &	Multi Grade	4.29	.254	.614	Failed to Reject Ho	Not Significant

Assessment and Reporting	Mono Grade	4.42				
Community Linkages and Professional Engagement & Personal Growth and Professional Development	Multi Grade	4.06	.703	.402	Failed to Reject Ho	Not Significant

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 15

Spearman Rank: Significant Relationship Between the Performance of TIC as School Head and as Classroom Teacher in terms of Content Knowledge and Pedagogy

Content Knowledge and Pedagogy					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Leading Strategically	0.183	Weak Positive Correlation	0.182	Failed to Reject Ho	Not Significant
Managing School Operations and Resources	0.128	Weak Positive Correlation	0.351	Failed to Reject Ho	Not Significant
Focusing on Teaching and Learning	0.266	Weak Positive Correlation	0.050	Reject Ho	Significant
Developing Self and Others	0.211	Weak Positive Correlation	0.122	Failed to Reject Ho	Not Significant
Building Connections	-0.083	Weak Negative Correlation	0.548	Failed to Reject Ho	Not Significant

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 16

Spearman Rank: Significant Relationship Between the Performance of TIC as School Head and as Classroom Teacher in terms of Learning Environment

Learning Environment					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Leading Strategically	0.056	Weak Positive Correlation	0.686	Failed to Reject Ho	Not Significant
Managing School Operations and Resources	0.077	Weak Positive Correlation	0.578	Failed to Reject Ho	Not Significant
Focusing on Teaching and Learning	0.025	Weak Positive Correlation	0.854	Failed to Reject Ho	Not Significant
Developing Self and Others	-0.025	Weak Negative Correlation	0.854	Failed to Reject Ho	Not Significant
Building Connections	-0.019	Weak Negative Correlation	0.890	Failed to Reject Ho	Not Significant

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 17

Spearman Rank: Significant Relationship Between the Performance of TIC as School Head and as Classroom Teacher in terms of Diversity of Learners, Curriculum and Planning & Assessment and Reporting

Diversity of Learners, Curriculum and Planning & Assessment and Reporting					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Leading Strategically	0.003	Weak Positive Correlation	0.985	Failed to Reject Ho	Not Significant
Managing School Operations and Resources	-0.102	Weak Negative Correlation	0.458	Failed to Reject Ho	Not Significant
Focusing on Teaching and Learning	-0.038	Weak Negative Correlation	0.782	Failed to Reject Ho	Not Significant
Developing Self and Others	0.021	Weak Positive Correlation	0.878	Failed to Reject Ho	Not Significant
Building Connections	-0.088	Weak Negative Correlation	0.523	Failed to Reject Ho	Not Significant

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 18

Spearman Rank: Significant Relationship Between the Performance of TIC as School Head and as Classroom Teacher in terms of Community Linkages and Professional Engagement & Personal Growth and Professional Development

Community Linkages and Professional Engagement & Personal Growth and Professional Development					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Leading Strategically	0.686	Strong Positive Correlation	0.000	Reject Ho	Significant
Managing School Operations and Resources	0.717	Strong Positive Correlation	0.000	Reject Ho	Significant
Focusing on Teaching and Learning	0.800	Very Strong Positive Correlation	0.000	Reject Ho	Significant
Developing Self and Others	0.616	Strong Positive Correlation	0.000	Reject Ho	Significant
Building Connections	0.686	Strong Positive Correlation	0.000	Reject Ho	Significant

Note: *"If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

DISCUSSION

Table 2 shows the mean scores of the level of performance of the TIC as school head using Office Performance and Commitment Review based on the RPMS-PPSSH for Leading Strategically. The grand mean was 4.22 with a verbal interpretation of "Very

Satisfactory." This implied that the level of performance of the TIC as school head has a very satisfactory rating in terms of the OPCR anchored to the PPSSH.

The top scorer showed that "the respondents implement programs in the school that support the development of learners", with a mean of 4.40. The data showed that even though the findings revealed that TICs are very satisfactory in leading strategically, they are still lacking in some of what they are expected to perform as a school head. Implementing programs in the school that support the development of the learners is one of the significant roles of the teacher-in-charge to fulfill as a school leader. The result implies that the respondents' level of performance pertaining to the indicators mentioned above is parallel with Muring (2014), which according to him, the school heads hold the position of leadership and are accountable for overseeing the creation and execution of all educational programs and initiatives inside the school.

The bottom scorer stated that "the respondents facilitate data-driven and evidence-based innovations to enhance school performance by utilizing pertinent research findings from dependable sources." This entails the respondents' performance in the conduct of action research in their schools is a bit lower in terms of means, which tells that TICs has a lot more rooms for improvement when it comes to facilitating data-driven and evidence-based innovations. As school leaders, they must seek to ensure that teachers' instructional content and techniques are informed by relevant research and demonstrated experiences. Utilization of credible research findings in promoting data-driven and evidence-based solutions to improve school performance is one of the things that support how school heads are leading strategically. One way a school administrator can address the challenges that education faces today is through the knowledge and application of action research. Sagor (2000) believes that leaders who engage in action research find the process to be an empowering experience. He states that relevance is guaranteed because the research focus was determined by the researcher, who utilizes the findings to enhance professional practice. TICs has displayed little engagement in terms of doing relevant research in the pursuit of enhanced school performance. This conforms with the article of Lundqvist & Westerlund (2022), which cited that research has found that delivering research-based education poses great challenges for school leaders, as well as revealing substantial variations in engagement in practice (Bryan & Burstow, 2017; Cochran-Smith & Lytle, 2009; Schenke, 2015; Schenke et al., 2016).

In contrast, TICs also utilize their knowledge and comprehension of the advancements in education policy and changes in schooling, social dynamics, and environmental trends to enhance educational opportunities within the school. They also possess up-to-date knowledge and comprehension of research about teaching, learning, and child development. They know how to apply this research to meet the needs of students within the school. This encompasses overseeing performance management in the school and implementing strategies to enhance teaching methods (AITSL, 2019).

In addition, these findings agreed to Day et al. (2020), which found that principals used data, research, inspection evidence, and observation as tools to enhance teaching and learning and thus to support school improvement. Also, for teachers-in-charge who

assumed office as full-pledged school heads, effective leaders of the school should be able to improve school vision and make changes in educational programs with a strong understanding of school reform (Martineau, 2012).

Table 3 shows the mean scores of the level of performance of the TIC as school head using the Office Performance and Commitment Review Form based on the RPMS-PPSSH for Managing School Operations and Resources. The grand mean was 4.28 with a verbal interpretation of "Very Satisfactory." The result implied that the level of performance of the TIC as school head in terms of the Office Performance and Commitment Review Form based on the RPMS–PPSSH, has a very satisfactory rating.

The highest rater indicated that "the respondents demonstrate efficient and successful financial management procedures, consistently adhering to announcements, policies, and guidelines for allocation, purchase, payment, and liquidation in line with the school plan," and "the responders manage school safety to ensure ongoing instruction delivery by preparing for, mitigating, and building resilience to disasters," with the same mean of 4.31. In these areas, TICs manifested well performance when it comes to management of resources and planning for the school's safety. This conforms in the previous studies which indicate that all the given competencies in managing school operations and resources have a significant relationship between school leaders' management competencies and school performance in terms of quality and efficiency (Valenzuela & Buenvinida, 2021). It was also found that in their study, school heads are very knowledgeable and skilled in financial management in terms of knowledge, adherence to guidelines, policies, and issuances, ensuring that funding allocation and procurement were coordinated with the school plan, which is required for efficient and effective school operations.

These findings are parallel to the national standards of excellence for headteachers in England which state that school leaders prioritize and allocate financial resources appropriately, ensuring efficiency, effectiveness, and integrity of public funds (Department for Education, UK, 2020).

The TICs also serve as the school's DRRM coordinator. They lead the school in the planning and management of school safety among others. Appointing an alternate among other school personnel to assist in implementing DRRM is hereby permitted. To maintain ongoing delivery of teaching, and manage school safety for disaster preparedness, mitigation, and resiliency. DepEd Order No. 21, s. 2015 stipulated the roles and responsibilities of school heads to establish a safety culture in the school.

The lowest rater showed that "the respondents establish shared accountability in managing school facilities and equipment in adherence to policies, guidelines, and issuances on the acquisition, recording, utilization, repair and maintenance, storage, and disposal," with a mean of 4.24. As the head of the school, TICs responsible for the management of school facilities. In this regard, the results are in relation to Day et. al (2020), which revealed that the school administrators recognized the importance of enhancing the learning environment and maximizing the effectiveness of teaching. They devised plans to upgrade the school infrastructure and facilities. Through improvements

in classrooms and overall school facilities they acknowledged the correlation between conditions for teaching and learning as well as the overall well-being and success of both teachers and students.

Also, principals work with others to produce and implement clear, evidence-based improvement plans and policies for the development of the school and its facilities. They recognize that a crucial part of the role is to lead and manage innovation and change to ensure the vision and strategic plan is put into action across the school and that its goals and intentions are realized (AITSL, 2019).

The results are related to the literature from Mpondo (2005), who claimed that the vital function of heads of schools is to secure and operate effective allocation, monitor, and control the use of resources. A school head is expected to prepare the school budget that covers different responsible areas for fulfilling education objectives, specifically teaching and learning processes.

Moreover, on the job performance of school heads, Regala (2020) found that school heads have exhibited commendable job performance that encourages and inspires the teachers to cooperate with their school heads to achieve the goals and objectives of the school. The result explains that school heads were very good at performing their duties and responsibilities efficiently, including submitting progress reports to the Division Superintendent of Schools, implementing the project and MOOE program of the school, holding faculty meetings at the appropriate time, directing and guiding the teachers to accomplish assigned work, supervising and managing the teachers using their hearts, heads, and hands, making a program plan for faculty development, and preparing a budget for physical facilities.

Table 4 shows the mean scores of the level of performance of the TIC as school head using Office Performance and Commitment Review Form based on the RPMS-PPSSH for focusing on teaching and learning. The grand mean was 4.04 with a verbal interpretation of "Very Satisfactory." The result implied that the level of performance of the TIC as school head in terms of the Office Performance and Commitment Review Form, based on the RPMS–PPSSH, has a very satisfactory rating.

The highest indicator elicited that "the respondents maintain learner achievement and meet other performance indicators by creating a learner-friendly, inclusive, and healthy learning environment, as well as use learning outcomes to inform the development of data-driven interventions," with a mean of 4.15.

The result indicated that the respondents have time for school supervision in the school to promote the vision and mission of the school. As cited in the work of Valenzuela and Buenvinida (2021), contrary to the work of Ampofo et al. (2019), they found that school heads devote very little time to supervision, especially in lesson planning and the delivery of learning by teachers. The study was able to establish that instructional supervision has a significant influence on teachers' performance. As a result of this, the

study recommends that the school heads perform direct supervision as well as a reduction in the teaching load of the heads of departments.

Successful educational leaders foster a school community that's inclusive nurturing and supportive with a focus on promoting the academic achievement and overall well-being of every student (NPBEA, 2015).

The lowest indicator stated that "the respondents help teachers create a curriculum that is meaningful for students by reviewing, contextualizing, and implementing learning standards," with a mean of 3.98.

The role of the school head to effectively manage the LAC organization and ensure the hosting of LAC sessions that it is important for school leaders to take turns supporting teachers, in reviewing adapting and implementing learning standards to make the curriculum more meaningful, for students. As stated in this directive, curriculum contextualization involves aligning the curriculum content and instructional approaches to better meet the needs of learners, which teachers should also consider. (D.O. 36, s. 2015) The result also showed that the respondents assisted teachers in the technicalities of school administration. The study of Lashway (2009) supported such a claim, who opines that principals today should likewise serve as pioneers for students learning. They should know the program's content and pedagogical procedures. They should know, collect, and analyze data in a way that fuels excellence. As an instructional leader, the school head creates a school environment conducive to learning and becomes accountable for learning outcomes. The main components of an efficient and effective instructional system are to diagnose or set targets, plan, modify, or improve instruction, teach, assess (formatively), modify or improve instruction, assess (summative), and report to stakeholders (RA 9155, 2001).

Table 5 shows the mean scores of the level of performance of the TIC as school head in terms of their Office Performance and Commitment Review Form based on the RPMS-PPSSH for Developing Self and Others. The grand mean was 4.15, with a verbal interpretation of "very satisfactory." The result implied that the level of performance of the TIC as school head in terms of the Office Performance and Commitment Review Form, based on the RPMS–PPSSH, has a very satisfactory rating.

The top indicator stated that "the respondents engage in professional networks to improve practice and advance knowledge and skills.," with a mean of 4.25. The result entails understanding laws, policies, guidelines, and issuances in the school. In contrast to the study of Valenzuela & Buenvinida (2021), they found out that, school administrators nonetheless try to assist and encourage their staff members' aspirations to better themselves, even though they are less able to demonstrate and apply their knowledge of laws, policies, guidelines, and issuances.

Moreover, D.O. 36, s. 2015 states the role of the school head to effectively manage the Learning Action Cell organization and ensure the hosting of LAC sessions that it is important for school leaders to take turns supporting teachers, in reviewing adapting and

implementing learning standards to make the curriculum more meaningful, for students. This also confirms participation in professional networks to upgrade one's knowledge and skills as well as enhancement of practice.

Similarly, school heads must utilize learning outcomes in the development of data-based interventions to maintain learner achievement and attain other performance indicators. Learning Action Cell could reach an agreement to investigate initiatives and meet the stated need. Interventions may take the shape of learning resources, instructional materials, equipment, facilities, or teaching styles, modes of teaching, programs, and others.

The bottom indicator stated that "the respondents assist school staff in advancing their careers and enhancing office performance by implementing the performance management system with a team," with a mean of 4.00.

According to Day et. al (2020), the five key Professional Practices which are specified, through which the Leadership Requirements includes managing performance, effective continuing professional learning, and feedback.

Alar's 2016 study (as cited in Cañete, 2020) disclosed that whatever the school's image, it reflects on the administrators' performance. So, the lower the performance of the school heads, the lower the impact on the school.

The Department of Education issued DepEd Order No. 2, Series 2015, these are guidelines on the Results-Based Performance Management System (RPMS) establishment and implementation in the Department of Education. Its goal is to provide detailed instructions for implementing the Civil Service Commission's (CSC) Strategic Performance Management System (SPMS) in DepEd. These guidelines stipulate the specific mechanisms, criteria, and processes for the performance target setting, monitoring, evaluation, and development planning for schools and offices, covering all officials and employees, school-based and non-school-based, in the Department holding regular plantilla positions.

For the department order mentioned above, the Individual Performance Commitment and Review Form (IPCRF) is vigorously implemented. As defined in this mandate, it is a form that should reflect the individual commitments and performance of personnel covered by these regulations, such as teachers and master teachers. It must be accomplished by the individual personnel to reflect the agreed-upon individual key result areas (KRAs), objectives, and performance indicators. DepEd released DepEd Memorandum No. 004, s. 2022 or the Implementation of the Results-Based Performance Management System—Philippine Professional Standards for Teachers for School Year 2021–2022. This memorandum provides guidelines for the performance management and appraisal of teachers using the remaining 18 indicators in their RPMS, chosen as objectives for this school year. Creation of two kinds of objectives was constructed for regular teachers, such as classroom-observable and non-classroom-observable objectives. There are nine (9) classroom observable objectives for proficient teachers and

seven (7) for highly proficient teachers, whose performance indicators were identified as quality indicators. A total of thirteen (13) non-classroom observable objectives for both proficient and highly proficient teachers were made.

The evaluation of teacher work performance has served a variety of goals in recent years, one of which is to pinpoint areas of instruction deficiency and devise solutions. Because of this, gathering data that will be helpful in creating strategies that will improve instruction should be one of the objectives of assessing instructors' job performance. (Iwuagwu et al., 2016).

Furthermore, D.O. No. 42, s. 2017, aims to " use a standard measurement to evaluate teacher effectiveness, pinpoint areas of need, and offer assistance with professional development." The development of the Classroom Observation Tool (COT), based on the PPST's developmental framework, helps DepEd's initiative to provide a single tool to measure teachers' classroom performance. In this account, one of the primary means of verification (MOV) during the accomplishment of the IPCRF is the Classroom Observation Tool (D.M. No. 004, s. 2022).

On the other hand, The Office Performance Commitment and Review Form (OPCRF) is a form that is to be completed by the head of an office to represent the office's commitments and performance. The office KRAs, objectives, and performance indicators are reflected in this form. The OPCRF is equal to the IPCRF of the office's head. DepEd Quezon issued Division Memorandum No. 478, Series 2022, about the conduct of the year-end performance management review and the submission of the OPCRF for school-Table 6 shows the mean scores of the level of performance of the TIC as school head in terms of their Office Performance and Commitment Review Form based on the RPMS-PPSSH for Building Connections. The grand mean was 4.24 with a verbal interpretation of "Very Satisfactory." The result implied that the level of performance of the TIC as school head in terms of the Office Performance and Commitment Review Form, based on the RPMS–PPSSH, has a very satisfactory rating.

The highest rater elicited that “the respondents oversee educational groups including parent-teacher associations, faculty clubs, and learner organizations to help the institution achieve its objectives”, with a mean of 4.27.

The results generated are about the findings in the study of Cañete (2020). Community partnership is very significant in sustaining the needs of the school in academics and extra-curricular activities. Such claim supports the study of Carpio (2014) entitled “Stakeholders Participation and School Improvement”, where he emphasized the importance of communication while getting the best and appropriate partners in school improvement. Thus, if it happens, the school will likely have a significant improvement. The lowest rater stated that "the respondents maintain a variety of relationships with parents, teachers, coworkers, and other stakeholders to promote a welcoming and encouraging atmosphere for students", with a mean of 4.18. These findings also agree with the study of Day et al (2020), states the five essential professional practices through which leadership requirements enact that include developing and maintaining positive

partnerships with students, families and carers and the wider school community. Building and maintaining excellent relationships with staff members at all levels allowed school leaders to make them feel important and engaged. They showed concern for the workers' personal and professional welfare. Trust and mutual respect were evident in the connection between senior leadership teams (SLTs) and school leaders. Achieving long-term success was viewed as dependent on enhancing the school's reputation and interacting with the community. Together with their SLTs, school administrators cultivated strong ties with local authorities and established a network of connections between the school and other institutions and people. It was believed that the school would benefit from having close ties to important local stakeholders.

The result concurs with that of Motowidlo (2012), who found that job training offers an excellent opportunity to school heads since it reinforces knowledge and skills in supervising and managing the teachers and the school organization. Job training enables school heads to be more creative in making the program's action plan.

Part II. Level of Performance of the TIC as Classroom Teacher based on KRAs of the Individual Performance and Commit Review Form

Table 7 shows the mean scores about the level of performance of the TIC as a classroom teacher based on KRAs of the Individual Performance and Commitment Review Form for Content Knowledge and Pedagogy. The grand mean was 4.27 with a verbal interpretation of "Very Satisfactory." The result implied that the level of performance of the TIC as a classroom teacher, based on KRAs in terms of the Individual Performance and Commitment Review, has a very satisfactory rating.

The highest indicator exemplified that “the respondents displayed proficient use of Mother Tongue, Filipino, and English to facilitate teaching and learning” with a mean rating of 4.40. This elucidated that the curriculum may be contextualized to the language and culture of the learners. This explained how the curriculum could be tailored to the language and cultural preferences of the learners. In addition, curriculum contextualization refers to the process of aligning curriculum content with learner-relevant instructional strategies, which teachers should also consider. In this account, the TICs showed that they are reliable when it comes to the usage of language in the teaching-learning process.

The lowest indicator stated that “the respondents applied knowledge of content within and across curriculum teaching areas” with a mean of 4.11. This indicated that the respondents may give mastery to the content knowledge within and across curriculum areas regardless of what subject matter they are teaching. This acknowledges how crucial it is for educators to have a solid grasp of the theories and concepts of teaching and learning, as well as how those ideas relate to one another and to other curriculum areas. Teachers' capacity to implement relevant and developmentally appropriate teaching based on current research and subject matter expertise is included in this context.

Table 8 shows the mean scores about the level of performance of the TIC as a classroom teacher based on KRAs of the Individual Performance and Commit Review Form for learning environment. The grand mean was 4.42 with a verbal interpretation of "Very Satisfactory". The result implied that the level of performance of the TIC as a classroom teacher, based on KRAs in terms of the Individual Performance and Commitment Review Form, has a very satisfactory rating.

The highest rater stated that "the respondents may establish safe and secure learning environments to enhance learning through the consistent implementation of policies, guidelines, and procedures" and "the respondents maintained learning environments that promote fairness, respect, and care to encourage learning" with the same means of 4.58. Its findings go counter to the PPST's, which indicates that respondents may guarantee a secure and comfortable learning environment for students. It emphasizes how important it is for educators to create safe, secure, equitable, and encouraging learning environments to encourage student responsibility and success. The domain focuses on setting up an atmosphere that is learning-focused and allows teachers to effectively control student conduct both in real and virtual spaces. It also emphasizes how important it is for teachers to make use of a variety of tools and offer mentally demanding and engaging exercises to foster positive classroom interactions that lead to the achievement of high learning standards. The lowest rater elicited that "the respondents applied a range of successful strategies that maintain learning environments to motivate learners to work productively by assuming responsibility for their own learning" with a mean of 4.39.

Table 9 shows the mean scores on the level of performance of the TIC as a classroom teacher based on the KRAs in the Individual Performance and Commit Review for Diversity of Learners, Curriculum, and Planning and Assessment and Reporting. The grand mean was 4.28 with a verbal interpretation of "Very Satisfactory". Commitment Review at the level of performance of the TIC as a classroom teacher, based on KRAs in the Individual Performance and Commitment Review, has a very satisfactory rating.

The top scorer indicated that "the respondents utilized assessment data to inform the modification of teaching and learning practices and programs" with a mean of 4.42. This demonstrated how educators and school administrators use learner-centered assessment to guarantee high-quality learning results. Additionally, all teachers must to be familiar with how to carry out the learner-centered assessment rules for the K–12 curriculum. Teachers and students receive the essential input regarding learning outcomes through assessment. Teachers can consistently choose, arrange, and employ sound assessment procedures with the help of this feedback, which also informs the reporting cycle (D.O. 35, s. 2016).

The bottom scorer showed that, "the respondents may adapt and use culturally-appropriate teaching strategies to address effectively the needs of learners from indigenous groups", with a mean of 4.22. This would suggest that during the teaching-learning process, lessons could be tailored to the cultural background of the students. Lesson planning is an essential part of a productive teaching and learning process since

it gives the teacher a clear structure for instruction and helps the class run more smoothly. It functions as a teacher's road map for what the students should learn and how it will be accomplished in the classroom. (Sehweil, 2022).

Table 10 shows the mean scores of the level of performance of the TIC as a classroom teacher based on KRAs in terms of the Individual Performance and Commit Review in terms of Community Linkages and Professional Engagement and Personal Growth and Professional Development. The grand mean was 4.15 with a verbal interpretation of "Very Satisfactory." This implied that the level of performance of the TIC as a classroom teacher, based on KRAs of the Individual Performance and Commitment Review, has a very satisfactory rating.

The highest indicator stated that "the respondents obeyed and carried out the rules and regulations of the school to promote good relations with students, parents, and other stakeholders," with a mean of 4.18. This suggested that the responders get along well with the various school stakeholders. This necessitates community engagement in educational settings. It emphasizes the part teachers play in building ties between the school and the community to enhance the learning environment and the community's involvement in the educational process. It is required of teachers in this area to identify and seize opportunities that link classroom education to the interests, aspirations, and experiences of other important stakeholders as well as the greater school community. It has to do with how important it is for teachers to understand and fulfill their obligations to uphold professional ethics, responsibility, and transparency to promote constructive and friendly relationships with students, parents, schools, and the greater school community.

In addition, it agrees with AITSL (2022) which states that teachers welcome opportunities to engage with their school communities both within and outside of the classroom to enhance the educational experience for learners. They understand the significance of relationships between the community, the family, and the classroom for students' intellectual and social development.

Part III. Test for Significant Difference Between the Performance of TIC as School Head and Classroom Teacher when grouped according to: Teaching Position and Type of School Handled

Table 11 shows the Kruskal Wallis H-Test of the comparison between the performance of TIC as school head when grouped according to teaching position which is not statistically significant ($p = 0.696, 0.436, 0.420, 0.873, 0.854, > 0.05$). These findings illustrate that the responses do not differ when grouped according to teaching position.

The results revealed that no matter what position they are in, they can still perform their duties very satisfactorily. This means that TICs having Teacher I Position can perform the way Teacher II and Teacher III do. Contrasting to the study of Sarabia and Collantes (2020), teaching position was found to be a positive predictor of teaching

performance, meaning that teachers with higher positions were probably going to do better in the classroom. In addition, TICs are still capable of carrying out their responsibilities admirably despite the variations in teaching positions.

Table 12 shows the Kruskal Wallis H-Test of the comparison between the performance of TIC as classroom teacher when grouped according to teaching position which is not statistically significant (p = 0.526, 0.645, 0.129, 0.327 > 0.05). These findings demonstrate that there is no variation in the responses when they are categorized based on teaching position. The result is consistent with the study of Sumanga et al. (2022) which found to be insignificant in teaching performance as far as teaching position is concerned.

Table 13 shows the Kruskal Wallis H-Test of the comparison between the performance of TIC as school head when grouped according to type of school handled which is significantly not different (p = 0.584, 0.747, 0.661, 0.844, 0.365 > 0.05). TICs perform well regardless of the type of school handled. Handling multigrade and monograde school provides a wide range of duties. In addition to shaping the vision and guaranteeing the academic success of every learner, TICs also cultivate leadership in both learners and faculty, supervises daily operations, prepares programs in accordance with the needs of the school, and fosters an environment that is conducive to learning. This implies that both type of schools does not differ when it comes to performing their roles as school head in terms of the PPSSH (D.O. 24, s. 2020).

Table 14 shows the Kruskal Wallis H-Test of the comparison between the performance of TIC as classroom teacher when grouped according to type of school handled which found to be significantly different (p = .004 < 0.05) and not significantly different (p = .444, .614, .402 > 0.05). Thus, the null hypothesis was rejected. There is no significant difference between the performance of TIC as classroom teachers when grouped according to the type of school handled. The results showed that, in terms of content knowledge and pedagogy, teachers teaching multi-grade classes outperform teachers teaching mono-grade classes since they are more involved in a variety of learning areas that span diverse grade levels.

Part IV. Test for Significant Relationship Between the Performance of TIC as School Head and as Classroom Teacher

Table 15 shows the Spearman Rank on the significant relationship between the Performance of TIC as School Head and as Classroom Teacher in terms of Content Knowledge and Pedagogy and Focusing on Teaching and Learning which found to be significant (p = 0.182 > 0.05). The rest of the indicators revealed the following result (p = 0.122, 0.183, 0.050 >/= 0.05). Thus, the null hypothesis was rejected. There is no significant relationship between the performance of TIC as School Head and as Classroom Teacher. Based on the findings, being a school head has nothing to do with the teaching-learning process. Role overload is a factor in this circumstance. Administrative tasks occupy the time spent as a classroom teacher. In contrast, as to RA

9155, a school head is person who is responsible for the administrative and instructional supervision of a school or cluster of schools. In addition, as an instructional leader, a school head is responsible for what goes on inside the classroom and how the instructional time was utilized to make the teaching-learning process meaningful. Leadership and instructional supervision should meet the expectation that the school head and the teachers are open to suggestions and recommendations to improve classroom instruction for better learning outcomes. This rather crucial responsibility needs a broad understanding and know-how of the nitty-gritty of supervision so that a higher quality of learning is achieved (D.O. 85, s. 2003).

Table 16 shows the Spearman Rank on the significant relationship between the Performance of TIC as School Head and as Classroom Teacher in terms of Learning Environment ($p = 0.686, 0.578, 0.854, 0.854, 0.890 > 0.05$) which found to be not significant. Performing the role as a school head does not affect the learning environment. This demonstrates that TICs are exempt from having to consider how their decisions as school administrators may affect the learning environment.

Table 17 shows the Spearman Rank of the significant relationship between the Performance of TIC as School Head and as Classroom Teacher in terms of Diversity of Learners, Curriculum and Planning and Assessment and Reporting. In terms of Leading Strategically ($p = 0.985, 0.458, 0.782, 0.878, 0.523 > 0.05$) which is more than the 0.05 level of significance. Thus, the null hypothesis was accepted. There is no significant relationship between the performance of TIC as School Head and as Classroom Teacher in terms of diversity of learners, curriculum and planning, and assessment and reporting. According to Taylor (2023), Parkinson's Law emphasizes how time constraints, and a sense of urgency can enhance productivity. Individuals can consciously decrease their deadlines, improve their concentration, efficiency, and productivity, and complete tasks more quickly. More so, the findings show that good time management can lead to the attainment of a certain task without compromising other duties.

Table 18 shows the Spearman Rank on the significant relationship between the Performance of TIC as School Head and as Classroom Teacher in terms of Community Linkages and Professional Engagement and Personal Growth and Professional Development which has a significant relationship ($p = 0.000 < 0.05$) in all areas. These results state that in as much as the TICs performs higher in her role as a school head, his/her performance in community linkages professional engagement and personal growth and professional development gives a positive effect on her as a teacher.

Part V. Proposed Intervention

In response to the result of the study on Performance of Teachers-In-Charge as School Head and Classroom Teachers in the Third Congressional District of Quezon: Basis for Intervention, the conceptualization of PROJECT SIBAY SYSTEM for TICs was made possible. It stands for Strong Initiative to Build Assistance Yielding System for TICs. The scope of the intervention aims to address the level of performance of a TIC as School Head and as Classroom Teacher. This also addresses the variances of the responses on

the performance as School Head and Classroom Teacher with the degree of relationship to one another. The focus of the proposed intervention is mainly on creating activities on the areas with identified lower rating of performances leaning towards satisfactory level (3.51-4.00) that will support the teachers who are designated as TICs.

The intervention aims to provide activities that will help enhance the TIC's capabilities in the following areas: (a) utilization of relevant research findings in leading strategically; (b) assisting teachers in the review, contextualization, and implementation of learning standards; and (c) Developing self and others. The program design comprises a timeline that guides the implementation of various activities at the district or division level. Following implementation, the intervention's effectiveness will be assessed by monitoring and evaluation.

Conclusions

Based on the findings derived, the following conclusions were drawn:

1. The level of performance of the TIC as school head based on the Office Performance and Commitment Review has a very satisfactory rating.
2. The level of performance of the TIC as a classroom teacher based on the Individual Performance and Commitment Review has a very satisfactory level.
3. There is no significant difference in all KRAs of the performance of TIC as a School Head and Classroom Teacher when grouped according to teaching position and the type of school handled. Hence, the research hypothesis is accepted.
4. There is significant relationship and no significant relationship in some KRAs of the performance of TIC as a School Head and Classroom Teacher. Hence, the research hypothesis is partially accepted and partially rejected.
5. The researcher proposed an intervention program on the areas with identified lower rating of performances leaning towards satisfactory level.

Recommendations

Based on the findings and conclusions drawn, the following were recommended:

1. Teachers-in-Charge manifested very satisfactory level on their performance as they have shown good performance of their roles but on the other hand, this does not mean that they have achieved the standards set by the Department that are expected of them. There were few performance indicators which need to be improved to better perform their roles as school leader. They still need to strive to meet the prescribed standards by attending trainings related to PPSSH domains most specially those who are new in this designation/position.
2. TICs as a classroom teacher also displayed a very satisfactory rating on their performance while some indicators still need to be improved to achieve higher level of performance. More so, in line with the Role Theory, TICs might encounter challenges due to the dual functions they are dealing with every day. In this account, it is recommended that higher authorities may consider looking

for the necessary actions that will readily give assistance to the TICs' undertaking pertaining to their performance as classroom teacher specifically the number of teaching loads given to them to improve their performance mentioned above and to give an order of priority to their tasks.

3. As far as the results indicate, there is no significant difference in all the performance indicators of TIC as a School Head and Classroom Teacher when grouped according to teaching position and type of school handled, however, the TICs may be given the opportunity to obtain at least higher school head position to augment the time focusing on the administrative tasks and lessen the actual class encounter. In this way, He will be able to manage the two duties more skillfully and fulfill his duty as head of the school more effectively.
4. As the findings suggest, there is a significant relationship between the Performance of TIC as School Head and as Classroom Teacher when talking about Content Knowledge and Pedagogy and Focusing on Teaching and Learning. TICs may attend trainings focusing on the pedagogical approaches in teaching as well as relevant educational engagements in Focusing on Teaching and Learning to capacitate School Heads. Moreover, reduced the number of actual class encounters to alleviate the teaching loads of the TICs.
5. The proposed intervention program of this study may be used by the recipient teachers who are designated as teacher-in-charge in the Division of Quezon to improve their performance in the areas with identified lower rating of performances leaning towards satisfactory level.
6. In as much as the findings reveal, future researchers may investigate further the problems met while performing their roles as school head and classroom teacher and correlate their performance to other factors.

Compliance with Ethical Standards

Anonymity, consent, and beneficence are the three research ethics that were upheld in this study. Data privacy was given the highest concern during the research process to guarantee that the data were securely collected. The research did not reveal any personal data that the participants submitted. Furthermore, copies of the consent form were given to the teachers who supplied the student data, making sure the teachers-in-charge knew about their involvement. The researcher guaranteed that the information would be handled with the highest confidentially and went into detail about the procedure for collecting it. Additionally, if they felt it was necessary, the TICs had the choice to not participate at all. The researcher concluded by telling the respondents that there would be no advantages.

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PRESENCE OF MACROPLASTIC: ITS EFFECT TO THE ENVIRONMENT OF MAUBUH BEACH PATIKUL, SULU

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ABSTRACT

This research focuses on the effect of macro plastics on the environment of Maubuh Beach. Macro plastics are larger plastic wastes than can be seen with the naked eye. It is becoming an increasingly serious problem in our community. Macro plastic pollution can cause harm to the surrounding area where it is located; it can affect the health of every individual as well as the animal habitat. This study employed survey and interview methods. This study used the mean for data analysis to the effect of macro plastics on the environment of Maubuh Beach. Random sampling was used to select 70 beachgoers to be the research respondents to the effect of macro plastic and 10 local officials to answer the possible interventions to avoid the presence of macro plastic in the environment of Maubuh Beach. A questionnaire and guided question interview are prepared by the researchers and used as the research instruments in this study. The finding shows that macro plastics are the major problem of distraction in the environment of Maubuh Beach. Beachgoers must dispose of their waste in the appropriate receptacle located nearby under the solid waste management policy. By understanding the effects of macro plastics on the environment of Maubuh Beach, local officials may take action about the crisis in waste pollution as soon as possible for future generations, as they need to upgrade garbage disposal systems, have a proper sanitary landfill, implement rules and regulations, form partnerships with relevant parties, and organize regular clean-up drives.

Keywords: *Environment, Effect, Macro plastic, Maubuh Beach*

INTRODUCTION

Maubuh Beach is located in Patikul Sulu, Philippines. There are numerous establishments and beachgoers that can be sources of macro plastics. There is growing concern over the impact of plastics on natural surroundings and the ecosystem. The focus of the study is on macro plastics, which are larger plastic wastes that can be seen with the naked eye. While there has been some research on the movement of small plastics, there is a lack of information on the distribution of macro plastics on beaches, particularly in the upper and middle zones. By reducing the amount of plastic waste that ends up in the ocean, it can minimize the impact on the ecosystem and protect the species that depend on it. The study's findings can inform policymakers and stakeholders about developing effective strategies for managing plastic pollution and promoting sustainable practices.

In aquatic habitats, plastics are becoming an increasingly serious problem, affecting human health as well as the ecosystem. While some research has been done on the general movement of small plastics, observations of large plastics, or micro-plastics, on beaches have not been well documented in the literature. While the majority of studies have concentrated on the movement of plastics along the lower portion of the beach, there has been little research done in the upper and middle zones. This could have an impact on the movement of plastics to the sea, providing information about the origin and source of macro plastics. Here, we sought to provide an overview of the distribution of macro plastics along the sea. First, we examined and discussed the bibliometric analysis of macro plastics on beaches, which offers a framework for managing plastic pollution (Gallitelli, Scalici 2022). Policymakers, corporations, and scientists are placing an increased emphasis on understanding and controlling plastic pollution as a matter of environmental concern (Winton et al., 2020).

Macro plastics may have an impact on the species inside the ecosystem. The effects of climate change are possible. Macro plastics are recyclable and reusable, helping to keep natural habitats undisturbed. Macro plastics are primarily caused by human activities. Hence, a research with regards to this should be conducted as it serves as a way of learning for human and learning is an important aspect in education as uttered by Sabbaha et. al., (2024) cited by Abdulmajid et. al., (2024), Mading et. al., (2024), Balla et. al., (2024) Jarak et. al., (2024) and Sakili et. al., (2024) Indeed, learning is the soul of education that eliminates ignorance within an individual's mind, so even often times, people forget the effects of litter on the environment, surely through a continuous study, there will be people who will be responsible enough when it comes to this kind of matter. Nevertheless, macro-plastic pollution can cause harm to the surrounding area where it is located; it can affect the health of every individual in there as well as the animal habitat. Furthermore, micro- and macro plastics pollution is a growing threat to ecosystem functioning and, consequently, human well-being.

Macro plastics have an impact on the economic environment; they cause the destruction of ecosystems. There are so many people that are affected by this problem because some people cannot control their attitude and always dispose of their plastic waste at sea, which destroys ecosystems. Macro-plastics have an effect on the habitat of aquatic

fisheries; they can destroy their proper home, so we can't see the fish that we had in the past. Plastic can be used again through recycling; people should practice this in order to achieve a better life in this world. Also, people should always practice proper waste disposal because this problem can be avoided by the people themselves.

This study aims to fill the gap by providing an overview of the distribution of macro plastics along the sea, which can help identify the origin and source of macro plastics and inform strategies for managing plastic pollution.

RESEARCH QUESTIONS

The researchers sought to answer the following questions:

1. What are the common macro plastic that can be found in Maubuh beach Patikul Sulu, Philippines?

2. What is the effect of macro plastics to the environment of Maubuh Beach Patikul Sulu Philippines?

3. What are the possible interventions to avoid the presence macro plastic at Maubuh Beach Patikul Sulu Philippines?

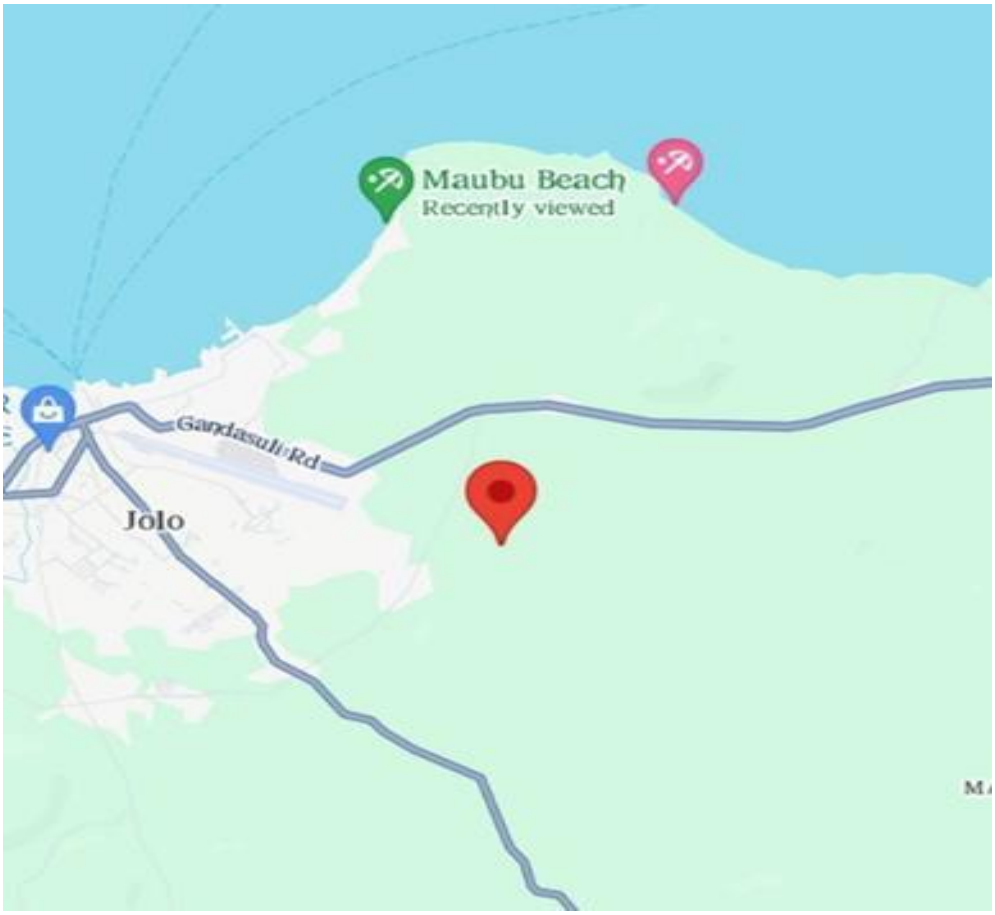
RESEARCH METHODOLOGY

Research Locale

This study was conducted at Maubuh Beach, which was located in Patikul, Sulu. Its approximate geographical coordinates were 6° 4’ North Latitude and 121° 1’ East Longitude. The study focused on an area approximately 1 kilometer within the vicinity of Maubuh Beach.



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Sampling Method

The participants of this study are the vendors, local officials and random beach goer of Maubuh Beach Patikul Sulu, Philippines. The researchers selected 70 respondents for random beach goers to answer the survey questionnaire and 10 participants for the vendors and local officials to answer the interview for the total of 80 participants.

In this study, the researchers used Purposive Sampling or Judgement sampling to select the participant of the study. According to Crossman (2020), as cited by Jailani A. et al. (2024), Sasapan et. al. (2024) and Sabbaha et. al. (2024) Purposive Sampling is a non-probability sample that is selected based on characteristics of a population and the objective of the study.

Research Instrument

In this study, the researchers used survey questionnaires, interviews, and observations to identify the plastics in Maubuh Beach Patikul Sulu, Philippines. By using a systematic series of questions, questionnaire surveys were a strategy for collecting statistical data about the characteristics, attitudes, or behaviors of a community (Preston 2009) According to EaswarMoorthy and Zarinpoush, an interview was a conversation intended to obtain data. An interviewer conducted a research interview and arranged the interview

process, posed questions, and received answers from the interviewee.

Statistical Treatment of Data

In this research, the researchers used mean and frequency counting. To calculate the mean, each data point in the set was multiplied by a value that was derived from a feature of the input that produced the data point (Carter 2010). According to (Wright 2013) frequency count is the tally of the instances in which you participated in an activity during a given duration.

Data Gathering Procedure

The researchers submitted a request letter to the Director of Mindanao State University- Sulu Senior High School, seeking permission to conduct the study at Maubuh Beach and to involve at least 70 respondents and 10 participants. Additionally, the researchers reached out to the local officials of Maubuh Beach, requesting the approval to proceed with the research in the area.

RESULTS AND DISCUSSION

Table 1 Common Macro plastic that can be found in Maubuh Beach Patikul Sulu

Classification	No. of items
Glass	2
Used sacks	2
Metal	4
Used Diapers	9
Plastic bottles	57
Drinking straws	73
Cellophane	81
Plastic cups	113
Others (cigarettes, cloth, plastic spoon, paper plates, etc.)	132

Table 1 illustrates the classifications of macro plastics that can be found in Maubuh Beach, Patikul, Sulu, Philippines. The most abundant classification plastics at Maubuh beach was plastic cups (113) - followed by cellophane (81), drinking straws (73), plastic bottles (57), used diapers (9), metal (4), used sacks (2), and glass (2) and others (132) are the common macro plastics can be found at Maubuh Beach. Plastic has accumulated in the marine environment as a result of modern society's exponential increase in plastic consumption and poor waste management (Gómez et al., 2018). Global beaches and coasts are impacted by this serious environmental problem (Williams et al., 2019). The presence of plastics may raise the us by absorbing chemical contaminants from the substance in the water (Superio, Abreo 2020).

Table 2 Effect of Macro plastic to the environment

Statement	Mean	SD	Description
1. Pollution of water.	3.6	.5	Strongly Agree
2. Harms the natural habitat of the sea creatures.	3.6	.6	Strongly Agree
3. Deterioration of environment.	3.5	.5	Strongly Agree
4. Improper sanitary landfills.	3.5	.5	Strongly Agree
5. Destruction an aesthetic appeal of natural setting	3.5	.8	Strongly Agree
6. Destruction of environment.	3.4	.7	Strongly Agree
7. Damage the natural scenery.	3.4	.8	Strongly Agree
8. Increasingly serious danger contamination in the area.	3.4	.7	Strongly Agree
puhxo9. Contributing to climate change.	3.2	.7	Agree
10. Global warming.	3.1	.7	Agree
Grand Mean	**3.4**	**.7**	**Strongly Agree**

Legend: (3.26 – 4.00) Strongly Agree, (2.51 – 3.25) Agree, (1.76 – 2.50) Disagree, (1.00 – 1.75) Strongly Disagree.

Table 2 shows the effect of macro plastics to the environment of Maubuh Beach Patikul Sulu. The total mean obtained 3.4 with the verbal description of strongly agree. This means that the respondents strongly agreed to the effects of Maubuh Beach. This implied that macro plastic can negatively affect the environment according to the perceptions of the respondents.

Majority the respondents of this study strongly agree to the following statements that macro plastics can pollute the water, harms the natural habitat of the 9sea creatures, deterioration of environment, improper sanitary landfill, destruction an aesthetic appeal of natural setting, destruction of environment, damage the natural scenery, increase serious danger contamination that macro plastic can affect to the environment of Maubuh beach. Which is related to the study of Pietz et al (2021) that macro plastics are an increasingly common and harmful environmental contaminant that affects both terrestrial and marine systems.

4.3 Interventions to avoid the presence of macroplastics at Maubuh beach Patikul Sulu

Plastics disposal can be separated into legitimate and illicit categories. Different national laws have different definitions of what is and is not legal. Since illicit disposal provides a direct channel to the oceans that the government cannot control, this split in the effect pathway is significant. Alpizar et al. (2020). Moreover, Zhu et al (2018) has stated that plastic pollution is becoming a quickly rising global issue. Environmental awareness and the numerous risks its poser to nature.

Yes, we have an ordinance that posted in this area that throwing any trash in this place is prohibited (LO1, excerpt 1).

This place don't have truck to pick the trash of the beach goers particular in the residents of Maubuh (LO5, excerpt 2).

The conservation of freshwater and marine habitats depends on efforts to lessen the amount of macroplastics found along seashores; at this point, the understanding of possible pollution sources, vectors, and storage is still lacking. Moreover, Winton et al.,(2020) stated for companies, scientists, and policy makers, managing plastic pollution is becoming a top environmental priority. Though freshwater ecosystems are receiving less attention, awareness of the potential harm to the world's seas has increased. Additionally, UNEP (2018) stated plastics end up in the trash because of wasteful manufacture, improper landfill disposal, and poor recycling management.

There are permanent cleaners who clean every day in this area.
(LO3, excerpt 3)

There are permanent cleaners in this Beach, including the members of the tanod and BPAT of the barangay. (LO4, excerpt 4)

The legislation that we have is including the signage posted here, also we have an ordinance that throwing trash in this Beach is prohibited (LO2, excerpt 5).

We don't have the place that intended for our waste, because there's no enough space for that in this place (LO4, excerpt 47).

These responses stated that the Maubuh Beach has lack of facilities. Alpizar et al., (2020) has stated that landfills and dumpsites, wastewater treatment, and beneficiation (i.e., recycling or incineration) are the three legal disposal methods. Even with these appropriate disposal methods, leaks may still occur during collection and transit into the maritime environment. Recycling, which focuses on gathering plastic trash to be treated and reused in another way, is a significant component of waste beneficiation.

Conclusions

Overall, the researchers determined the presence of macro plastic in Maubuh beach. Maubuh Beach is one of the top tourist spots in Sulu, it showed few of plastics items that can be found along the shore. The result showed that throwing of plastics will continue if the interventions of different factors will not properly take.

Macro plastics are the major problem in every community not just in the chosen area. It has an impact on the economic environment, it causes the destruction of ecosystems and

the effect of climate change are possible. The respondents strongly agree to the statement that macro plastics can negatively affect the environment of Maubuh Beach. People who lived or visiting the beach should be aware by the cause and effect of plastic to the environment.

Waste management strategies are implemented through policies in the area. The abundance of macro plastic is primarily caused by human activities, only human can manage it well. Although there are still some people who are responsible when it comes to this kind of matter.

Recommendations

Based on the findings of this research, the following are recommended:

1. For local officials they must upgrade garbage disposal systems, Having a proper sanitary landfill. Authorities should consider enhancing the systems for handling waste to lessen the amount of plastic litter that ends up harming our environment could involve better garbage collection, more recycling programs, and advocating for the use of plastic substitutes. Local officials shall have a proper place for macro plastics in the area because, through this initiative, people in the area will have proper waste disposal in order to make the environment clean.

2. For vendors operating at Maubuh Beach should establish and maintain proper sanitary landfills or trash cans for waste disposal. By implementing effective waste management practices, vendors can contribute to maintaining cleanliness and minimizing the presence of macro plastics in the area.

3. For beachgoers. Beachgoers play a significant role in preserving the cleanliness of Maubuh Beach. It is essential for beachgoers to raise their awareness and exercise discipline when disposing of plastic waste. They should refrain from littering and ensure that their plastic waste is properly disposed of in designated bins to prevent environmental degradation.

4. To the residence of the Maubuh beach they need to organize regular clean-up drives. Regular clean-up drives involving local communities can be effective in minimizing the amount of macro plastic at Maubuh Beach. These initiatives not only help to get rid of existing waste but also cultivate a sense of community ownership of the environment.

Compliance with Ethical Standards

This study used openness to ensure that every participant participated in any data gathering. Also, this study upheld honesty for every result of data in order for us to publish fair research without causing any harm to others. Additionally, we used proper data gathering without forcing the participants to provide ideas about our topic. The researchers ensured to follow those general guidelines to conduct this study. Without any other concerns, this research used sharing ideas with others and socializing with other participants to participate

and give their ideas and suggestions to help us finish this research.

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PROJECT FLOR (FAMILIARIZE, LEARN, OBTAIN, AND RELIVE): THE DEVELOPED ARALING PANLIPUNAN 7 STRATEGIC INTERVENTION MATERIALS

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ABSTRACT

The main thrust of this study was to develop and validate Grade 7 Araling Panlipunan. This study followed the design and development research method. The respondents of the study, who were chosen through a simple stratified random sampling technique, were 78 Grade 7 learners from St. Vincent College of Cabuyao, and 16 Araling Panlipunan secondary teachers from St. Vincent College of Cabuyao and Liceo de Los Banos. Using a four-point Likert Scale, simple mean, and t-test for independent samples, the findings revealed that the developed of Grade 7 Araling Panlipunan Strategic Intervention Materials based on the assessment of the Araling Panlipunan teachers in terms of objectives, content, language, and presentation were all highly valid. Meanwhile, the level of acceptability of the developed Strategic Intervention Materials of Grade 7 Araling Panlipunan was also highly accepted based on the assessment of the Araling Panlipunan teachers in terms of functionality, accuracy, suitability, and usability. There was a significant difference in the academic performance level of the learners comparing the mean scores of the learners during the pretest and posttest. It can be concluded that the developed strategic intervention materials of Grade 7 Araling Panlipunan increased the acquisition of learning of Grade 7 learners based on the difference in their performance in the pretest and posttest.

Keywords: *developed, contextualized, instructional materials*

INTRODUCTION

History provides insight into the past, including triumphs, failures, and pivotal moments that shaped humanity. It taught students about various cultures, civilizations, and ideologies, promoting empathy and global awareness. It fostered critical thinking as students analyze events, identify patterns, and draw conclusions. Learning history taught students how to think critically, reason logically, and express their ideas coherently. It taught them about the context of current events and the interconnectedness of global affairs. Furthermore, history motivated students by demonstrating examples of human resilience, innovation, and achievement (Dan, 2022).

With reference to the article in MOOC.Org (2021), it was mentioned that learning about history aided students in understanding how historical occurrences shaped modern society. They learned about themselves and how they came to be, but they also gained the ability to avoid mistakes and forge better paths for their societies by using the lessons from the past. Events in the past uprooted families and groups, altering the demographics of areas and frequently igniting conflict. These occurrences produced political structures that have persisted for generations after their inception. And it all had an impact on every person alive today.

In the Philippines, the Araling Panlipunan class is considered a boring subject by the students due to the overwhelming information that learners need to absorb and remember.

Sometimes teachers need to do something excessive just to get the interest and attention of their students. In the new normal education, AP teachers opt to think of strategies that help them to make AP subjects as interesting as possible without compromising the quality of education that the students need to possess.

To strengthen the patriotism and nationalism of Filipino teachers and learners through learning, understanding, and appreciating history, the Department of Education initiated a program called *Balik Kasaysayan* Program. The main goal of the said project was to deepen awareness of the local (national and international if possible) history, culture, and arts that contribute to strengthening Filipino learners' patriotism and nationalism. With this program, DepEd achieved its vision where "We dream of Filipinos who passionately love their country and whose values and competencies enable them to realize their full potential and contribute meaningfully to building the nation" and therefore rewarding and making education redeeming. The expected outcome of the said project would be for schools to be able to produce functional teaching and learning resources and reference materials focusing on the history, culture, and arts that are based on primary sources and are accessible to all teachers and learners.

Since history is not integrated into Araling Panlipunan subject in the implementation of the K-to-12 Curriculum, various groups advocate for the reinstatement of Philippine history as a separate subject in grades K-12, rather than integrating it with

other subjects. In his write-up, veteran Filipino writer Isagani Cruz noted that "because the curriculum is so comprehensive, it is very difficult for a casual reader to identify the various strands that unify the content and performance standards of the different learning areas and grade levels" (Tumapon, 2022).

The reality that history is taken for granted in teaching Araling Panlipunan is the entry point of the researcher to conduct this study. Likewise, the learning competencies in Araling Panlipunan such as *Naipapaliwanag ang konsepto ng Asya tungo sa paghahating heograpiko*: Silangang Asya, TimogSilangang Asya, Timog-Asya, Kanlurang Asya, Hilagang Asya at Hilaga/ Gitnang Asya are needed to be enhanced, for the learners to be more prepared when the time comes that they encounter challenges in learning the subject, particularly in the higher level of Junior High School.

This study focused on the development of strategic intervention materials to scaffold the learning of Araling Panlipunan among Grade 7 learners. It was found out that St. Vincent College of Cabuyao lacked in the teaching and learning materials that were contextualized and localized. Through this initiative, strategic intervention materials that focused on contextualizing and localizing the lessons in Araling Panlipunan were provided.

Strategic Intervention Materials or SIM in the Philippine educational system, are instructional materials designed to reteach concepts or topics that the students believe they have not yet mastered. Guide cards, activity cards, assessment cards, enrichment cards, answer cards, and reference cards are the basic components of this. The mandate that no learner will be left behind is one of the Department of Education's goals. This makes sure that every student has an equal chance to succeed. to improve their schoolwork and gain proficiency in their least developed skills. Because of this, competency-based strategic intervention materials help learners develop their least-mastered skills, which is where they perform very poorly.

Research Questions

Purpose Statements

The purpose of this study was to develop and evaluate a strategic intervention material in Araling Panlipunan intended for Grade 7 learners. Furthermore, it aimed to:

1. Design and develop Strategic Intervention Materials in Araling Panlipunan 7 in consideration of the Most Essential Learning Competencies or MELCs.
2. Determine the validity and acceptability level of the Grade 7 Strategic Intervention Materials.
3. Identify if there is a significant difference between the pretest and posttest in the use of Grade 7 Strategic Intervention Materials.

METHODOLOGY

The Design and Development Research Method was employed. Design and Development Research (DDR) provides an avenue for instructional designers to test theory, models, and frameworks, as well as validate practice. The usage, design, development, implementation, and assessment of products, tools, programs, and models employing instructional design models and frameworks is the emphasis of DDR.

According to Radcliffe (2023), the purpose of developmental research design was to determine how the researcher would collect data for the study. This design helped to focus on what changed and what remained constant while aging. It determined what information would be collected and how it would be obtained. The Design and Development Research approach was utilized in this study to improve the objects that were used and created. Furthermore, it was a way of creating or developing new resources as well as verifying current ones that helped students. The utilization of this design was appropriate for the conduct of this study since the study focused on developing a supplemental teaching material and further determining the effectiveness of the said material.

This research endeavor was conducted at St. Vincent College of Cabuyao since it was found that there was a need to develop supplemental material in teaching Araling Panlipunan Grade 7. Likewise, the academic performance of the learners in Araling Panlipunan was not that high the same as their engagement during class discussion.

Total enumeration was employed by the researcher for Araling Panlipunan teachers at St. Vincent College of Cabuyao and Liceo de Los Banos. Teachers who are teaching Araling Panlipunan served as respondents. Moreover, two sections with 78 learners from grade 7 served as learner participants. The learners were chosen through match-pairing. A matched pairs design is an experimental design that is used when there are just two treatment conditions in an experiment. The volunteers in the experiment are paired up based on some criteria that they "match" on, such as age or gender. The individuals are then randomly randomized to various treatments within each pair (Bobbitt, 2020).

The primary goal was to determine the effectiveness of the SIM in the academic performance of the learners in Araling Panlipunan.

The study was comprised of two sections learner-respondents who were matched. Both of them took the pretest and post-test.

Table A

Respondents of the Study

Respondents	Frequency	Percent
Teachers	16	17.02
Students	78	82.73
Total	94	100.00

As shown in the table, the study had 94 respondents, 16 (17.02%) were teachers, and 78 (82.73) were students. These students were those who were enrolled at St. Vincent College of Cabuyao for the school year 2022-2023

Table B

Profile of the Teacher Interraters

Validators	Years in Handling AP 7	Educational Attainment
1	6	BSED
2	5	BSED
3	5	MAEd
4	6	BSED
5	7	MAEd
6	6	BSED
7	5	BSED
8	8	BSED
9	7	BSED
10	8	BSED
11	5	BSED
12	6	BSED
13	6	BSED
14	5	BSED
15	5	BSED
16	8	BSED

Another group of the study was the 16 teacher-validators that assessed the Grade 7 Araling Panlipunan materials. Most of them were BSED graduates, and two (2) of them were MAEd graduates. Three validators were teaching AP 7 for eight years, Two (2) validators have been teaching for seven (7) years, five (5) validators, for six (6) years, and six (6) validators, for five (5) years.

The study utilized an adopted instrument from Angay (2023) from her study. The research instrument was composed of two parts for experts' evaluation. Part 1 assessed the validity of the strategic intervention materials for Grade 7 Araling Panlipunan based on the objectives, content, language, and presentation. Part 2 assessed the acceptability of the strategic intervention materials for Araling Panlipunan in 4 terms of functionality,

accuracy, suitability, and usability with a four-point Likert scale will be applied and interpreted as follows:

Level of Validity and Acceptability
Four-point Likert Scale

	Scale	Level of Validity	Level of Acceptability
4	3.25-4.00	Highly Valid (HV)	Highly Accepted (HA)
3	2.50-3.24	Valid (V)	Accepted (A)
2	1.75-2.49	Slightly Valid (SV)	Slightly Acceptable (SA)
1	1.00-1.74	Not Valid (NV)	Not Acceptable (NA

Moreover, the pretest and posttest for the first quarter were administered to the learner-respondents to determine the significant difference between the pretest and posttest. The results of the performance were interpreted using the levels of proficiency.

Levels of Proficiency

Level	Percentage
Outstanding	90-100
Very Satisfactory	85-89
Satisfactory	80-84
Fairly Satisfactory	75-79
Did not meet Expectations	Below 75

Source: DepEd Order No. 8, S. 2015 (Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program)

This study utilized an adopted survey questionnaire to validate the Developed Strategic Intervention Material in Grade 7 Araling Panlipunan. There were teacher raters who validated the instruments. These validators were master teachers and head teachers in Araling Panlipunan who were serving at public schools. To further check the validity of the questionnaire, the researcher asked the assistance of a statistician, and the questionnaire underwent a Reliability Test through Cronbach's Alpha. The Cronbach's Alpha coefficient result of the instrument was 0.940 for validity and 0.884 for acceptability (Frost, 2023).

First, the concerned parents, school principal, and district supervisor were given a letter of request. It was stipulated in the letter the goal of the study and the procedure for how the study would be conducted. Next, the intervention materials were evaluated by the teacher assessors, and with their recommendation, the materials were reproduced and given to the learners. That signaled the start of the intervention or experiment. Once the proposal and materials were approved by the school principal and district supervisor, orientation was done. There was a physical orientation conducted among the parents of the participants and this was done during the distribution of the materials. Since in-person

classes were being implemented, the researcher was provided printed intervention materials that learners can use. Lastly, the researcher got the data needed for the study, analysis, and interpretation of the data followed.

In the conduct of the study, the Data Privacy Act was strictly followed, and there was confidentiality particularly in the data of the learners as the main respondents.

This research followed the ethical requirements outlined in the DPA 2012 Manual when conducting the study. The importance and objectives of the study were conveyed to the participants. Full consent was solicited and obtained from the study's subjects. The information supplied by the participants was kept confidential, and their privacy was protected. The authors of the literature and research utilized to establish the rationale, and background of the investigation, and to support the study's conclusions were properly cited.

The following were the statistical treatments applied to the study using Statistical Package for Social Sciences (SPSS).

1. Mean and Likert scale were used to present the performance of the students in the pre and post-test.
2. Simple mean was used to determine the level of validity and acceptability of the developed strategic intervention materials for Grade 7 Araling Panlipunan.
3. T-test was used to identify if there was a significant difference in the performance of Grade 7 learners in their pretest and posttest.

RESULTS AND DISCUSSION

Purpose Statement Number 1: Design and develop Strategic Intervention Materials in Araling Panlipunan 7.

The developed instructional materials in Grade 7 Araling Panlipunan were contextualized modules for the second quarter which discussed the basic concept and topics in Araling Panlipunan. In addition, the instructional material had information and practical exercises based on their everyday lives and current situation. Developed instructional modules made use of the IDEA format making it more interesting, easy to understand topics and application of the lesson to their day-to-day situation. Further, the Most Essential Learning Competencies were the bases in crafting strategic intervention materials. In crafting the materials, there was integration of localization and contextualization. Strategic Intervention Materials in Araling Panlipunan 7 in consideration of the Most Essential Learning Competencies or MELCs for the second quarter. Discusses the concept of Civilization and its characteristics, Comparing Ancient Asian Civilization (Sumer, Indus, China) and Assessing the influence of Asian thoughts on Social and Cultural Situation in Asia.

According to Paña's (2021) research, using the S.I.M. affected improving students' academic performance. Additionally, he suggested that conducting research would aid teachers in enhancing their students' learning.

Purpose Statement Number 2: Determine the validity and acceptability level of the Grade 7 Strategic Intervention Materials.

2.1 Content Validity

Table 1.1.1

Content Validity Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Objectives

Indicators	X	VI
1. The objectives are clearly stated in behavioral form.	4.00	HV
2. The objectives are well-planned, formulated, and organized.	4.00	HV
3. The objectives stated are specific, measurable, and attainable.	3.94	HV
4. The objectives are relevant to the topics of each lesson of the worksheets.	3.94	HV
5. The objectives consider the needs of the students.	3.81	HV
General Assessment	3.90	HV

Legend: 3.25-4.00 Highly Valid (HV) 2.50-3.24 Valid (V) 1.75-2.49 Partially Valid (PV) 1.00-1.74 Not Valid (NV)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Objectives was **Highly Valid** (**3.90).** "The objectives are clearly stated in behavioral form and well-planned, formulated, and organized" yielded the highest mean score of **4.00** interpreted as **Highly Valid**. On the other hand, "The objectives consider the needs of the students" received the lowest mean score of **3.81** interpreted as **Highly Valid.**

It implies that the objectives are relevant to the topic and are aligned with the most essential learning competencies. Learning objectives are used to direct learners as they go through the class and to evaluate their educational progress. In addition, exceptional objectives serve as a guide to learners upon examining the materials and getting ready for evaluations. Lastly, learning objectives are the most effective if they are specific, actionable, clearly stated, and measurable.

Contextualization was an instructional innovation that was developed at the turn of the 21st century. Montalbo and Villanueva (2020), defined contextualization as something related to the local environment, such as home, community, or workplace; contextualizing means creating a connection between the lessons taught in the classroom and what was happening in the real world outside. In this approach, the learners were given an "experience" of the lesson, not just pure thinking and imagination while seated in the classroom. In addition, Calimlim (2020) mentioned that contextualizing can significantly

support teaching and learning results. Thus, learners were expected to easily relate to the lesson, understand it better, and remember it more.

Table 1.1.2

Content Validity Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Content

Indicators	X	VI
1. The content of each lesson is directly relevant to the defined objectives.	3.94	HV
2. The content of each lesson is simple and easy to understand.	4.00	HV
3. The topics of each lesson are fully discussed.	3.94	HV
4. The topics are supported by illustrative examples, and the practice tasks are suited to the level of the students.	3.94	HV
5. Each topic is given equal emphasis in the lesson	3.88	HV
General Assessment	3.94	HV

Legend: 3.25-4.00 Highly Valid (HV) 2.50-3.24 Valid (V) 1.75-2.49 Partially Valid (PV) 1.00-1.74 Not Valid (NV)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Content was **Highly Valid** (3.94**)**. All indicators were verbally interpreted as **Highly Valid**. Moreover, the indicator “The content of each lesson is simple and easy to understand” had the highest computed mean of **4.00,** while the indicator “Each topic is given equal emphasis in the lesson” had the lowest computed mean of **3.88** which was also **Highly Valid**. It can be concluded that the Strategic Intervention Material in Grade 7 Araling Panlipunan in terms of Content has high validity.

It implies that the content is relevant to the topic The content topic of each lesson is simple and easy to understand, the lessons are fully discussed, the topic is supported by illustrative examples, and the practice tasks are suited to the level of the students.

Marshall and Rossman (2018, as cited in Catuday, 2019) added that a valid development procedure should always be observed. Content validation was the most crucial and preliminary step towards material or instrument development. Content validation set the pace for succeeding validity and reliability measures. Careful planning, determination of objectives, and review of literature should be made at this point to be provided with comprehensive knowledge of the nature of the decision to be measured by the material or instrument.

Table 1.1.3

Content Validity Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Language

Indicators	X	VI
1. The format/layout is well-organized, which makes the lessons more interesting.	4.00	HV
2. The language used is easy to understand.	4.00	HV
3. The language used is clear, concise, and motivating.	3.88	HV
4. The instructions in the worksheets are concise and easy to follow.	3.94	HV
General Assessment	3.92	HV

Legend: 3.25-4.00 Highly Valid (HV) 2.50-3.24 Valid (V) 1.75-2.49 Partially Valid (PV) 1.00-1.74 Not Valid (NV)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Language was **Highly Valid (3.92).** Furthermore, the indicators "The format/layout is well-organized, which makes the lessons more interesting" and "The language used is easy to understand" had the highest computed mean of **4.00** interpreted as **Highly Valid,** while the indicator "The language used is clear, concise, and motivating" had the lowest computed mean of **3.**88 interpreted as **Highly Valid.**

As stated in the study by Espiritu and Ogerio (2020), Araling Panlipunan was one of the subjects that learners took seriously during high school. Although Araling Panlipunan explored the daily activities of people and the right decision-making, when the lessons and activities were discussed in a foreign language, understanding the terms and meanings of words was quite difficult for junior high school learners. Thus, the emergence of a contextualized and localized curriculum was needed.

Table 1.1.4

Content Validity Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Presentations

Indicators	X	VI
1. The topics are presented in a logical and sequential order.	3.94	HV
2. The lessons of the worksheets are presented in a unique and original form.	3.94	HV
3. The learning activities are presented clearly.	3.88	HV
4. The presentation of each lesson is attractive and interesting to the students.	4.00	HV
5. Adequate examples are given to each topic.	3.88	HV
General Assessment	3.93	HV

Legend: 3.25-4.00 Highly Valid (HV) 2.50-3.24 Valid (V) 1.75-2.49 Partially Valid (PV) 1.00-1.74 Not Valid (NV)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Presentations were **Highly Valid** (**3.93)**. Moreover, the indicator “The presentation of each lesson is attractive and interesting to the students” had the highest computed mean of **4.00** while the indicators “The learning activities are presented clearly” and “Adequate examples are given to each topic” had the lowest computed mean of **3.88** interpreted as **Highly Valid**.

It affirms that the content and lessons of SIM are presented well. Moreover, the presentation is motivating for the learners because it is attractive and interesting. Additionally, the well-presented lessons and activities will make the learners engage more in the discussion while using the SIM.

In the study by Hasibuan (2019), he stated that the development and validation of learning materials should be practical and effective to improve the problem-solving skills and learning independence of the learners. Further, Lee (2021) emphasized that for instructional interventions to be effective, they must be: 1) intentional, focused on a specific challenge; 2) specific and formalized, addressing the learners' specific issues and concerns; and 3) flexible, applicable, and adaptable to the learners, given that each

learner has unique needs and preferences. Based on the characteristics, it is possible to conclude that interventions should be developed with the goal of serving as a successful tool for improving learners' skills. As a result, teachers have a critical role in developing the interventions that will be implemented.

1.2 Acceptability

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Functionality were **Very Acceptable (3.94)**. Furthermore, the indicator "Worksheets serve their purpose" had the highest computed mean of **4.00** interpreted as **Very Acceptable**, while the indicator "Worksheets are self-instructed" had a computed mean of **3.88** which was still **Very Acceptable.**

Table 1.2.1

Acceptability Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Functionality

Indicators	X	VI
1. Worksheets are free of errors.	3.94	VA
2. Worksheets are self-instructed.	3.88	VA
3. Graphics and color increase the instructional value of the worksheets.	3.94	VA
4. Worksheets serve their purpose.	4.00	VA
5. Worksheets provide authorized easy access.	3.94	VA
General Assessment	3.94	VA

Legend: 3.25-4.00 Very Acceptable (VA) 2.50-3.24 Acceptable (A) 1.75-2.49 Partially Acceptable (PA) 1.00-1.74 Not Acceptable (NA)

The contextualized instructional material is clear, simple, and can be easily understood by the learners. Moreover, the information in the contextualized instructional materials stimulates learners' interest. Instructional materials are essential tools in learning and they also permit the learners to express their ideas with symbols, words, and images in manners that foster their capacities in thinking, talking, listening, composing, utilizing media, reading, solving, and innovation.

Instructional or learning materials as mentioned by Lewis (2018, as cited in Lorbis, 2019), referred to a selection of teaching materials that teachers used in teaching inside the classroom. These could be games, videos, flashcards, project supplies, and many more. Instructional materials were extremely fundamental in conveying directions since they helped the teaching and learning process. Moreover, students turned out to be more charmed and energized by the perception or assumption that they had materials to use to acquire knowledge. Educational material must also be aligned to the degree of progress of understanding to match the degree of cognizance.

Table 1.2.2

Acceptability Level of Grade 7 Araling Strategic Intervention Materials in terms of Accuracy

Indicators	X	VI
1. Worksheets contain correct information about the topic.	4.00	VA
2. Worksheets provide learners with the best choices for their answers.	3.94	VA
3. Choices reflect a certain degree of similarity in meaning but have distinct syntactic uses.	3.88	VA
General Assessment	3.94	VA

Legend: 3.25-4.00 Very Acceptable (VA) 2.50-3.24 Acceptable (A) 1.75-2.49 Partially Acceptable (PA) 1.00-1.74 Not Acceptable (NA)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Accuracy were **Very Acceptable (3.94)**. Moreover, the indicator “Worksheets contain correct information about the topic” had the highest computed mean of **4.00** while the “Choices reflects a certain degree of similarity in meaning but have distinct syntactic uses” had the lowest computed mean **3.88.** Both were interpreted as **Very Acceptable.**

It reveals that the SIM has contents that are concise and accurate. The very goal of instructional materials is to provide information that is based on facts and that may allow learners to learn more about the subject matter. Likewise, the veracity of the material is a good component of its acceptability.

According to the article in Eduedify (2022), instructional materials were critical for effective teaching and learning. They can be used to help students learn new concepts and provide practice opportunities, as well as to support and supplement the lesson material. When selecting instructional materials, consider the students' ages and ability levels, as well as the lesson objectives. Teachers used instructional materials to pique their students' interest in learning. They included textbooks, workbooks, software, apps, games, videos, and other materials. When used correctly, instructional materials can accelerate students' acquisition of knowledge and skills.

Table 1.2.3

Acceptability Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Suitability

Indicators	X	VI
1. Activities consider the varying attitudes and capabilities of the learner.	3.94	VA
2. Activities are appropriate to the subject matter.	3.88	VA
3. Activities are relevant, interesting, and self - motivating to the learner.	3.94	VA
4. Use of enrichment activity is adaptable to classes with large number of learners.	3.88	VA
5. The language of the worksheets is within the vocabulary range of the target learners.	4.00	VA
General Assessment	3.93	VA

Legend: 3.25-4.00 Very Acceptable (VA) 2.50-3.24 Acceptable (A) 1.75-2.49 Partially Acceptable (PA) 1.00-1.74 Not Acceptable (NA)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Suitability were **Very Acceptable (3.93)**. All indicators were verbally interpreted as **Very Acceptable**. Moreover, the indicator “The language of the worksheets is within the vocabulary range of the target learners” had the highest computed mean of **4.00** while the indicators “Activities are appropriate to the subject matter” and “Use of enrichment activity is adaptable to classes with large number of learners” had the lowest computed mean of **3.88.**

The Developed Contextualized Learning Activity Sheets in terms of Suitability are appropriate to the subject matter, and activities are relevant, interesting, and self-motivating to the learners. Moreover, the language is within the vocabulary range of learners. It only means that the activities in this instructional material are suited to the learners and provide teachable activities. The success of achieving what they mean to achieve in an instructional situation depends on the suitability of the instructional materials, adequacy, and effective utilization of the materials.

It was a greater method for finding new data to guarantee that the learning materials applied to what learners required. In addition, Mamais (2018) commented that instructional materials could increase the internal motivation of the learners to learn and sustain their interest. Instructional material made links that were valuable for the retention, inspiration, imagination, and innovation of learners.

Table 1.2.4

Acceptability Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Usability

Indicators	X	VI
1. The worksheets prepare the learners to think logically and critically.	3.94	VA
2. The concepts in the worksheets are simple and comprehensible.	4.00	VA
3. The worksheets enhance the learners' comprehension and reading skills.	3.88	VA
4. The worksheets provide the opportunity for the development of language skills.	3.94	VA
5. The learning contents provide adequate information on the topics presented.	3.88	VA
6. The worksheets encourage the learners to become actively involved in intellectual activities.	3.94	VA
7. Activities seek to relate new concepts from previous learning.	3.94	VA
8. As a whole, activities are teachable.	3.94	VA
General Assessment	3.93	VA

Legend: 3.25-4.00 Very Acceptable (VA) 2.50-3.24 Acceptable (A) 1.75-2.49 Partially Acceptable (PA) 1.00-1.74 Not Acceptable (NA)

Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Usability were **Very Acceptable 3.93**. Furthermore, the indicator "The concepts in the worksheets are simple and comprehensible" had the highest computed mean of **4.00** interpreted as **Very Acceptable** while the indicators "The worksheets enhance the learners' comprehension and reading skills" and "The learning contents provide adequate information on the topics presented" both had the lowest computed mean of **3.88** interpreted as **Very Acceptable**.

It can be concluded that the Acceptability Level of Grade 7 Araling Panlipunan Strategic Intervention Materials in terms of Usability is very Acceptable. Additionally, localization helped learners foster the knowledge, abilities, and traits of good citizens by recognizing and following up on concerns and matters that involve the people in their community.

In the study by Macarubbo (2018), he said that the promotion of localized materials empowered the importance of neighborhood, social and socio-economic context. Therefore, the localization of material allowed learning to become meaningful and purposeful.

Purpose Statement Number 3: Identify if there is a significant difference between pretest and posttest in the use of Grade 7 Strategic Intervention Materials.

Table 2.1

Pretest Results of the Grade 7 Pretest Scores of Grade 7 Students in Using Strategic Intervention Materials

Indicators	Frequency	Percent
Outstanding	0	0.00
Very Satisfactory	1	1.28
Satisfactory	1	1.28
Fairly Satisfactory	24	30.77
Did not meet Expectations	52	66.67
Total	78.0	100.00
Average	72.88	

Legend : 90 - 100 Outstanding 85- 89 Very Satisfactory 80 - 84 Satisfactory
75 - 79 Fairly Satisfactory 74 below Did not Meet Expectations

The evaluation of Grade 7 Araling Panlipunan Strategic Intervention Materials yielded an average of 72.88 interpreted as **Did not Meet Expectations**. There were (0) Outstanding, 1 (1.28%) Very Satisfactory, 1 (1.28%), Satisfactory, 24 (30.77%) Fairly Satisfactory and 52 (66.67 %) Did not Meet Expectation.

It implies that students do not have enough knowledge yet in using strategic intervention materials. They may not have experienced such types of materials in their previous years. Their previous teachers might have used other types of intervention materials.

Furthermore, Lazo and De Guzman (2021) in their study suggested the consideration of the preparation of SIM for improving the advancement of desirable values and traits and free from biased content; more active learning activities aimed at increasing motivation and understanding and for the development of critical and higher-order thinking; and better efficiency of its assessment tools and techniques.

Table 2.2

Posttest Results of Grade 7 Students after Using Strategic Intervention Materials

Indicators	Frequency	Percent
Outstanding	0	0.00
Very Satisfactory	6	7.69
Satisfactory	11	14.10
Fairly Satisfactory	31	39.74
Did not meet Expectations	30	38.46
Total	78	100.00

Legend : 90 - 100 Outstanding 85- 89 Very Satisfactory 80 - 84 Satisfactory
75 - 79 Fairly Satisfactory 74 below Did not meet expectations

The evaluation of Grade 7 Araling Panlipunan Strategic Intervention Materials yielded an average of 78 interpreted as Fairly Satisfactory. There were (0) Outstanding, 6 (7.69%) Very Satisfactory, 11 (14.10%), Satisfactory, 31 (39.74%) Fairly Satisfactory and 30 (38.46%) Did not meet expectations.

It implies that the teacher used SIM. However, she utilized it for only two weeks, hence, her expectation of a better result did not happen.

In the study conducted by Bonitez (2021), the results showed that using SIM significantly improved the respondents' performance levels. This demonstrated how using SIM had a significant impact on how well students understood the lesson. To facilitate learning and enhance student performance, SIM should be modified as an "aid" for instructional materials. Teachers can re-teach the concepts and skills using the researcher's SIM. It was strongly advised that SIM be implemented and developed to improve student learning across the board, not just in the Philippines.

Table 2.3

Test of Significant Difference between the Pretest and Posttest Summary among the Grade 7 using the SIM

		Paired Differences					
Indicators	Test	Mean	SD	T	P value	Remarks	Decision
Grade 7 Araling Panlipunan Strategic Intervention Materials	Pre &Post	- 3.23	2.66	-10.71	.000	Significant	Reject ho

There was a significant difference between the performance of the students in the pretest and posttest. The probability value was .000 which was less than the level of significance at .05. Hence, the null hypothesis was rejected. The improvement in the posttest results is attributed to the utilization of the Grade 7 Araling Panlipunan Strategic Intervention Materials.

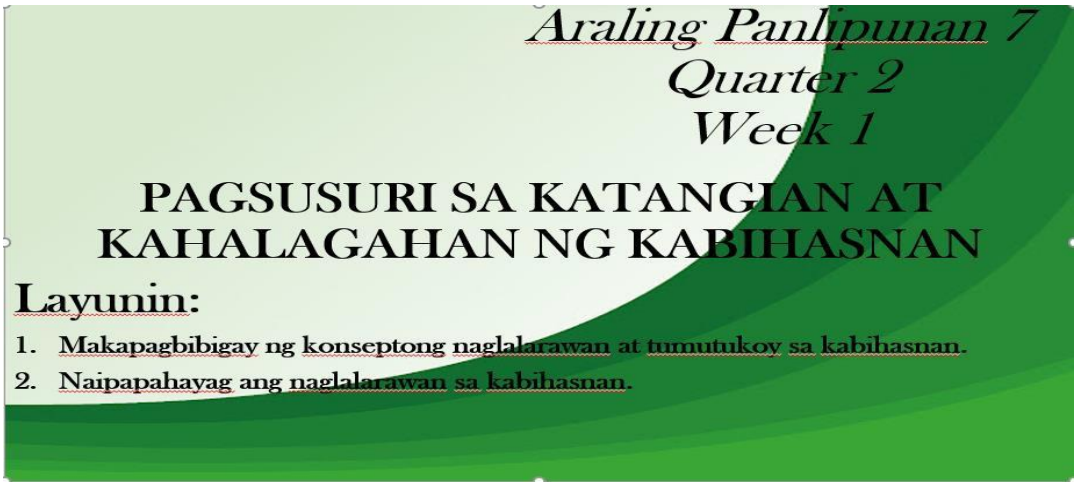
The improvement in the post-test results is attributed to the utilization of the grade 7 Araling Panlipunan Strategic Intervention materials.

According to Sta. Rosa (2021), S.I.M. used among Araling Panlipunan students in Junior High School aided in improving and developing mastery skills and addressing the varied learning progress of each student. Furthermore, it met the needs of the students in terms of least-mastered competencies and aided teachers in making teaching easier.

Conclusions

Purpose of Strategic Intervention Materials

Strategic Intervention Material (SIM) is used in remedial sessions to focus on developing the learners' least mastered skills. It is a learning tool that assists students in mastering competency-based abilities that they may not have been able to develop in a traditional classroom setting.



Guide Card 1

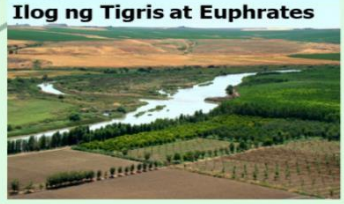
Konsepto ng Kabihasnan

- Orihinal na tumutukoy sa kahulugan ng "sibilisasyon" o "paninirahan sa lungsod"
- Isang maunlad na kalagayan ng mga tao sa isang lipunan na pinangangasiwaan ng isang sistematikong pamamahala at may maunlad na ekonomiya or kalakalan
- Ang unang kabihasnan ay nalinang sa mga ilog-lambak
- Sa Asya, ang mga ilog-lambak ng Tigris, Euphrates, Huang He at Indus Basin ay ang mga lugar na pinagmulan ng mga sinaunang kabihasnan sa mundo
- Sa isang kabihasnan, makikita ang isang maunlad na uri ng pamumuhay ng mga tao na may ugnayan sa iba't ibang larangan ng panlipunang pamumuhay
- Mayroon silang sistema ng pamamahala, kultura, lalakalan, at relihiyon

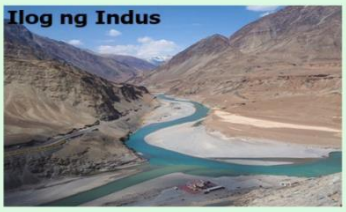
Guide Card 2

Pinagmulan ng Sinaunang Kabihasnan sa Mundo

Ilog ng Tigris at Euphrates



Ilog ng Indus



Ilog ng Huang He



Ang sibilisasyon ay tumutukoy sa isang lungsod, samantalang ang kabihasnan ay may kaugnayan sa pagiging bihasa o eksperto sa pamumuhay ng mga tao.

Sinasabi na ang sibilisasyon at kabihasnan ay nagaganap kapag ang mga tao ay nagsisimulang matuto ng kanilang pagsulat at pagbasa na nakapagpapatalas ng kanilang talino at humuhubog sa kanilang kakayahang mamuhay bilang isang pamayanan. Kaakibat ng pagyabong ng kanilang talino at kakayanan at pag unlad ng kanilang pagkatao.

Activity Card 1

Mula sa iyong natutuhan sa kabilang pahina,magbigay ng limang (5) konseptong naglalarawan sa isang kabihasnan.

Kabihasnan

Activity Card 2

Tukuyin kung anong katangian ang binibigyang kahulugan ng mga pangungusap sa loob ng kahon:

Naisasalin ang kanilang karunungan at natutunan sa isa paglipas ng panahon para sa susunod na henerasyon.	Natututunang maiangkop ang kanilang sarili at gawain na naaayon sa hinihinging pagkakataon.
Nagkakaroon ng maayos na pamamalakad sa bawat paggawa at pakikipag-ugnayan ng mga tao sa isa't-isa.	Nagiging sandigan ng pag-unlad ng lipunan upang marating ang estado ng pagiging kabihasnan.

Guide Card 3



- Matatag na Pamahalaang may Maunlad na Batas at Alituntunin
- Dalubhasang Manggagawa
- Maunlad na Kaisipan
- May Sistema ng Pagtatala

Katangian ng Kabihasnan

Enrichment Card 1

Base sa iyong mga karaniwang nararanasan sa kasalukuyan at sa mga natutuhan mo tungkol sa konsepto at katangian ng kabihasnan, magbigay ng pagpapakahulugan sa mga letrang bumubuo sa salitang kabihasnan.

K Kaisipan ay yumayabong ayon sa nararanasan .
A _____
B _____
I _____
H _____
A _____
S _____
N _____
A _____
N _____

Assessment Card 1

Basahing mabuti ang mga pangungusap. Isulat ang salitang TAMA kung wasto ang ipinapahayag ng pangungusap at MALI kung di-wasto.

_____1. Sa isang kabihasnan, makikita ang isang progresibong uri ng pamumuhay ng mga tao na may ugnayan sa iba't ibang larangan ng panlipunang pamumuhay.
_____2. Ang ilog Jordan ay isa sa mga pangunahing ilog na pinagsimulaan ng isang kabihasnan.
_____3. Habang umuunlad ang pamumuhay ng mga tao, yumayabong din ang kanilang kaisipan.
_____4. Sa pamamagitan ng pagsulat ng kanilang kaalaman, nananatiling bahagi ng kanilang kabihasnan ang kanilang natutuhan, kasaysayan at mga napagtagumpayan ng kanilang mamamayan.
_____5. Ang kabihasnan ay tumutukoy sa isang lungsod, samantalang ang sibilisasyon ay may kaugnayan sa pagiging bihasa o eksperto sa pamumuhay ng mga tao.

Araling Panlipunan 7
Quarter 2
Week 2-3

SINAUNANG KABIHASNAN SA ASYA: SUMER, INDUS, AT TSINA

Layunin:

1. Napaghahambing at naitatala ang mga katangiang pisikal ng mga sinaunang kabihasnan sa Asya.
2. Naibibigay ang pagbabago at pag-unlad ng pamumuhay ng kabihasnang umunlad sa Asya.

Guide Card

Sinaunang Kabihasnan sa Asya: Sumer, Indus at Tsina (Shang)

KABIHASNANG SUMER



KABIHASNANG INDUS



KABIHASNANG SHANG



Guide Card

KABIHASNANG SUMER

(3500 BCE - 3000 BCE)

KABIHASNANG SUMER

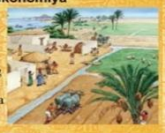
Ang Mesopotamia ang kinilala bilang *cradle of civilization* dahil dito umusbong ang unang sibilisadong lipunan ng tao.

Matatagpuan ang Mesopotamia sa Gitnang Silangan na tinawag na *Fertile Crescent* kung saan matatagpuan ang kambal-ilog na *Tigris* at *Euprates*.

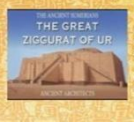


Sistemang Pampulitika at Pang-ekonomiya

Pagtatanim, pangangalakal, pangangaso at pag-aalaga ng hayop ang pangunahing hanapbuhay ng mga Sumerian.



Sistemang Panrelihiyon



Ang pinakamalaking gusali sa Sumer ay ang templo na tinatawag na **Ziggurat**.

Pinamunuan ng mga haring pari ang mga lungsod dito.

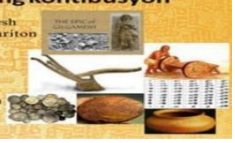
Mga Ambag ng Sumerian



Isa sa mga ambag ng mga Sumerian ay ang sistema ng pagsulat na tinawag ba ***cuneiform*** kung saan naitala ng mga ***scribe*** sa mga ***clay tablet*** ang mga mahahalagang pangyayaring naganap.

Iba pang kontibusyon

- Epic of Gilgamesh
- Araro at mga kariton na may gulong
- Palayok
- Perang pilak
- Lunar calendar
- Decimal system



Guide Card

KABIHASNANG INDUS

(2500 BCE - 1600 BCE)

KABIHASNANG INDUS



Sa Timog Asya makikita ang lambak-ilog ng Indus at Ganges. Dito umusbong ang kabihasnang Indus.

KABIHASNANG INDUS

Naging mahiwaga ang paglaho ng kabihasnang Indus . May paliwanag ang iskolar dito. Ayon sa kanilang teorya :

1. Kalamidad
2. Pananakop

Ngunit walalang matibay na ebidensyang naipakita sa mga paliwanag na ito.

Mga Ambag

Ang mga Dravidian ay gumamit ng mga pictogram bilang sistema ng pagsulat, ngunit hanggang ngayon ay wala paring nakakaalam kung ano ang kahulugan ng mga ito.



Sistemang Pampulitika at Pang-ekonomiya

May dalawang importanteng lungsod ang umusbong dito, ang **Harappa** at **Mohenjo-Daro**. Planado at organisado ang mga lungsod na ito na ipinakita sa mga lansangang nakadisensyo sa kuwadrado (grid-patterned) at pare-pareho ang sukat ng bloke ng kabahayan.

Sistemang Pampulitika at Pang-ekonomiya

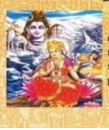
- ✓ Pinalagay na ang mga Dravidian ang bumuo ng kabihasnang Indus.
- ✓ Pinamunuan ang kabihasnang ito ng mga haring pari.
- ✓ Pagsasaka ang ikinabuhay ng mga tao dito.
- ✓ Natuto rin silang makipag-kalakalan sa mga karatig lungsod.

Sistemang Pampulitika at Pang-ekonomiya



Mohenjo-Daro at Harappa

Sistemang Panrelihiyon



Sinasamba ng mga Dravidian ang maraming Diyos na sumisimbolo sa pwersa ng kalikasan.

Guide Card

KABIHASNANG SHANG / TSINA

(1700 BCE - 1200 BCE)

KABIHASNANG SHANG

Ito ang kabihasnang nagsimula sa lambak ng Huang Ho sa China na tinawag ding *Yellow River* dahil pagkatapos ng pagbaha ang tubig nito ay nag-iiwan ng *loess* o dilaw na lupa na nagsisilbing pataba sa lupaing agrikultural na malapit dito.



Mga Ambag



Caligraphy ang sistema ng kanilang pagsulat na nagsilbing taga pag-isa sa mga Tsino. Gianamit na simbolo ng pagsulat ang mga oracle bone

Sistemang Pampulitika at Pang-ekonomiya

Ang Lungshan ay naging transisyon tungo sa Kabihasnang Shang. May hinalang may naunang dinastiya na natatag dito, ang Xia subalit wala itong matibay na basehan ebidensyang arkeolohikal.

Sistemang Pampulitika at Pang-ekonomiya

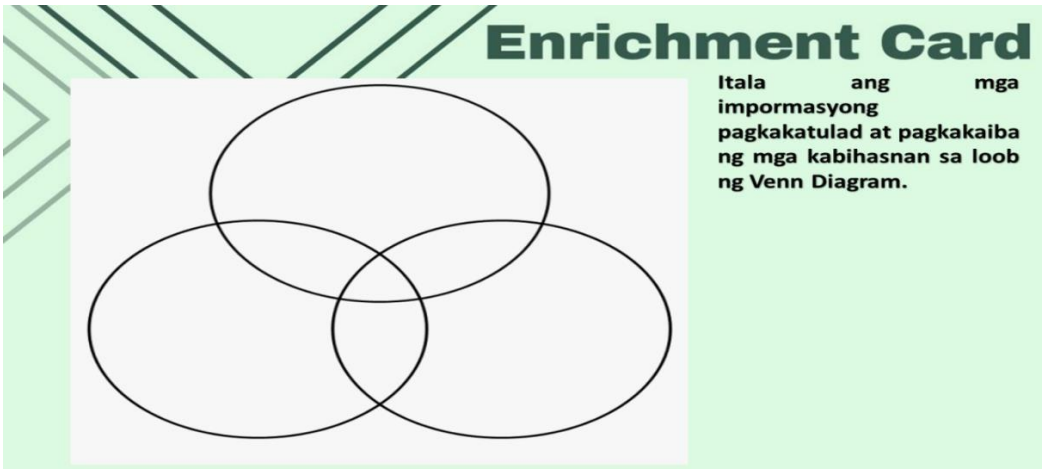
May mga pamayanan ng umusbong dito bago ang Shang. Ito ang kalinangan ng Yanshao (3000 BCE – 1500 BCE) at Lungshan (2500 BCE – 2000 BCE). Pagtatanim ang pangunahing gawain sa panahong ito.



Assessment Card

Punan ang mga hinihinging impormasyon tungkol sa nagging pagbabago at pag-unlad ng pamumuhay ng mga kabihasnang umunlad sa Asya.

Lugar na Pinagmulan ng Kabihasnan	*Kabihasnang Umusbong*	*Mga Unang Pamayanang Umusbong*	*Sistema ng Pagsulat*
Mesopotamia			
Indus Valley			
China			



Araling Panlipunan 7
Quarter 2
Week 4

PAGSUSURI SA KAISIPANG ASYANO SA IMPLUWENSYA NITO LIPUNAN AT KULTURA

Layunin:

1. Natataya ang impluwensya ng mga kaisipang Asyano sa kalagayang panlipunan at kultura sa Asya.
2. Naibibigay ang katangiang pagkakakilanlan ng kaisipang Asyano.

Guide Card

Sinocentrism ng China

- ❑ Ang kabihasnang Tsino ay isa sa mga pinagmulan ng mga kaisipang Asyano lalo na sa larangan ng pilosopiya, pamamahala at imbensiyon.
- ❑ Itinuturing ng mga Tsino ang kanilang bansa bilang "Gitnang Kaharian" o "Zongguo" na ang ibig ipakahulugan ay ang Tsina ang sentro ng daigdig.
- ❑ Naniniwala rin sila na ang kanilang kultura at lipunan ay namumukodtangi sa lahat kung kayat ang tingin nila sa ibang lahi sa daigdig ay mga barbaro.
- ❑ Hindi maaring palitan ang lahi o pamilyang pinagmulan ng kanilang pinuno o Emperor.
- ❑ Hindi rin sila maaaring tanggalan ng tungkulin sa pamumuno ng bansa dahil sa pinaniniwalaang Divine Origin ng kanilang pamilya.
- ❑ Ang kanilang Emperor ay may "mandate of heaven" na nagiging basehan ng pagpapalit ng dinastiya sa Tsina.



Guide Card

Divine Origin ng Emperor sa Japan



Ayon sa tala sa Kojiki noong 712 CE, ang Japan ay nabuo sa pagtatalik ng diyos na si Izanagi at diyosa na si Izanami. Samantalang sa pagbubukas ng kaliwang mata ni Izanami nanggaling ang araw na kinilala ng mga Hapones na diyos na si Amaterasu Omikami. Si Amaterasu ay may apo na nagngangalang Ninigi na nanirahan sa Kyushu.

Ayon sa tradisyon, itong si Ninigi-no-Mikoto ay may kaapu-apuhan na ang pangalan ay Jimmu Tenno na naging kauna-unahang Emperor ng Japan. Magmula noon, sa lahi ng Tenno nanggagaling ang mga susunod na emperor ng Japan.

Dahil dito, ang kanilang Emperor ay hindi maaaring palitan ang lahing pagmumulan ng pinuno o kaya ay tanggalan ng tunkulin sa pamumuno ng bansa, sa pagkat naniniwala sila na may Divine Origin ang kanilang pinuno. Bagamat sa kasalukuyan hindi na itinuturing ng mga Hapones ang kanilang Emperor bilang diyos, nananatiling mataas ang pagtingin nila sa kanilang emperador.



Assessment Card

Tukuyin at isulat ang mga katangiang pagkakakilanlan ng bawat kaisipang Asyano.

Kaisipang Asyano	Katangian/Pagkakakilanlan
Sinocentrism	1._____ 2._____ 3._____
Divine Origin	1._____ 2._____ 3._____
Devaraja	1._____ 2._____ 3._____
Cakravartin	1._____ 2._____ 3._____

Enrichment Card

Ibigay ang hinihingi.

Tatlong (3) konsepto na natutunan ko mula sa Aralin:

1. _____.
2. _____.
3. _____.

Dalawang (2) mahahalagang bagay na ayaw kong makalimutan mula sa Aralin:

1. _____.
2. _____.

Isang (1) impormasyon na gusto kong subukan mula sa aking natutunan sa Araling ito:

1. _____.

Araling Panlipunan 7
Quarter 2
Week 5

PAGTATAYA AT PAGPAPAHALAGA SA KAISIPANG ASYANO AT SINAUANANG KABIHASNAN SA ASYA

Layunin:

1. Naibibigay ang mga nakaatas na tungkulin sa mga sinaunang namumuno sa Asya.

Guide Card

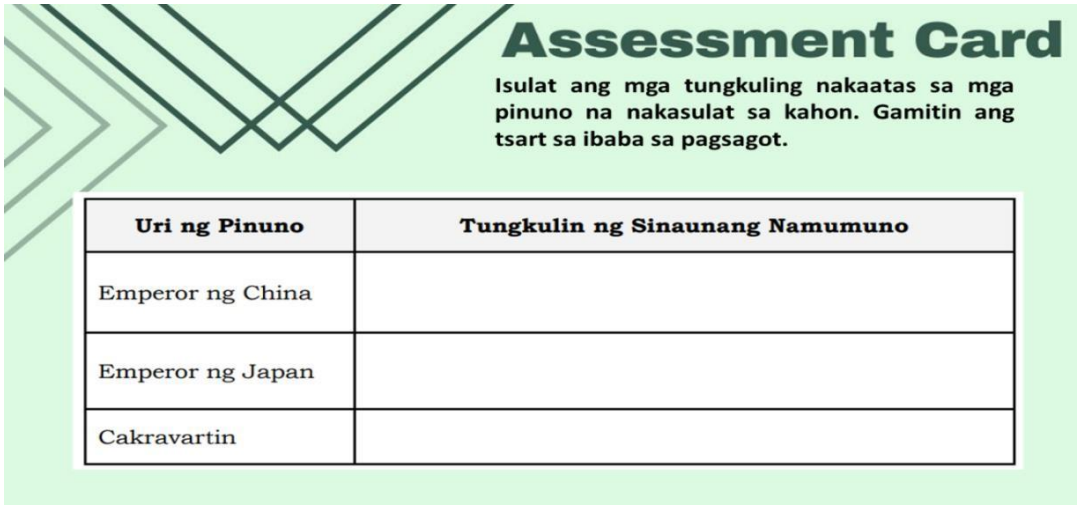


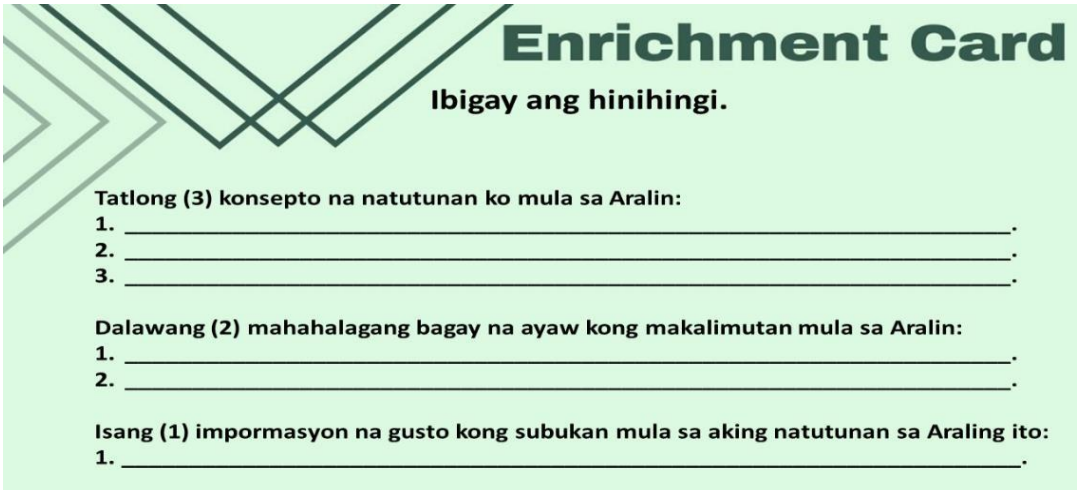
Sa konteksto ng Hinduism at Buddhism, ang cakravartin ay tumutukoy sa hari ng sansinukob. Sinasabi na ang haring ito ay nagtataglay ng pangakong pamumuno na may katuwiran at pagkalinga sa mga mamamayan at sa kanilang relihiyon. Ang mga halimbawa nito ay sina: Haring Asoka na dating mandirigma na tumalikod sa karahasan at sumuporta sa Buddhism at ang hari ng Khmer na si Jayavarman II na nasa pagkalinga at pag-iingat ni Shiva, ang isa sa mga diyos sa Hinduism.

Activity Card

Sagutin ang mga sumusunod na tanong. Isulat ang TAMA kung wasto ang tinatalakay na pangungusap at MALI kung hindi.

_____1. Ang Emperor ng Japan ay hindi maaaring alisan ng kapangyarihan sa pamumuno.
_____2. Ang Son of Heaven ay hindi rin maaring alisin sa kapangyarihan at pamumuno.
_____3. Ang Devaraja is tumutukoy sa iisang diyos lamang subalit maraming kapangyarihan.
_____4. Ang Cakravartin ay tumutukoy sa hari ng sansinukob.
_____5. Ang Emperor ng Tsina ay nanggaling sa lahi ng diyos.





Compliance with Ethical Standards

In the conduct of the study, the Data Privacy Act was strictly followed, and there was confidentiality particularly in the data of the learners as the main respondents. This research followed the ethical requirements outlined in the DPA 2012 Manual when conducting the study. The importance and objectives of the study were conveyed to the participants. Full consent was solicited and obtained from the study's subjects. The information supplied by the participants was kept confidential, and their privacy was protected. The authors of the literature and research utilized to establish the rationale, and background of the investigation, and to support the study's conclusions were properly cited.

Acknowledgments

The researcher wants to offer her sincerest gratitude to the people who added to the progress of this research endeavor. With adoration, regard, and honor, she would like to recognize the help given to her.

Dr. Eulalia M. Javier her research adviser, for her determination in giving an adequate number of thoughts on how she would carry out the study. For her persistence in each discussion and giving her sufficient opportunity to oblige and for really looking at the research study. For the help in the drafting of all the communication letters, for being the research statistician, and for the ethical help for her abilities in finishing and completing the thesis paper;

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PROMOTING ACADEMIC HEALTH USING WELLNESS AND YOUTHFULNESS (PAHUWAY) FOR SECONDARY SCHOOL HEADS OF SULTAN KUDARAT

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ABSTRACT

This study evaluated the stress management practices and determined the challenges of the secondary school heads in the Division of Sultan Kudarat. The study employed the mixed methods research design wherein the survey and individual interviews were conducted. The survey checklist was adapted and administered to 27 randomly selected schools. Findings showed that the secondary school heads in the Division of Sultan Kudarat prefer to plan the job they want to perform ahead of time to manage time better in situations where they feel stressed as *Always*. They encountered challenges in managing workplace stressors: multi-tasking, the issue of power playing for new items, and the percentages on projects. A seminar/workshop will be done to bring solutions to these challenges.

Keywords: *Academic Health, Wellness, Youthfulness, Secondary School Heads, Sultan Kudarat, Philippines*

INTRODUCTION

By incorporating the Ilonggo term "PAHUWAY," which means "rest," the title implies that the research will explore ways for school leaders to find balance, rejuvenation, and stress relief in their high-pressure positions.

This study aims to promote the overall well-being and stress management strategies for school leaders, including both heads and administrators. The focus is on using

wellness practices and maintaining a youthful mindset to cope with the demands of their roles.

Stress management in a worldwide setting picture out an organization as to how resources flow within the practice of supervision. It creates a culture of productivity, positivity, and upgrading of skills among members once it is well handled. Strategies are identified and applied by leaders and managers in all workplace which psychologically, emotionally, and physically affects every employee regardless of position if stress is not properly controlled. If not given attention, it changes behavior, perceptions, and practices among employees, which affects the performance and hampers the production as desired by every organization.

School heads' management of stress varies from one's creativity and efficiency. School leaders are challenged to think about what is best for the teachers, learners, and other employees and apply interventions creating an environment that change the effect on the workers. School heads' positivity brings good results in withstanding any challenges amid adversities. Aomo & Ogolla (2018), concluded that secondary school directors with a high sense of self-efficacy have better ways to handle challenging conditions than those with poor self-efficacy. Principals with high efficiency may handle stress better than leaders with principals who have low-esteem. This was because extremely self-efficient secondary school directors were able to handle any stressful situation. While Suleman et al. (2018), revealed that leaders with problems could produce numerous disagreeable and unpleasant results for the organization and its workforce, which pessimistically and undesirably affect the organization's overall performance. Accordingly, until stress is treated, various feelings of discomfort, struggles, challenges, and disease will take place. Stress is inevitable. Sahoo (2016) posits that where stress is not identified and addressed promptly, it will have an effect on organization and community soon. The organizational effects of stress can have a significant negative impact on the organization, in a wide range of areas such as: high personnel turnovers and recruitment costs, high levels of absenteeism and presenteeism, lower productivity levels such as stress exposure, increased health and safety issues, litigation organizations, reputational damage and increased training costs.

A rejoinder by Hartney (2020) that if stress is properly bring various diseases as a cause or precipitating factor, ranging from general health concerns such as cold and wound healing to life-threatening conditions such as coronary heart disease and cancer. Exposure to stress is indicated in most physical and mental conditions in the longer term. The impact of stress is generally negative it leads to problems such as unsatisfactory results, family issues, poor social relationships, health concerns, and unproductive organization. While the effects of stress are different depending on the situations and characteristics of the individuals concerned, the outcomes for the individuals are generally unpredictable. Depression, anxiety, downheartedness, stress, and deceit may be described as outcomes. Stress has disadvantageous effects on employees' productivity, (Benoliel & Barth, 2017).

Stress management practices used by the school head greatly affect the educational system, which introduces either positive or negative change in culture. Failure

to solve stress within the system will surely cause low productivity and less effective strategies, less participation, and lack of engagement during meetings and on coping with standards for school performance. Each school is an independent entity and has its own peculiarity, that this particular organizational culture had existed in the past before the school head came (Cabigao 2019). Organizational culture generally involves the belief that staff can learn what to do and what not to do, including practices, values, and assumptions about their job, in which the organization's core values begin with its leadership, which then translates into a leadership style. Which means that organizational culture was part of the school community, even from time immemorial, of what their previous school leaders and colleagues had learned. The school group has its definition of what's or isn't successful with this concept (Tsai 2019).

The various stress management practices that school heads need to adapt and apply to suppress stress to come up with a productive institution. It is, therefore, the intent of this study to cascade options that best suited for the school heads' physical, mental, emotional, and psychological stresses.

Research Question

Specifically, this research aimed to answer the following question:

What is the level of stress management practices of Secondary school heads, in terms of:

a. Proactive Stress Management;
b. Avoidance and Solitude, and

Distraction and Social Interaction?

METHODOLOGY

The study employs a quantitative approach to investigate the stress management practices of public secondary school heads. A survey is administered to a sample of school heads to gather numerical data on their stress management strategies, coping mechanisms, and perceived stress levels. The survey includes standardized scales and questionnaires to quantify the variables of interest. Descriptive statistics and inferential statistical tests are used to analyze the data, and the results are presented in the form of means, standard deviations, and correlations. It was conducted among twenty-seven (27) secondary school heads in the Division of Sultan Kudarat for the school year 2023-2024.

RESULTS AND DISCUSSION

On the level of stress management practices of secondary school heads in terms of proactive stress management was revealed as “Often”, in terms of Avoidance and Solitude it was found out as “sometimes, and in terms of Distraction and Social Interaction it was revealed as ‘Seldom”.

On the level of Stress Management Practices of Secondary School Heads in terms of Proactive Stress Management

Stress management practices used by the school head greatly affect the educational system, which introduces either positive or negative change in culture. Failure to solve stress within the system will surely cause low productivity and less effective strategies, less participation, and lack of engagement during meetings and on coping with standards for school performance.

Table 1. Stress Management Practices of Secondary School Heads in terms of Proactive Stress Management

As a secondary school administrator, I…	n	Mean	Std. Deviation	Description
1. Plan the job I want to perform ahead of time in order to manage time better in situations that I feel stressful.	27	4.63	0.56	Always
2. Pray in situations that I feel stressful.	27	4.48	0.8	Always
3. Create an environment to cope with my stress in situations that I feel stressful.	27	4.37	0.84	Always
4. Positively talk with myself (I look at things from a positive side).	27	4.15	0.91	Often
5. Spare time for my hobbies in situations that feel stressful.	27	4.04	0.85	Often
6. Share the situation causing stress with people I trust in order to cope with my stress.	27	3.89	1.19	Often
7. Spend time with my beloved ones in situations that I feel stressful.	27	3.85	1.17	Often
OVER-ALL MEAN	27	4.20	0.20	Often

The table presents that *I plan the job I want to perform ahead of time to manage time better in a situation that I feel stressful* as *Always*. This result means that the school head practiced stress management *all the time*. This outcome implies that school heads are already aware that working ahead of time would help lessen stress due to deadlines and records it may give once not on time submitted a report.

This stipulates the findings of Holman et al. (2018) and Hassard et al. (2017), that making blue print s for the task is part of the strategic planning process and includes being clear about goals and outcomes to create plans to achieve them. The disposal as well as any roadblocks to be prepared for should take into account the resources to the process, minimalized the delays, and the school head as well as the teachers. Working the plan is the execution process. It involves a series of milestones, strategies, and actions to make plans a reality. That varied methods to lessen the worry and promote employee wellness

and job restructuring is at the fingertips of the school heads having a variety of skills and procedures.

On the level of Stress Management Practices of Secondary School Heads in terms of Avoidance and Solitude

. Each school is an independent entity and has its own peculiarity, that this particular organizational culture had existed in the past before the school head came (Cabigao 2019). Organizational culture generally involves the belief that staff can learn what to do and what not to do, including practices, values, and assumptions about their job, in which the organization's core values begin with its leadership, which then translates into a leadership style.

Table 2. Stress Management Practices of Secondary School Heads in terms of Avoidance and Solitude

As a secondary school administrator, I…	n	Mean	Std. Deviation	Description
1. avoid situations reminding things causing a stress	27	3.85	1.03	Often
2. confront with the person causing a stress in order to cope with my stress	27	3.78	0.85	Often
3. do sport in situations that I feel stressful	27	3.52	0.94	Often
4. use relaxation methods (meditation yoga, muscle relaxation, deep breathing exercises)	27	3.37	1.11	Sometimes
5. receive support from experts in order to cope with my stress	27	3.26	1.23	Sometimes
6. keep silent in any problem	27	3.11	1.09	Sometimes
7. go shopping	27	2.70	0.99	Sometimes
OVER-ALL MEAN		3.37	0.11	Sometimes

Secondary school administrators use various coping mechanisms to manage stress. They often avoid situations that remind them of stressful events and confront the source of stress. Physical activity, such as sports, is also a common method. While relaxation techniques and seeking expert support are less common, they are still used sometimes. Keeping silent in the face of a problem and going shopping are the least common coping mechanisms. The overall mean score 3.37 indicates that these methods are used sometimes, suggesting that administrators may not be as effective or consistent in managing stress as they could be.

Table 3. Stress Management Practices of Secondary School Heads in terms of Distraction and Social Interaction

As a secondary school administrator, I…	n	Mean	Std. Deviation	Description
1. wanted to be alone	27	2.52	0.98	Seldom
2. do video calls with loved ones/confidantes	27	2.37	1.21	Seldom
3. drink coffee/alcoholic beverages	27	2.26	1.2	Seldom
4. chat in social media	27	2.11	1.25	Seldom
5. do selfie	27	1.96	1.13	Seldom
6. play cyber games (Candy Crash, Plants and Zombies)	27	1.74	1.09	Never
7. take stress tablets	27	1.56	0.85	Never
OVER-ALL MEAN		2.07	0.13	Seldom

The least used stress management practices, as presented in the table, are play cyber games (Candy Crash, Plants and Zombies; take stress tablets; qualitatively described as Never is post emotions in social media which. This realization means, school heads did not practice and find it as not significant in the exercise of their role.

This result was in line with the thoughts of Chen & Leung, L.(2016), described as lonely, quietly bored were persons playing candy crush, and inspired by the mobile games. Frequent players have had a higher tendency to become addicted as predicted. Isolation and self-control were essential predictors of addiction to mobile social games, while leisure boredom was related to game intensity. Mobile games are played primarily for brief periods, between events, and as a way of combating boredom. Giving credence to the notion of being able to experience mobile game play as a casual activity. Results have shown potentially beneficial effects, including improved mood and well-being, better mental concentration, and focus; this was postulated by DaCosta & Seok 2017.

The result also reinforced Vermeulen et al. (2018) that the introduction of social media gave individuals a feeling of varied emotions. While it provides new possibilities for controlling emotions, little is known about how adolescents use various channels for this purpose. The literature on emotion control and the affordances-of-technologies offered insight by explaining how and how adolescents use different uses. Social media platforms (Facebook, Instagram, Snapchat, Twitter, Tumblr, YouTube, 9Gag, and blogs) for sharing of emotions and how technical, social, and contextual factors affect these practices; It also reveals that on multiple of those platforms, adolescents share sentiments.

Conclusions

The following conclusions are drawn based on the findings of the study.

The research findings indicate that secondary school administrators employ a variety of stress management practices, with some being used more frequently than others:

Secondary school administrators often plan their work ahead of time, pray, and create an environment to cope with stress. They also positively talk to themselves and make time for hobbies to manage stress.

Administrators often avoid situations that remind them of stress and confront the source of stress directly. They sometimes use physical activity, relaxation techniques, and seek expert support to cope with stress. Keeping silent and going shopping are less common coping mechanisms.

The least used stress management practices include wanting to be alone, doing video calls, drinking coffee/alcohol, using social media, taking selfies, playing video games, and taking stress tablets.

Recommendations

From the conclusion of the study the following recommendations were crafted. Provide training and resources to school administrators on effective stress management techniques, with a focus on proactive strategies like time management, mindfulness, and work-life balance. Encourage administrators to regularly engage in physical activity, relaxation practices, and seek social support to better manage stress.

Implement organizational policies and practices that help reduce workplace stressors, such as reasonable workloads, clear communication, and opportunities for professional development. Offer counseling and mental health services to school administrators to help them cope with the unique challenges of their role.

Foster a school culture that prioritizes employee well-being and provides avenues for administrators to address workplace stress in a healthy manner.

Compliance with Ethical Standards

The researcher declares that there was strict compliance with obtaining informed consent, the respondents were given the freedom to withdraw from the study at any time, the anonymity of the respondents was maintained, the respondents' well-being was safeguarded, no conflict of interest exists in the conduct of the study, plagiarism was

strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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PROXIMATE NUTRIENT ANALYSIS OF GUAVA (*PsidiumGuajava)* AND BILIMBI *(Averrhoa Bilimbi)* WITH CASSAVA BASED-SAGIP NUTRI-PACK AS INNOVATIVE CONDIMENT

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ABSTRACT

This study investigates the development, preparation, analysis, and acceptability of guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack as an innovative condiment. The research showcases a systematic approach from harvesting to packaging, emphasizing nutritional benefits and suitability for a healthy diet regimen. Sensory evaluations across different treatments reveal varying consumer perceptions in appearance, aroma, taste, and texture. Cost and return analysis demonstrate the economic feasibility of the products, with a consistent return on investment. Shelf-life observations suggest room for improvement in storage strategies to extend product freshness. The study concludes by providing recommendations to enhance product development, marketing, and distribution strategies, emphasizing the importance of continuous recipe innovation, consumer education on nutritional benefits, and sensory optimization. By leveraging these recommendations, the research aims to drive the market adoption of guava and bilimbi Condiments with Cassava Based-Sagip Nutri-Pack, catering to diverse consumer preferences and contributing to the creation of innovative, nutritious condiments.

Keywords: *condiment, guava, bilimbi, sensory evaluation, shelf-life, product development*

INTRODUCTION

In Barangay San Felipe, City of Ilagan, Isabela, guavas, and bilimbi trees flourish abundantly. However, these fruits often go to waste, rotting, and ignored. This underutilization is concerning given their potential health benefits. The local community can benefit significantly by transforming these fruits into innovative condiments, enhancing their nutritional value, and providing a healthier alternative to traditional sauces.

Condiments play a vital role in enhancing the flavor of food across various cultures. According to Aster et al. (2023), condiments can be found globally in liquid, semisolid, and solid forms. In the Philippines, common condiments include calamansi (Philippine lime), patis (fish sauce), suka (vinegar), and toyo (soy sauce). These condiments, often used as dipping sauces (sawsawan), enhance the flavor of dishes by balancing and complementing their taste profiles. Filipino cuisine is particularly noted for its concept of "linamnam," a term that signifies deep and rich flavors, adding a unique dimension to the culinary experience (Zappia, 2015).

There is a growing trend in the food industry towards enhancing the nutritional profile of foods by utilizing parts of fruits and vegetables that are typically discarded. Belović et al. (2018) highlighted the potential of food science to make these parts useful, transforming them into value-added products. Similarly, the study by Kour et al. (2018) discusses the incorporation of fruit and vegetable by-products in the development of functional foods, underscoring their potential to improve nutritional quality and reduce food waste.

In response to these findings, efforts are being made to enhance standard condiments used in community street foods, particularly for students at Isabela School of Arts and Trades-Main. In collaboration with ISU, Echague-Main Campus, the aim is to enrich condiments by incorporating a Sagip Nutri-Pack, thus enhancing their nutritional value.

The proposed condiment recipe will include guava and bilimbi combined with a Cassava-Based Sagip Nutri-Pack Powder, which consists of cassava, mung beans, sesame, cacao pod husk, malunggay, and turmeric powder. This initiative aligns with SDG 3 (Good Health and Well-being), utilizing the nutritional benefits of the Sagip Nutri-Pack powder to provide essential macro and micronutrients necessary for maintaining body functions.

The findings from this research will be beneficial not only to food manufacturers but also to consumers seeking unique and nutritious condiment options. Additionally, transforming underutilized fruits into marketable products can address local waste issues and support SDG 8 (Decent Work and Economic Growth) by creating income opportunities for local households. An extension program in partnership with local barangays and LGUs in Ilagan, Isabela, will be implemented to disseminate knowledge and skills related to this project, contributing to SDG 1 (Zero Poverty).

Guava (Psidium guajava L.) is revered as a "superfruit" due to its rich nutrient profile and medicinal benefits (Praveena et al., 2022). Belonging to the Myrtaceae family, guava is renowned for its savory taste and health-promoting properties. It is used in traditional medicine for its leaves, roots, bark, and fruit. Research by Manikandan et al. (2020) highlights the antimicrobial and antioxidant properties of guava, emphasizing its potential in health-promoting applications.

Averrhoa *bilimbi*, or *bilimbi*, commonly found in Philippine and Southeast Asian forests, is a traditional cooking ingredient (Geetha et al., 2011). Despite being often overlooked, bilimbi is rich in iron, vitamins B and C, antioxidants, and phosphorus. Its juice is used for cleaning and bleaching, while its leaves are known for their medicinal properties, such as alleviating coughs, bleeding disorders, bee sting irritation, and skin issues (Valencia & Bismark, 2015). Recent studies by Rosnah et al. (2012) have also explored the potential of bilimbi as a natural preservative in food products, highlighting its antimicrobial properties.

The increasing interest in innovative condiment ingredients has led to the exploration of tropical fruits like guava and bilimbi. These fruits offer tangy flavors, high nutritional value, and natural preservatives, potentially enhancing condiments' taste and nutritional value. However, their acceptability and development in condiment production remain understudied. Investigating the process and acceptability of incorporating guava and bilimbi with Sagip Nutri-Pack in condiments is essential for assessing their feasibility and market impact.

This study aims to investigate consumer acceptance of guava and bilimbi in condiments, optimize proportions, and formulation parameters, and conduct sensory evaluations. The results will offer valuable insights for the food industry, highlighting the potential of guava and bilimbi as innovative condiment ingredients.

Research Questions

Generally, the study aimed to determine the acceptability and nutritive value of Guava and Bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack as Innovative ingredients in condiment production.

Specifically, it sought to address the following questions:

1. What are the processes involved in making guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative condiments?
2. What is the proximate chemical nutrient analysis of guava and bilimbi with Cassava cassava-based-sagip Nutri-pack for innovative condiments?
3. What is the level of acceptability of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative condiments with proportions of 1,150g, 1,100g, 1,050g, and the original (TI to T4) in terms of (a) appearance (b) aroma (c) taste, and (d) texture
4. Is there a significant difference in the evaluation of the food experts, food technology students, and consumers on the prepared guava and bilimbi with Cassava Based-Sagip Nutri-Pack as a condiment?
5. What is the cost analysis computed for the different treatments?

6. What is the shelf-life of guava and bilimbi with Cassava Based-Sagip Nutri-Pack as a condiment at cold and warm room temperatures?

METHODOLOGY

A. Materials

1. Ingredient

Table 1 shows the ingredients and their proportions in the preparation of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment. Which will be used in the study.

Table 1. Proportions of Ingredients Used in Making Innovative Condiment

Ingredients	T1 Bilimbi	T1 Guava	T 2	T3	T 4
Cassava Based Nutri-pack Powder			120g	120g	120g
Ripe Guavas		2400g	1150g	1100g	1050g
Bilimbi	2400 g		1150g	1100g	1050g
Sugar	170grams	170grams	170grams	170grams	170grams
Salt	11.4grams	11.4grams	11.4grams	11.4grams	11.4grams
Pepper	2.8grams	2.8grams	2.8grams	2.8grams	2.8grams
Citric Acid	3 grams	3 grams	3 grams	3 grams	3 grams
Garlic	5 grams	5 grams	5 grams	5 grams	5 grams
Xanthan Gum	1 gram	1 gram	1 gram	1 gram	1 gram
Artificial Lemon Flavor	5 grams	5 grams	5 grams	5 grams	5 grams
Artificial Food Color	1 g	1 g	1 g	1 g	1 g
Sodium Benzoate (Food Grade)	1 g	1 g	1 g	1 g	1 g

2. Equipment Tools and Utensils

To carry out the study, some equipment, materials, and components were utilized. These were used for measurement, mixing, cooking, packaging, and cutting. They are described in the following table.

Table 2. Equipment and tools to be used in the preparation of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri Pack for Innovative Condiment

PREPARATION TOOLS	MEASURING TOOLS	CUTTING TOOLS	PACKAGING AND LABELING	EQUIPMENT
Stainless Steel Mixing Bowls (2-3)	Measuring cup	Sharp Kitchen Knife	Sterilized Glass with Lids	Blender or Food Processor
Colander	Measuring spoon	Peeler	Plastic sealer	Gas range
Saucepan or Cooking Pot	Digital Weighing Scale			Heat blower
Wooden Spoon				
Chopping boards				
Disposable gloves				
Spoons				
Funnel				

Table 2, contd.

B. Procedure

The preparation of Guava and Bilimbi Enhanced with Casava Based-Sagip Nutri-Pack for Innovative Condiment involves a meticulous process to harness the unique flavors and nutritional benefits of these tropical fruits. Cassava-Based-Sagip Nutri-Pack Powder will be bought at Isabela State University-Echague Campus, and all other ingredients were bought From the City of Ilagan Public Market, before measuring the different proportions for the treatments. The flowchart for making condiments is shown in Figure 1 below.

C. Treatment of the Study

The proportion of ingredients of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri Pack for Innovative Condiment shows the different ratios in making a model for Condiment used as treatment in this study.

T1 = Guava Condiment

TI = Bilimbi Condiment

T2 = Cassava Based Sagip Nutri-pack (120g), Ripe Guava (1150g), Bilimbi (1150)

T3 = Cassava Based Sagip Nutri-pack (120g), Ripe Guava (1100g), Bilimbi (1100)
T4 = Cassava Based Sagip Nutri-pack (120g), Ripe Guava (1050g), Bilimbi (1050)

Analysis

The treatment products of Guava and Bilimbi Enhanced with Cassava Sagip Nutri Pack for Innovative Condiment samples were subjected to proximate chemical and nutrient analysis to be conducted at the SGS Philippines, Inc. 2F Alegria Building, 2229 Chino Roses Avenue, Bangkal, Makati City.

E. Sensory Evaluation

Sensory Evaluation was conducted at Isabela School of Arts and Trades – Main, and ISAT-TESDA, City of Ilagan, Isabela to determine the consumers' acceptability of the experimental product in terms of color/appearance, taste/flavor, texture, and odor/aroma, of model recipe for Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment as a nutritious saucing agent. The instrument for data gathering is the 9-Point-Hedonic Scale.

` The range of scale is interpreted as follows:

Scale	Range	Descriptive Rating
9	8.50 – 9.00	Like Extremely
8	7.50 – 8.49	Like Very Much
7	6.50 – 7.49	Like Moderately
6	5.50 – 6.49	Like Slightly
5	4.50 – 5.49	Neither Like nor Dislike
4	3.50 - 4. 49	Dislike Slightly
3	2.50 - 3.49	Dislike Moderately
2	1.50 - 2.49	Dislike Very Much
1	1.50 - 1.49	Dislike Extremely

A sensory panel was composed of sixty (60) individuals randomly selected among the (20) food experts, (20) food technology students, and (20) consumers. The qualification of the panelists in terms of age should be 12 to 60 years old. They were screened to be non-smokers, not liquor drinkers, and in good health during the sensory evaluation. They were purposely selected and properly oriented on what and how to evaluate the products using evaluation instruments.

The evaluators were given treatment samples they were subjected to evaluate carefully and rate each sample according to their color/appearance, taste/flavor, texture, odor/aroma, and general acceptability. They were asked to rinse their mouth before tasting each sample. This was strictly observed as a standard procedure to ensure the credibility and validity of the results of the study.

F. Experimental Design

There were five treatments used in the study, which were assigned randomly to the experimental units within a block (BLK1.1, BLK1.2 BLK2, BLK3, and BLK4). Each treatments have a code (GT1-110, BTI-110, T2-220, T3-330, and T4-440) to eliminate bias when doing the sensory evaluation.

All the score sheets were gathered, tabulated, analyzed, and interpreted. The sensory evaluation of the data was collected and analyzed through the following randomized complete block design (RCBD).

The grouping of experimental units per block is as follows:

BLOCK	**1.1**	**$110^{1.1}$**	**$110^{1.2}$**	**220^{2}**	**330^{3}**	**440^{4}**
	1.2	**$110^{1.2}$**	**330^{3}**	**440^{4}**	**$110^{1.1}$**	**220^{2}**
	2	**220^{2}**	**440^{4}**	**330^{3}**	**$110^{1.2}$**	**$110^{1.1}$**
	3	**330^{3}**	**220^{2}**	**$110^{1.1}$**	**440^{4}**	**$110^{1.2}$**
	4	**440^{4}**	**$110^{1.1}$**	**$110^{1.2}$**	**220^{2}**	**330^{3}**

Figure 1. Arrangement of 5 treatments

G. Cost and Return Analysis

Cost analysis was performed to determine the economic feasibility of the product if it would be sold in the market. This was done by listing down all the cost, labor, and other expenses incurred in producing the different proportions of Guava and Bilimbi Enhanced with Sagip Nutri Pack for Innovative Condiment and computing the unit cost and return on investment (ROI) per treatment.

H. Statistical Data Analysis

The results of the sensory evaluation were statistically analyzed using the one-way classification of the analysis of Variance (ANOVA). F-test, mean, and descriptive statistics were used to determine if there is a significant difference among the treatments in terms of color/appearance, texture, taste/flavor, and odor/aroma.

Statistical Tools Used

All data were gathered from the questionnaire/evaluation form given to the evaluators. The variables shall be analyzed and interpreted based on the output of the Statistic Package for Social Science Software (SPSS).

1. Mean (M) was utilized to gauge the level of acceptability of the level of nutritional characteristics and sensorial properties of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment to respondents' age groups and criteria.

2. One Way Between Groups Analysis of Variance (ANOVA) was used to determine the difference in the level of acceptability of the level of nutritional characteristics and sensorial properties of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment across the four age groups.

Scale	Range	Descriptive Rating
9	8.50 – 9.00	Like Extremely
8	7.50 – 8.49	Like Very Much
7	6.50 – 7.49	Like Moderately
6	5.50 – 6.49	Like Slightly
5	4.50 – 5.49	Neither Like nor Dislike
4	3.50 - 4. 49	Dislike Slightly
3	2.50 - 3.49	Dislike Moderately
2	1.50 - 2.49	Dislike Very Much
1	1.50 - 1.49	Dislike Extremely

3. Post Hoc Analysis using Scheffe Test. This was conducted only when the ANOVA revealed a significant difference between and among levels of general acceptability of the level of nutritional characteristics and sensorial properties of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment production across the three age groups. This will be utilized to determine which among the pairs of groups have significantly different levels of acceptability of the level of nutritional characteristics and sensorial properties of Guava and Bilimbi Enhanced with Cassava Based-Sagip Nutri-Pack for Innovative Condiment.

RESULTS AND DISCUSSION

Product Development

The guava and bilimbi Condiment with cassava-based Based-Sagip Nutri-Pack underwent different stages of development starting from harvesting, washing, seed extraction, chopping, grinding, sifting, measuring, mixing, cooking, packaging, and labeling. Through these stages of development, careful observation and analysis were done to come up with guava and bilimbi with Cassava Based-Sagip Nutri-Pack as an innovative condiment.

Preparation of Guava and Bilimbi Condiment in Five Treatments

The development process started with the creation of guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack in four different treatments. The procedure began with washing the guava and bilimbi and extracting the fruit seeds separately, chopping with a knife to easily grind the fruits with a blender then sifting to surely check their fine texture. To present the measurements and ingredients systematically, a table is provided.

Table 3. Measurements and ingredients in the preparation of Guava Condiment

Measurements	Ingredients
2400 g	Ripe Guavas
170 g	Granulated Sugar
11.4 g	Salt
2.8 g	Ground White Pepper
3 g	Citric Acid
10 g	Powdered White Garlic
1 g	Xanthan Gum
5 g	Artificial food lemon flavor
1 g	Sodium benzoate

Procedure

The process of making guava condiments begins with measuring all required ingredients, washing, chopping, and deseeding the guavas. The guava pulp is then blended to a smooth consistency and cooked on medium heat. Once it reaches a boil, the heat is reduced, and the mixture is simmered for about 16-18 minutes, with frequent stirring. Natural sweeteners, spices, and seasonings are added to taste, and the flavors are adjusted for balance. After achieving the desired consistency, the mixture is removed from the heat and allowed to cool completely. Finally, the cooled condiment is transferred to sterilized jars, which are then sealed and labeled. Proper jar sterilization is crucial to prevent contamination and extend shelf life. The proportions of ingredients can be adjusted to create a unique flavor profile, and gentle cooking helps preserve the nutritional content of the guava and other components.

Table 4. Measurements and ingredients in the preparation of Bilimbi Condiment

Measurements	Ingredients
2400 g	Ripe Bilimbi
170 g	Granulated Sugar
11.4 g	Salt

2.8 g	Ground White Pepper
3 g	Citric Acid
10 g	Powdered White Garlic
1 g	Xanthan Gum
5 g	Artificial food lemon flavor
1 g	Sodium benzoate

Procedure

The process of making a bilimbi condiment begins with measuring all required ingredients, washing, chopping, and deseeding the bilimbi. The bilimbi pulp is then blended to achieve a smooth consistency. This blended pulp is mixed well and cooked on medium heat. Once it reaches a boil, the heat is reduced and the mixture is simmered for about 16-18 minutes, with frequent stirring. Natural sweeteners, spices, and seasonings are added to taste, with flavors adjusted as needed for balance. After achieving the desired consistency, the mixture is removed from the heat and allowed to cool completely. Finally, the cooled condiment is transferred to sterilized jars, which are then sealed and labeled. Proper jar sterilization is crucial to prevent contamination and extend shelf life. The proportions of ingredients can be adjusted to create a unique flavor profile, and gentle cooking helps preserve the nutritional content of the bilimbi and other components

Table 5. Measurements and ingredients in the preparation of three different Treatments of Guava and Bilimbi Condiment with Cassava Based-Cassava Based-Sagip Nutri-Pack.

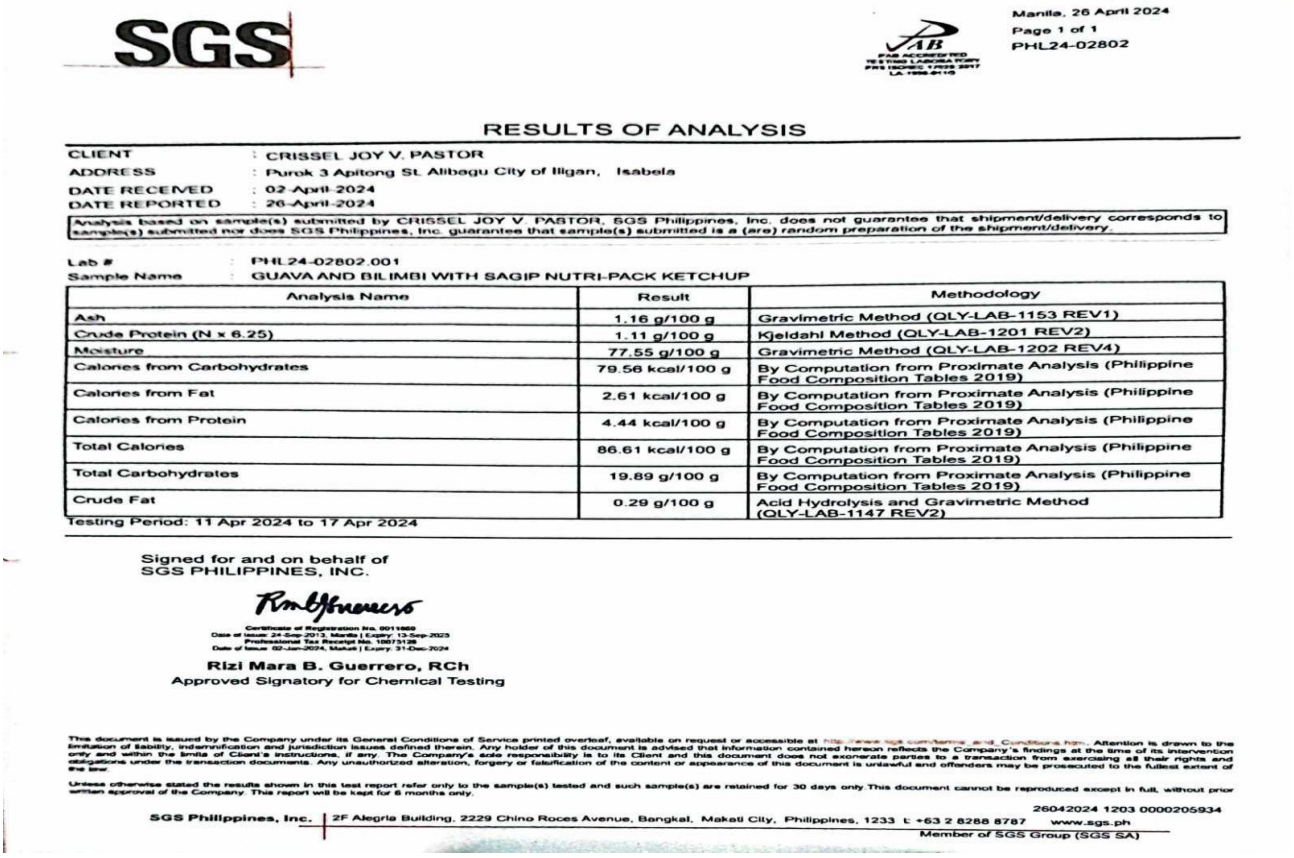
Measurements			**Ingredients**
T2	T3	T4	
120 g	120 g	120 g	Cassava Based Nutri-pack Powder
1150 g	1100 g	1050 g	Ripe Guava
1150 g	1100 g	1050 g	Ripe Kamias
170 g	170 g	170 g	Granulated Sugar
11.4 g	11.4 g	11.4 g	Salt
2.8 g	2.8 g	2.8 g	Ground White Pepper
3 g	3 g	3 g	Citric Acid
10 g	10 g	10 g	Powdered White Garlic
1 g	1 g	1 g	Xantan Gum
5 g	5 g	5 g	Artificial food lemon flavor
1 g	1 g	1 g	Sodium benzoate

Procedures

The process of making the Guava and Bilimbi Condiment involves several steps to ensure a flavorful and nutritious end product. First, measure all required ingredients and separately wash and chop guava and bilimbi for each treatment, ensuring removal of their seeds. Next, grind the fruit pulps using a blender until smooth, incorporating the Cassava Based-Sagip Nutri-Pack powder into the mixture during blending. Mix the blended ingredients thoroughly and cook on medium heat. Once the mixture reaches a boil, reduce the heat and simmer for 16-18 minutes, stirring intermittently to prevent sticking. Add natural sweeteners, spices, and seasonings to taste, adjusting flavors for a balanced profile. Once the condiment reaches the desired consistency, remove it from heat and allow it to cool completely in the pan. Finally, transfer the cooled mixture into sterilized jars, ensuring they cool before sealing and labeling for storage.

Report of Analysis on the Nutritive Value of Guava and Bilimbi Enhanced with Cassava-Based Sagip Nutri Pack for Innovative Condiment

The report analysis on the nutritive value of Guava and Bilimbi Enhanced with Cassava-based Sagip Nutri Pack for Innovative Condiment is shown in Figure 1 below.



SGS

Manila, 26 April 2024
Page 1 of 1
PHL24-02802

RESULTS OF ANALYSIS

CLIENT : CRISSEL JOY V. PASTOR
ADDRESS : Purok 3 Apitong St. Alibagu City of Iligan, Isabela
DATE RECEIVED : 02 April 2024
DATE REPORTED : 26 April 2024

Analysis based on sample(s) submitted by CRISSEL JOY V. PASTOR, SGS Philippines, Inc. does not guarantee that shipment/delivery corresponds to sample(s) submitted nor does SGS Philippines, Inc. guarantee that sample(s) submitted is a (are) random preparation of the shipment/delivery.

Lab # : PHL24-02802.001
Sample Name : GUAVA AND BILIMBI WITH SAGIP NUTRI-PACK KETCHUP

Analysis Name	Result	Methodology
Ash	1.16 g/100 g	Gravimetric Method (QLY-LAB-1153 REV1)
Crude Protein (N x 6.25)	1.11 g/100 g	Kjeldahl Method (QLY-LAB-1201 REV2)
Moisture	77.55 g/100 g	Gravimetric Method (QLY-LAB-1202 REV4)
Calories from Carbohydrates	79.56 kcal/100 g	By Computation from Proximate Analysis (Philippine Food Composition Tables 2019)
Calories from Fat	2.61 kcal/100 g	By Computation from Proximate Analysis (Philippine Food Composition Tables 2019)
Calories from Protein	4.44 kcal/100 g	By Computation from Proximate Analysis (Philippine Food Composition Tables 2019)
Total Calories	86.61 kcal/100 g	By Computation from Proximate Analysis (Philippine Food Composition Tables 2019)
Total Carbohydrates	19.89 g/100 g	By Computation from Proximate Analysis (Philippine Food Composition Tables 2019)
Crude Fat	0.29 g/100 g	Acid Hydrolysis and Gravimetric Method (QLY-LAB-1147 REV2)

Testing Period: 11 Apr 2024 to 17 Apr 2024

Signed for and on behalf of
SGS PHILIPPINES, INC.

Rizi Mara B. Guerrero, RCh
Approved Signatory for Chemical Testing

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Figure 2. Report of analysis on the nutritive value of Guava and Bilimbi Enhanced with Cassava Sagip Nutri Pack for Innovative Condiment

As a result, there was little difference found between the crude fat that was produced and the usual Condiment crude fat. Therefore, no proof eating guava with bilimbi Condiment increases the risk of obesity or other related conditions, including high blood pressure and heart disease. Based on the results, which are displayed in the table, this guava and bilimbi Condiment has a low trans fat content and is acceptable for consumption by those following a healthy diet regimen. Its crude fat level is 0.29 g/100 g, and its total carbohydrate content is 19.89 g/100 g. Because the cassava-based-Cassava-based-Sagip Nutri-Pack enriched guava and bilimbi Condiment contains carbohydrates, it can provide customers with additional energy to allow their bodies to function as intended.

Additionally, the analysis report indicates the presence of a trace amount of protein (1.11 g/100 g). Furthermore, protein contains amino acids, which the body requires to rebuild some of its bones and muscles. Protein is essential for overall health and plays a crucial role in repairing tissues and building enzymes and hormones. Adequate protein intake is necessary to support various bodily functions and maintain muscle mass.

The Level of Acceptability of Guava and Bilimbi Condiment with Cassava Based-Sagip Nutri-Pack

The following table shows the level of acceptability of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative Condiments with proportions of 1,200, 900, 600, and the original (TI to T4) in terms of appearance/color, aroma, taste, and texture.

Table 6. The level of acceptability of the original recipe of Treatment I (Guava Condiment) in terms of appearance/color, aroma, taste, and texture

TREATMENT I GUAVA CONDIMENT	Mean	Standard Deviation	Description
110[1.1]			
Appearance/Color			
a. How visually appealing do you find the color of the guava Condiment	6.90	1.70	Like Moderately
b. Does the color of the guava Condiment make it appetizing to you?	7.10	1.53	Like Moderately
c.Does the color of the guava Condiment affect your overall impression of its quality?	6.95	1.63	Like Moderately
Average	6.98	1.51	Like Moderately
Odor/Aroma			
a. How well does the aroma of the guava Condiment complement its flavor?	7.05	1.86	Like Moderately

b. How unique is the aroma of the guava Condiment compared to other condiments?	6.75	2.05	Like Moderately
c. Does the aroma of the guava Condiment influence your overall satisfaction with the product?	7.08	2.04	Like Moderately
Average	6.96	1.89	Like Moderately
Taste/Flavor			
a. How do you like the sweetness of the guava Condiment?	6.43	2.25	Like slightly
b. How do you like the sourness of the guava Condiment?	6.45	2.18	Like slightly
c. Does the taste of guava Condiment linger pleasantly on your palate?	6.55	2.36	Like Moderately
Average	6.48	2.09	Like Slightly
Texture			
a. Does the texture of the guava Condiment feel grainy or gritty to you?	6.90	2.06	Like Moderately
b. Does the texture of the guava Condiment contribute positively to your eating experience?	6.85	2.09	Like Moderately
c. Does the texture of the guava Condiment contribute positively to your eating experience?	6.73	2.02	Like Moderately
Average	6.83	1.89	Like Moderately

The table presents the findings of a study examining the acceptability of guava condiments with different proportions and the Cassava-Based-Sagip Nutri-Pack additive across various sensory attributes: appearance/color, odor/aroma, taste/flavor, and texture.

For Treatment I, which focuses on guava Condiment, the mean ratings and standard deviations reveal moderate likeness across the board. In terms of appearance, participants generally found the color moderately appealing (Mean: 6.98, SD: 1.51), appetizing, and impacting their overall impression of quality.

Similarly, for odor/aroma, the aroma of the guava Condiment was perceived as moderately complementing its flavor (Mean: 6.96, SD: 1.89), somewhat unique compared

to other condiments, and influencing overall satisfaction. When it came to taste/flavor, participants slightly favored the sweetness (Mean: 6.48, SD: 2.09) and sourness of the guava Condiment, with the taste moderately lingering on the palate. Regarding texture, participants found the guava Condiment to be moderately free from graininess or grittiness (Mean: 6.83, SD: 1.89), contributing positively to their eating experience.

Overall, the guava Condiment with the Cassava Based-Sagip Nutri-Pack additive demonstrated moderately positive ratings across appearance, aroma, taste, and texture, with slight variations in likability observed for taste compared to the other attributes.

Table 7. The level of acceptability of the original recipe of Treatment I (Bilimbi Condiment) in terms of appearance/color, aroma, taste, and texture

TREATMENT I BILIMBI CONDIMENT	**Mean**	**Standard Deviation**	**Description**
110[1.2]			
Appearance/Color			
a.How visually appealing do you find the color of the bilimbi Condiment	7.50	1.43	Like Very Much
b.Does the color of the bilimbi Condiment make it appetizing to you?	7.37	1.46	Like Moderately
c. Does the color of the bilimbi Condiment affect your overall impression of its quality?	7.18	1.48	Like Moderately
Average	7.35	1.29	Like Moderately
Odor/Aroma			
a. How well does the aroma of the bilimbi Condiment complement its flavor?	7.27	1.52	Like Moderately
b. How unique is the aroma of the bilimbi Condiment compared to other condiments?	7.20	1.53	Like Moderately
c.Does the aroma of the bilimbi Condiment influence your overall satisfaction with the product?	7.38	1.69	Like Moderately
Average	7.28	1.41	Like Moderately

Taste/Flavor			
a. How do you like the sweetness of the bilimbi Condiment?	7.12	2.24	Like Moderately
b. How do you like the sourness of the bilimbi Condiment?	6.85	2.20	Like Moderately
c. Does the taste of bilimbi Condiment linger pleasantly on your palate?	6.97	2.16	Like Moderately
Average	6.98	2.11	Like Mode 57
Texture			
a. Does the texture of the bilimbi Condiment feel grainy or gritty to you?	7.03	1.92	Like Moderately
b. Does the texture of the bilimbi Condiment contribute positively to your eating experience?	7.30	1.83	Like Moderately
c. Does the texture of the bilimbi Condiment contribute positively to your eating experience?	7.03	1.96	Like Moderately
Average	7.12	1.79	Like Moderately

The table presents the findings of a study examining the acceptability of Bilimbi Condiment across various sensory attributes: appearance/color, odor/aroma, taste/flavor, and texture.

The results for Treatment I, focusing on bilimbi Condiment, indicate a generally positive reception across the sensory attributes assessed. In terms of appearance/color, participants rated the bilimbi Condiment as visually appealing (Mean: 7.35, SD: 1.29), moderately appetizing, and affecting their overall impression of its quality moderately. Regarding odor/aroma, the aroma of the bilimbi Condiment was perceived as moderately complementing its flavor (Mean: 7.28, SD: 1.41), somewhat unique compared to other condiments, and influencing overall satisfaction moderately. When evaluating taste/flavor, participants moderately liked the sweetness (Mean: 6.98, SD: 2.11) and sourness of the bilimbi Condiment, with the taste moderately lingering on the palate. Texture-wise, participants found the bilimbi Condiment to be moderately free from graininess or grittiness (Mean: 7.12, SD: 1.79), contributing positively to their eating experience.

Overall, bilimbi Condiment with the Cassava Based-Sagip Nutri-Pack additive received moderately positive ratings across appearance, aroma, taste, and texture, suggesting its acceptability among participants.

Table 8. The level of acceptability of the original recipe of Treatment II (Guava and Bilimbi with Cassava-Based Condiment) in terms of appearance/color, aroma, taste, and texture

TREATMENT II GUAVA AND BILIMBI WITH CASSAVA-BASED-SAGIP NUTRI-PACK CONDIMENT	Mean	Standard Deviation	Description
220			
Appearance/Color			
a. How visually appealing do you find the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment?	7.60	1.64	Like Very Much
b. Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? make it appetizing to you?	7.63	1.54	Like Very Much
c. Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment affect your overall impression of its quality?	7.80	1.47	Like Very Much
Average	7.68	1.38	Like Very Much
Odor/Aroma			
a. How well does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment complement its flavor?	7.45	1.63	Like Moderately
b. How unique is the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? compared to other condiments?	7.78	1.48	Like Very Much
c. Does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? influence your overall satisfaction with the product?	7.68	1.58	Like Very Much
Average	7.64	1.46	Like Very Much
Taste/Flavor			

a. How do you like the sweetness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.68	1.76	Like Very Much
b. How do you like the sourness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.62	1.74	Like Very Much
c. Does the taste of guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment linger pleasantly on your palate?	7.70	1.73	Like Very Much
Average	7.67	1.61	Like Very Much
Texture			Like Very Much
a. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment feel grainy or gritty to you?	7.80	1.45	Like Very Much
b. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment contribute positively to your eating experience?	7.88	1.25	Like Very Much
c. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? contribute positively to your eating experience?	7.72	1.43	Like Very Much
Average	7.80	1.26	Like Very Much

The table shows the findings of a study examining the acceptability of guava and bilimbi with different proportions and the Cassava Based-Sagip Nutri-Pack additive across various sensory attributes: appearance/color, odor/aroma, taste/flavor, and texture.

Treatment II, which involves guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment, received highly favorable ratings across all sensory attributes assessed. Participants found the color of the guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack to be very visually appealing (Mean: 7.68, SD: 1.38), highly appetizing, and significantly impacting their overall impression of its quality. Similarly, the aroma of this Condiment blend was perceived to complement its flavor moderately well (Mean: 7.64, SD: 1.46), with a high level of uniqueness compared to other condiments, and significantly influencing overall satisfaction. When evaluating taste/flavor, participants highly favored both the sweetness (Mean: 7.67, SD: 1.61) and sourness of the guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack, with the taste lingering

pleasantly on the palate. Regarding texture, participants found the Condiment to be very free from graininess or grittiness (Mean: 7.80, SD: 1.26), significantly contributing positively to their eating experience. 60

Overall, the guava and bilimbi Condiment with cassava-based sagip Nutri-pack received highly positive ratings across appearance, aroma, taste, and texture, suggesting strong acceptability and preference among participants.

Table 9. The level of acceptability of the original recipe of Treatment III (Guava and Bilimbi with Cassava-Based Condiment) in terms of appearance/color, aroma, taste, and texture

TREATMENT III GUAVA AND BILIMBI WITH CASSAVA-BASED-SAGIP NUTRI-PACK CONDIMENT	**Mean**	**Standard Deviation**	**Remarks**
330			
Appearance/Color			
a. How visually appealing do you find the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment?	7.82	1.45	Like Very Much
b. Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? make it appetizing to you?	7.68	1.33	Like Very Much
c.Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment affect your overall impression of its quality?	7.60	1.39	Like Very Much
Average	7.70	1.30	Like Very Much
Odor/Aroma			
a. How well does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment complement its flavor?	7.57	1.51	Like Very Much
b. How unique is the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? compared to other condiments?	7.48	1.56	Like Moderately
c.Does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? influence your overall satisfaction with the product?	7.55	1.44	Like Very Much
Average	7.53	1.40	Like Very Much
Taste/Flavor			

a. How do you like the sweetness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.35	2.09	Like Moder 61
b. How do you like the sourness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.37	1.90	Like Moderately
c. Does the taste of guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? linger pleasantly on your palate?	7.52	1.82	Like Very Much
Average	7.41	1.76	Like Moderately
Texture			
a. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? feel grainy or gritty to you?	7.47	1.79	Like Moderately
b. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? contribute positively to your eating experience?	7.63	1.58	Like Very Much
c. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? contribute positively to your eating experience?	7.58	1.38	Like Very Much
Average	7.56	1.48	Like Very Much

The table presents the findings of a study examining the acceptability of guava and bilimbi with different proportions and the Cassava Based-Sagip Nutri-Pack additive across various sensory attributes: appearance/color, odor/aroma, taste/flavor, and texture.

Treatment III, which involves guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment, garnered positive ratings across most sensory attributes evaluated. Participants found the color of this Condiment blend to be highly visually appealing (Mean: 7.70, SD: 1.30), significantly appetizing, and greatly affecting their overall impression of its quality. Regarding odor/aroma, the aroma was perceived to complement its flavor well (Mean: 7.53, SD: 1.40), significantly influencing overall satisfaction, although it was rated slightly lower in terms of uniqueness compared to other condiments. In terms of taste/flavor, while participants moderately liked the sweetness (Mean: 7.41, SD: 1.76) and sourness of the guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack, the taste was not as highly favored as the other treatments, with a slightly lower average

rating. As for texture, participants found the Condiment to be moderately free from graininess or grittiness (Mean: v7.56, SD: 1.48), significantly contributing positively to their eating experience.

Overall, Treatment III received positive ratings across appearance, aroma, and texture, although taste/flavor was rated slightly lower compared to the other attributes, suggesting a slightly lower level of acceptability for taste in comparison to appearance and texture.

Table 10. The level of acceptability of the original recipe of Treatment IV (Guava and Bilimbi with Cassava-Based Condiment) in terms of appearance/color, aroma, taste, and texture

TREATMENT IV GUAVA AND BILIMBI WITH CASSAVA-BASED-SAGIP NUTRI-PACK CONDIMENT	**Like Extremely**	**Like Very Much**	**Like Moderately**
440			
Appearance/Color			
a. How visually appealing do you find the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment?	8.03	1.164	Like Very Much
b. Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? make it appetizing to you?	7.77	1.11	Like Very Much
c. Does the color of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment affect your overall impression of its quality?	7.80	1.34	Like Very Much
Average	7.87	1.11	Like Very Much
Odor/Aroma			
a. How well does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? complement its flavor?	7.60	1.57	Like Very Much
b. How unique is the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? compared to other condiments?	7.70	1.39	Like Very Much
c. Does the aroma of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? influence your overall satisfaction with the product?	7.55	1.51	Like Very Much

Average	7.62	1.43	Like Very Much
Taste/Flavor			
a. How do you like the sweetness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.63	1.71	Like Very
b. How do you like the sourness of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment.?	7.67	1.44	Like Very Much
c. Does the taste of guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? linger pleasantly on your palate?	7.43	1.74	Like Moderately
Average	7.58	1.51	Like Very Much
Texture			
a. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? feel grainy or gritty to you?	7.65	1.58	Like Very Much
b. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? contribute positively to your eating experience?	7.72	1.45	Like Very Much
c. Does the texture of the guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment? contribute positively to your eating experience?	7.72	1.68	Like Very Much
Average	7.69	1.45	Like Very Much

The table shows the findings of a study examining the acceptability of guava and bilimbi with different proportions and the Cassava Based-Sagip Nutri-Pack additive across various sensory attributes: appearance/color, odor/aroma, taste/flavor, and texture.

Treatment IV, featuring guava and bilimbi with Cassava-Based-Sagip Nutri-Pack Condiment, received highly positive ratings across all evaluated sensory attributes. Participants overwhelmingly found the color of this Condiment blend to be extremely visually appealing (Mean: 7.87, SD: 1.11), significantly appetizing, and greatly influencing their overall impression of its quality. Regarding odor/aroma, the aroma was perceived to complement its flavor exceptionally well (Mean: 7.62, SD: 1.43), significantly influencing overall satisfaction, and was also rated highly unique compared to other condiments. In terms of taste/flavor, participants highly favored both the sweetness (Mean: 7.58, SD: 1.51) and sourness of the guava and bilimbi Condiment with Cassava Based-Sagip Nutri-

Pack, although the taste was slightly less favored compared to appearance and aroma. Texture-wise, participants found the Condiment to be highly free from graininess or grittiness (Mean: 7.69, SD: 1.45), significantly contributing positively to their eating experience.

Overall, Treatment IV received exceptionally positive ratings across appearance, aroma, taste, and texture, indicating strong acceptability and preference among participants.

Table 11. Comparison in the evaluation of the food experts, food technology students, and consumers on the prepared guava and bilimbi with Cassava Based-Sagip Nutri-Pack as a Condiment

Treatment	F-value	p-value	Comparison	Decision	Remark
Treatment 1 Guava Appearance/Color	0.50	0.61	p-value > 0.05	accept Ho	not significant
Treatment 1 Guava Aroma	2.40	0.10	p-value > 0.05	accept Ho	not significant
Treatment 1 Guava Taste	3.75	0.03	p-value <0.05	reject Ho	Significant
Treatment 1 Guava Texture	1.42	0.25	p-value > 0.05	accept Ho	not significant
Treatment 1 Bilimbi Appearance	1.42	0.25	p-value > 0.05	accept Ho	not significant
Treatment 1 Bilimbi Aroma	2.20	0.12	p-value > 0.05	accept Ho	not significant
Treatment 1 Bilimbi Taste	4.94	0.01	p-value <0.05	reject Ho	Significant
Treatment 1 Bilimbi Texture	5.74	0.00	p-value <0.05	reject Ho	Significant
Treatment 2 Guava Bilimbi Appearance/Color	2.68	0.08	p-value > 0.05	accept Ho	not significant
Treatment 2 Guava Bilimbi Aroma	3.36	0.04	p-value <0.05	reject Ho	significant
Treatment 2 Guava Bilimbi Taste	1.52	0.28	p-value > 0.05	accept Ho	not significant
Treatment 2 Guava Bilimbi Texture	3.89	0.03	p-value <0.05	reject Ho	significant
Treatment 3 Guava Bilimbi Appearance	0.83	0.44	p-value > 0.05	accept Ho	not significant
Treatment 3 Guava Bilimbi Aroma	0.94	0.40	p-value > 0.05	accept Ho	not significant
Treatment 3 Guava Bilimbi Taste	2.23	0.12	p-value > 0.05	accept Ho	not significant
Treatment 3 Guava Bilimbi Texture	2.72	0.07	p-value > 0.05	accept Ho	not significant

Treatment 4 Guava Bilimbi Appearance	0.36	0.70	p-value > 0.05	accept Ho	not signifi
Treatment 4 Guava Bilimbi Aroma	0.99	0.38	p-value > 0.05	accept Ho	not significant
Treatment 4 Guava Bilimbi Taste	1.19	0.31	p-value > 0.05	accept Ho	not significant
Treatment 4 Guava Bilimbi Texture	1.19	0.31	p-value > 0.05	accept Ho	not significant

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The table presents the analysis of the differences in the respondents' evaluation of guava and bilimbi with Cassava-Based-Sagip Nutri-Pack Condiment.

The statistical analysis reveals differences in the evaluation of guava and bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack Condiment among food experts, food technology students, and consumers, particularly in terms of aroma, taste, and texture across different treatments.

For Treatment 1 (Guava), the taste was found to be significantly different among the groups (F-value: 3.75, p-value: 0.03), indicating notable disparity in how they perceived the taste of guava Condiment with Cassava Based-Sagip Nutri-Pack. Similarly, for bilimbi, both taste (F-value: 4.94, p-value: 0.01) and texture (F-value: 5.74, p-value: 0.00) evaluations yielded significant differences, suggesting distinct perceptions among the evaluators.

Moving to Treatment 2 (Guava and Bilimbi), significant differences were observed in the evaluation of aroma (F-value: 3.36, p-value: 0.04) and texture (F-value: 3.89, p-value: 0.03) for guava and bilimbi Condiment, indicating varying perceptions among the groups regarding these attributes.

However, for Treatment 3 (Guava and Bilimbi) and Treatment 4 (Guava and Bilimbi), no significant differences were found in the evaluation of appearance, aroma, taste, or texture among the groups. In summary, while some treatments showed significant differences in certain sensory attributes across the groups, others did not, suggesting that perceptions of guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment can vary among food experts, food technology students, and consumers, particularly in terms of taste, aroma, and texture.

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In summary, while some treatments showed significant differences in certain sensory attributes across the groups, others did not. These findings suggest that perceptions of guava and bilimbi with Cassava Based-Sagip Nutri-Pack Condiment can vary among food experts, food technology students, and consumers, particularly in terms of taste, aroma, and texture. Further research or exploration may be needed to understand the underlying factors contributing to these differences and to optimize the sensory attributes of the Condiment blend to better meet the preferences of the target audience.

Cost and Return Analysis of Guava and Bilimbi with Cassava Based-Sagip Nutri-Pack Condiment

Table 12. Summary of Cost and Return Analysis of Guava and Bilimbi with Cassava Based-Sagip Nutri-Pack Condiment

Ingredients	**Measurement**	**TREATMENTS**				
		GT1	**BTI**	**T2**	**T3**	**T4**
Cassava Based Cassava Based-Sagip Nutri-Pack	120 g	-	-	30	30	30
Guava	2400g, 1150g, 1100g, 1050g	72	-	28.75	27.5	26.25
Bilimbi	2400g, 1150g, 1100g, 1050g	-	72	28.75	27.5	26.25
White Sugar	170 g	19.38	19.38	19.38	19.38	19.38
Salt	11.4 g	0.57	0.57	0.57	0.57	0.57
Ground White Pepper	2.8 g	1.45	1.45	1.45	1.45	1.45
Garlic Powder	5 g	1.3	1.3	1.3	1.3	1.3
Citric Acid	3 g	2.94	2.94	2.94	2.94	2.94
Xanthan Gum	1 g	1.052	1.052	1.052	1.052	1.052
Artificial food color	1 g	2.2	2.2	2.2	2.2	2.2
Lemon Flavor	5 g	13.75	13.75	13.75	13.75	13.75
Soduim Benzoate	1 g	0.83	0.83	0.83	0.83	0.

Table 6. cont

Additional Expenses						
Bottle with seal and lid		76	76	76	76	76
Electricity		20	20	20	20	20
Label		4.5	4.5	4.5	4.5	4.5
TOTAL UNIT COST(Php)		215.97	215.97	201.47	198.97	196.47

As shown in Table 6, the costed and estimated recipe was 1/2 ratio of the original recipe, and the cost of the Cassava Based-Sagip Nutri-Pack used in fortifying the treatments differed. The amount of Cassava Based-Sagip Nutri-Pack Powder in treatments 2, 3, and 4 is Php 30.

The same amount of the other ingredients was allowed for the 3 treatments White Sugar Php 19.38, Salt Php 0.57, Ground White Pepper Php 1.45, Garlic Powder Php 1.3, Citric Acid Php 2.94, Xanthan Gum Php 1.052, added Artificial food color Php 2.2, Lemon Flavor Php 13.75, and, Preservative added Sodium Benzoate Php 0.83.

Treatment 1 based on ingredients for the standard recipe of Guava Condiment and Bilimbi Condiment cost for Php 37.79, each treatment, while Treatment 2, used a combination of Guava and Bilimbi with a Sagip Nutri Pack costing Php 35.25, for treatment 3 the amount costing is Php 34.81 and for treatment 4 the amount costing is Php 34.38.

Additional Expenses

Additional expenses for all treatments amounted to Php 76.00 which includes a Bottle with seal and lid; and Label at Php 5.00. In addition, other operating expenses such as Electricity at Php 20.00.

Summing up all of the above expenses, the cost incurred in producing the products amounted to Php 215.97, Php 201.47, Php 198.97, and Php 196.47, for T1; T2, T3, and T4 respectively.

Table 7 presents the summary computation of return on investment. It reveals that the ROI for all treatments was nearly identical, at 40%.

Table 13. Summary Computation of Return and Investment

PARTICULARS	Treatments				
	GT1	BT1	T2	T3	T4
Total Production Cost (Php)	215.97	215.97	201.47	198.97	196.47
Unit Cost (*Total Production Yield (1 Bottle of Condiment x 8 pcs*)	215.97	215.97	201.47	198.97	196.47
Selling Price (*Unit Cost x 40% + Unit Cost*)	302.35	302.35	282.05	278.55	275.058
Total Sale (*Selling Price x yield (1 Bottle of Condiment*)	302.35	302.35	282.05	278.55	275.058
Income (*Total Sales production*)	86.38	86.38	80.58	79.68	78.58
ROI (*Income x 100/Total Production Cost*)	**40.00%**	**40.00%**	**40.00%**	**40.00%**	**40.00%**

Shelf-life of the Guava and Bilimbi with Cassava Based-Sagip Nutri-Pack Condiment Production in Room Temperature

After production, the *Condiment* food products were stored at room temperature between 25°C and 30°C. Furthermore, the following table displays the observation:

a. Shelf-Life of treatment 1 guava Condiment at room temperature

Table 14. Shelf-Life of treatment 1 guava Condiment

Days of Observation	Observation Results
First day	The guava Condiment was visually appealing, sourly flavored, and sweet, and had a creamy, soft, and thick texture.
Second day	The guava Condiment, as seen on the first day, was brightly colored, sour, sweet, and vinegary, with a thick and creamy soft feel.
Third day	The second day's observations were the same: the guava had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fourth day	Similar observations were made on the third day: the guava Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fifth day	The guava Condiment had a pleasant appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture. The observations were made on the fourth day.
Sixth day	The guava Condiment had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.
Seventh day	The guava Condiment had the same observations on the sixth day: it had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.

b. Shelf-Life of treatment 1 bilimbi Condiment at room temperature

Table 15. Shelf-Life of treatment 1 bilimbi Condiment

Days of Observation	Observation Results
First day	The bilimbi Condiment was visually appealing, sourly flavored, and sweet, and had a creamy, soft, and thick texture.
Second day	The bilimbi Condiment, as seen on the first day, was brightly colored, sour, sweet, and vinegary, with a thick and creamy soft feel.
Third day	The second day's observations were the same: the bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fourth day	Similar observations were made on the third day: bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fifth day	The bilimbi Condiment had a pleasant appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture. The observations were made on the fourth day.
Sixth day	The bilimbi Condiment had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.
Seventh day	The bilimbi Condiment had the same observations on the sixth day: it had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.

c. Shelf-Life of treatment 2 guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative Condiment

Table 16. Shelf-life of treatment 2 guava and bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack for innovative Condiment

Days of Observation	Observation Results
First day	The guava and bilimbi condiments were visually appealing, sourly flavored, and sweet, and had a creamy, soft, and thick texture.
Second day	The guava and bilimbi Condiment, as seen on the first day, was brightly colored, sour, sweet, and vinegary, with a thick and creamy soft feel.

Third day	The second day's observations were the same: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fourth day	Similar observations were made on the third day: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fifth day	The guava and bilimbi Condiment had a pleasant appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture. The observations were made on the fourth day.
Sixth day	The guava and bilimbi Condiment had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.
Seventh day	The guava and bilimbi Condiment had the same observations on the sixth day: it had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.

d. Shelf-Life of treatment 3 guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative Condiment

Table 17. Shelf-life of treatment 3 guava and bilimbi with Cassava Based-Sagip Nutri-Pack for innovative Condiment

Days of Observation	Observation Results
First day	The guava and bilimbi condiments were visually appealing, sourly flavored, and sweet, and had a creamy, soft, and thick texture.
Second day	The guava and bilimbi Condiment, as seen on the first day, was brightly colored, sour, sweet, and vinegary, with a thick and creamy soft feel.
Third day	The second day's observations were the same: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fourth day	Similar observations were made on the third day: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.

Fifth day	The guava and bilimbi Condiment had a pleasant appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture. The observations were made on the fourth day.
Sixth day	The guava and bilimbi Condiment had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.
Seventh day	The guava and bilimbi Condiment had the same observations on the sixth day: it had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.

e. Shelf-Life of treatment 4 guava and bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack for innovative Condiment

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Table 18. Shelf-life of treatment 4 guava and bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack for innovative Condiment

Days of Observation	Observation Results
First day	The guava and bilimbi condiments were visually appealing, sourly flavored, and sweet, and had a creamy, soft, and thick texture.
Second day	The guava and bilimbi Condiment, as seen on the first day, was brightly colored, sour, sweet, and vinegary, with a thick and creamy soft feel.
Third day	The second day's observations were the same: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fourth day	Similar observations were made on the third day: the guava and bilimbi Condiment had the same observations as the first day: it was nicely colored, smelled sour, tasted sweet and sour, and had a texture that was creamy, soft, and thick.
Fifth day	The guava and bilimbi Condiment had a pleasant appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture. The observations were made on the fourth day.
Sixth day	The guava and bilimbi Condiment had a good appearance and color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.
Seventh day	The guava and bilimbi Condiment had the same observations on the sixth day: it had a good appearance and

	color, a sour aroma, a sweet and sour flavor, and a creamy, soft, and thick texture.

The shelf-life of treatment 1 guava, treatment 1 bilimbi as well as treatment 2, 3, and 4 guavas and bilimbi with Cassava Based-Cassava Based-Sagip Nutri-Pack for innovative Condiments at room temperature will last for seven (7) days and at Refrigerated chiller temperature will lasted for one month or thirty (30) days. Refrigerated guava and bilimbi Condiments will have a longer shelf-life than room temperature.

Conclusions

In conclusion, the comprehensive study on the development, preparation, analysis, and acceptability of guava and bilimbi Condiment with Cassava Based-Sagip Nutri-Pack has provided valuable insights into creating an innovative and nutritious condiment. The meticulous process from harvesting to packaging, coupled with detailed measurements and ingredient lists, demonstrates a systematic approach to product development. The analysis of the nutritive value showcased the nutritional benefits of the condiments, emphasizing their suitability for a healthy diet regimen. The evaluation of acceptability among different treatments highlighted varying sensory perceptions, indicating the importance of considering consumer preferences. The cost and return analysis revealed the economic feasibility of the products, while the shelf-life observations offered practical guidance on storage recommendations. Overall, this study contributes significantly to the understanding of guava and bilimbi condiments with Cassava Based-Sagip Nutri-Pack, paving the way for further exploration and optimization of these innovative culinary offerings.

Recommendations

Based on the result of the study, several recommendations can be made to further enhance the development, marketing, and distribution of Proximate Nutrient Analysis of Guava and Bilimbi with Sagip Nutri-Pack as Innovative Condiments:

1. It is recommended that new items be created. To adapt to shifting dietary needs and customer tastes, the recipes for guava and bilimbi with cassava-based-sagip Nutri-pack as an Innovative Condiment must be constantly developed and improved. To grow the product range and draw in more customers, it could be required to experiment with different tastes, textures, and nutritional profiles.

2. Marketing efforts and educational materials should be used to explicitly educate customers about the nutritional advantages and adaptability of Guava and Bilimbi with cassava-based-sagip Nutri-pack as an Innovative Condiment. It is important to highlight the unique nutritional profiles of Guava and Bilimbi condiments with cassava-based-sagip Nutri-pack during production so that consumers may make educated choices based on their dietary requirements.

3. Further work must be done on improving the sensory features of Guava and Bilimbi with cassava-based-sagip Nutri-pack as Innovative condiments, such as look, scent, taste, and texture, to boost consumer satisfaction and acceptability. To identify issue areas and make necessary formula adjustments for products, sensory assessments, and consumer feedback sessions are highly recommended.

4. To cater to diverse consumer preferences, adapted marketing tactics and product offers should be developed. For example, highlighting the nutritional benefits and visual appeal of Guava and Bilimbi Condiment with cassava-based-sagip nutri-pack, a generic message should be incorporated. Collaboration with government organizations is necessary such as the Department of Agriculture, the Department of Science and Technology (DOST), and the Department of Trade and Industry (DTI) is required.

5. The use of Guava and Bilimbi with Sagip Nutri-pack as a novel Condiment is highly recommended, as it provides a greater return on investment than the food industry's marketed condiment.
6. It is advised to make use of efficient distribution and storage techniques to lengthen the shelf life of guava and bilimbi with Sagip Nutri-pack as novel condiments and reduce waste. Managing storage conditions, creating effective distribution networks, and investing in packaging technologies that increase shelf life may all be necessary to guarantee that items reach customers in the best possible shape. It is advised to work in conjunction with the Department of Trade and Industry (DTI). It is recommended that funds be set aside for further research and development projects that will investigate the possible uses of guava and bilimbi in the creation of this product. Working together with dietitians, food scientists, and culinary specialists, new guava and bilimbi cater to changing customer tastes and trends that may result from this. It is necessary to work with the DOST, the DTI, and the school's Research and Development unit.

Compliance with Ethical Standards

We, the authors, declare that informed consent was obtained from all respondents, who were also informed of their right to withdraw at any time. Anonymity and confidentiality were strictly maintained, and respondents' well-being was safeguarded throughout the study. There is no conflict of interest in this research. We strictly avoided plagiarism and ensured an unbiased interpretation of the findings. The results are intended solely for research purposes.

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ROUTE FOR UNDERSTANDING: EMPLOYING BEFORE, DURING AND AFTER ACTIVITIES IN READING

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ABSTRACT

This study transpired in Tanauan City National High School with Grade 7 STEM (Science, Technology, Engineering, and Mathematics) students. The select students of the STEM class were the subjects because of their appropriate number in the classroom and their reading and comprehension were already diagnosed as they underwent tests and interviews to be able to be a part of the STEM class. The study made use of qualitative and quantitative methods to gather data. The proponent introduced scaffolding for reading (Alber, 2014). A reading text was prepared. The intention was to have the students get a pre-test. Simple instructions were given to accomplish this first assessment. After the initial test, an intervention was given, and a post-test was administered. The reading text for the post-assessment was the same as the pre-test. Subsequently, the scores of the two tests were tabulated. These two data were compared to know the effectiveness of the intervention.

Keywords: *Comprehension, Idea, Reading, STEM, Understanding*

INTRODUCTION

English is a global language (Barker, 2024). Many consider it the second language of Filipinos (Tirosh, 2021). But, among other countries that do not speak it as a first language, Filipinos are commendable to have control of the language. In view of becoming globally at par with the rest of the world, aspired by the K-12 Curriculum,

competency in the language is vital because of its worldwide influence. Taking this into consideration, it is no surprise that the Department of Education encourages programs and projects relating to the facility of the language. Among the orders and memoranda, educators can relate to DepEd Order No. 33 s. 2016 which is about the utilization of funds for early language development. True enough, the younger a person begins to learn a language, the easier it is to acquire (Galatro, 2022). It is a directive like this that underlines the importance of the English language in education and the international aspirations the education sector wants the learners to fulfill which can be hastened if a global language like English is mastered.

Among the skills in learning a language, reading, and comprehension plays a fundamental role (Dong, 2019). Though Filipinos are quite admirable in the use of the language, there is a struggle among students nowadays with regard to reading and comprehension (Nowak, 2022). Due to the advent of many internet activities that can replace reading (Taylor, 2020), it has become a burdensome activity compared to the one click-of-a-button activity the technology offers. However, one cannot have a shortcut when learning a language, reading and comprehension are not negotiable (Bostock, 2024). It should be practiced and experienced to have any mastery of the language.

Because of the importance of reading, the researcher, who is an English language teacher, focused on the topic. This study transpired in Tanauan City National High School with Grade 7 STEM (Science, Technology, Engineering, and Mathematics) students. The select students of the STEM class were the subjects because of their appropriate number in the classroom and their reading and comprehension were already diagnosed as they underwent tests and interviews to be able to be a part of the STEM class.

The study made use of qualitative and quantitative methods to gather data. The proponent introduced scaffolding for reading. A reading text was prepared. The intention was to have the students get a pre-test. Simple instructions were given to accomplish this first assessment. After the initial test, an intervention was given, and a post-test was administered. The reading text for the post-assessment was the same as the pre-test. Subsequently, the scores of the two tests were tabulated. These two data were compared to know the effectiveness of the intervention.

Worth emphasizing is that the research does not intend to end with the STEM students, but only the beginning of introducing a reading strategy. This is not a new strategy but one that is probably overlooked. Regular classes in Tanauan City National High School exceed the regular class size due to the dense student population, so the researcher decided to start with the smaller class so the result could easily be gathered. Provided the established result of this study, it should be applied to other sections and grade levels in the school, even in the whole Division, for the improvement of comprehension or understanding of students.

Research Questions

This study specifically seeks to answer the following questions:
1. How familiar are the students with the before, during, and after reading strategies?
2. Is there any difference in comprehension level when activities are given before, during, and after reading?
3. What interventions/activities can be developed to enhance reading comprehension capacity?

METHODOLOGY

This study is a combination of qualitative and quantitative research. The respondents were given a pre-test and a post-test. This was in the form of a reading comprehension test. A prepared reading text from the internet was given and after reading, they were given a ten-item test. For the pre-test, a simple instruction was given. But for the post-test, they were given scaffolding, that is, instructions were provided before reading, during reading, and after reading. The after-reading activity was answering a graphic organizer.

After the scaffolding was done, the students were given a post-test. The two results were compared, and it indicated a difference in result for the two tests. The results of the pre-test and post-test were statistically treated to verify the difference.

For the qualitative part, students were interviewed about the test and the difference the scaffolding made in the post-test. There was also a focus group discussion to further verify the result and confirm the individual interview. The interview and focus group discussion were deemed completed when the responses of the students reached a saturation point, that is, they were already the same answers and there were no novel ideas already in their responses.

The population of Grade 7 STEM Banzon students participated in this study. There are 29 students in all. They are select group of students because unlike the regular class, they underwent interview and entrance examination to be able to be a part of the STEM class. They have the same K-12 curriculum, but they have added elective subjects geared to Science and Mathematics.

The quantitative data came from the reading comprehension assessment, which was in the form of a pre-test and post-test. They took the pre-test, after which, they underwent a post-test. In the post-test, the before, during, and after activities were implemented. The pre and post-test results were compared using appropriate statistical tools. A T-test was used to identify the differences in the result of the assessments.

Qualitative data were also used for this research. Interviews and focus group discussions among the students were done. Data from these methods were recorded and documented. Certain themes were deduced from these methods to establish valid

premises significant to the nature of the study. The main focus of the discussion was the difference the intervention can give in their reading capacity.

RESULTS

Pre-Test and Post-Test Result

Learner	Pre-Test	Post-Test	Gain/Gap
1	3	3	0
2	5	9	4
3	6	6	0
4	6	6	0
5	6	7	1
6	7	8	1
7	7	10	3
8	7	7	0
9	3	5	2
10	5	7	2
11	7	7	0
12	7	8	1
13	6	6	0
14	3	7	4
15	5	5	0
16	8	8	0
17	6	6	0
18	5	5	0
19	5	9	4
20	8	8	0
21	5	9	4
22	8	8	0
23	6	8	2
24	5	9	4
25	8	9	1
26	8	8	0
27	7	9	2
28	5	5	0
29	7	6	-1
TOTAL	174	208	34
Mean	6.00	7.17	1.17
Std Dev	1.488048	1.649003	1.582696
T-Test	2.837		
T-Tab	0.0063		

DISCUSSION

1. During the focus discussion, the students were asked if they were familiar with employing before, during, and after reading activity strategies. The unanimous reply was that they were not familiar with such a strategy. This can be interpreted that they truly did not have any experience of such or they had, but, the process was not clear to them or it was called differently by their previous teachers.

2. The result indicated the scores of the respondents on the reading passage. The result was individually taken before and after the intervention. The gap or gain was determined by getting the difference between the scores on before and after.

As shown, the mean score of the ten-point assessment was 6.00 (before) which later increased to 7.17 (after) with a mean gain of 1.17. A gain or positive difference implies that the intervention improved the score in reading comprehension. The standard deviation of the scores was 1.488048 (before) and increased to 1.649003 (after).

The t-test value (2.837) was higher than the t-tab (o. 0063). It can be construed that there is a significant difference between the scores before and after the intervention of the passage, thereby, proving that there is increase in understanding or comprehension.

3. The employing of before, during, and after reading strategies made a difference in the scores of the students (Linde, 2022). This strategy may be developed to be used in reading sessions. There are a lot of strategies of this kind available in books and online. The teachers must be resourceful in researching this kind of activities so that students may increase their comprehension capacity.

Conclusions

1. The students are not familiar with the before, during, and after reading strategies but based on the interview conducted with them, the strategy helped make them understand the reading passages given to them. Only one strategy was used during this study. Many others can be helpful to improve the comprehension and understanding of the students.

2. There is a significant difference between the pre-test and post-test. The strategy helped improve their comprehension.

3. This strategy was used with STEM students and the test results and interview indicated that they were helped to understand more the reading passage. Hence, this should be applied and incorporated into reading sessions. Also, such a strategy may be helpful to students who are in the regular curriculum.

Recommendations

1. Many strategies are available in books or online that can help students improve their reading and comprehension.

2. For the strategy in the post-test, this research utilized the Main Idea and Details Map. There are other strategies concerning before, during, and after reading activities, but for the intent and purpose of the study, this particular approach was used. The following are the instructions for this strategy. The website where this came from is provided after this strategy is laid out.

Main Idea and Details Map

Before Reading

1. Tell students that it is important that they are able to remember and tell about the most important part or main idea of a passage. They also need to be able to list details about the main idea. These skills help them understand and remember what they have read.
2. Remind the students of a recent passage that they all know. Or you may read a short passage to the class. Make transparency of the graphic organizer. Tell the students that they are going to help you fill in the important part of the passage and list details that support the main idea.
3. Have the students help you put information from the passage in the boxes on the graphic organizer.
4. Tell the students that they will be listening to or reading a passage and looking for the main idea and details that support the main idea.

During Reding

1. Read the passage out loud to the students or have the students read the passage themselves. You may pair the students and have them read it out loud to each other. They are to be listening for or looking for the main idea and supporting details.
2. You may want to have the students write them down as they find them. They may write them on paper or a marker board.

After Reading

1. Main Idea and Details Map – Have students complete the “Main Idea and Details Map” graphic organizer.
2. Have students share their results with the rest of the class. (https://readinginterventionstrategy.weebly.com/main-idea-maps.html)
3. The key intervention used in this study was the Main Idea and Details Map. There are other interventions like this, namely, Prior Knowledge Map, Events Map, Favorite Part, Fact and Opinion Chart, Timeline, and K-W-L Chart.

Resourcefulness and creativity are important to engage students in reading. There are sources in books and online that can help.

Compliance with Ethical Standards

Proper authorization was sought to conduct this study. Parents of the students were given informed consent to ask permission to conduct research with their children. Likewise, the anonymity of the participants was observed to safeguard their identity. The school head was informed of the research. Concerned teachers, especially the adviser, were notified about the study.

The students were briefed about the procedures of the research. They were informed that their test result would be used for a study. The interview and focus group discussion session were given enough preparation so the students would be at ease during the interaction.

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To the respondents of this study;

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SCHOOL CLIMATE OF SELECTED ELEMENTARY SCHOOLS IN PATIKUL EAST DISTRICT, MBHTE-SULU, PHILIPPINES

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ABSTRACT

The purpose of this study was to explore the school organizational climate of Patikul East District, MBHTE-Sulu. This further investigated the areas of administrative dimension, teachers' dimension and school dimension. Meanwhile, descripted survey method was used to describe the different dimensions of school climate. The respondents were the elementary school teachers of the selected schools of the same district. Meanwhile Self- constructed questionnaire extracted from literatures was used. Moreover, Frequency and percentage, mean, t-test for independent sample and analysis of variance (ANOVA) were utilized in the analysis of data. This study that majority of the respondents were female, belonging to 34 years and above; 11-15 years teaching experience; and with bachelor's degree. Likewise, the teachers have strongly agreed the school climate in terms of administrative dimension were conducive; they further strongly agreed that the school climate pertaining to teacher's dimension is characterized with high teacher's morale, good working relationship, highly motivated, and with high spirit of collaboration. And they strongly agreed to that the school climate pertaining to school dimension was characterized by conducive learning environment, have strong link with parents and Local Government Units officials, have a very friendly atmosphere and the like. Moreover , there was no significant difference on teacher's perception on school climate in the areas of administrative dimension, teacher's dimension and school dimension according to the respondent's profile. Finally, significant difference was found in administrator's dimension according to the respondents' length of service.

Keywords: *School Climate, Administrative Dimension, Teachers Dimension, School Dimension, Organizational Climate*

INTRODUCTION

Today, more than ever before, education is considered to be a societal investment and a commodity for consumption. As such, there is much needs for educationists alike to amplify educational outcomes if only compensate the financial resources invested in education (Bergen, 2014; Abdurahman & Omar, 2021; Abdurahman et al, 2024). Besides, the school is the home of educators and learners. In order to realize one's potential, it is important to feel safe and accepted in one's working and learning environment. The climate in a school therefore should be of such a nature that individuals could prosper in all areas of their lives.

Adeogun and Olisaemeka (2011) and Isa et al (2024) define school climate as an aggregate measure of school characteristics such as relationship between parents, teachers, administrators as well as physical facilities on the ground. According to Mariita (2012), Nyamosi (2013) and Balla et al (2024) have as well asserted that school climate factors such as social economic status, parent involvement, attendance, school size teaching–learning resources and interpersonal relationships affect teachers' job satisfaction and this can affect student academic performance.

Many school organizations, however, struggle to cultivate the climate they need to succeed. Hellriegel and Slocum (2006) explain that organizations can take steps to build a more positive climate through: communication, values expectations, norms, policies and rules, programs and leadership which require a rich organizational structure, reward systems, technology, or tasks (Datnow, Hubbard, & Mehan, 2002; Jupakkal et al, 2024).

Further, it is a part of administration in an educational system is to provide working conditions favorable to good teaching and effective learning. Sensible administration provides teachers and pupils with adequate facilities and favorable environment for work. To be operative, school principals need to possess educational leadership. Their role is to motivate their teacher to achieve the aims of the educational enterprise.

Relatively, there has been increasing attention on the relationship between management and employees especially in the academic world for decades now. Attitudes of the employees towards their organization, as a result of their work environment, are important issues in organizational behavior literature. Employee behavior in organizations is a result of their personal characteristics as well as the environment, which they work in. In this regard, organizational climate is an important aspect in order to understand employee's work-related behavior and it has been discussed in organizational behavior literature for decades (Bergren, 2014).

Moreover, this study endeavors to empirically determine the dimensionality of school climate towards organizational performance construct in the context of public elementary education particularly in Patikul East District, Patikul, Sulu. Most Elementary schools in Sulu still follow archaic narrative essay type performance appraisal methods. Hence, it would be interesting to study the perception of elementary school teachers in Patikul District as to their school organizational climate based on three dimensions: administrative dimension, teachers dimension and school dimension.

METHODOLOGY

This section discusses the research methodology of the study which includes the research locale, respondents of the study, data collection, research instrument, and data gathering procedure and statistical techniques and scope and delimitation of the study.

Research Locale

This study was conducted at the selected schools of Patikul District under the supervision of the MBHTE-Sulu. This schools includes Don Jose Godinez Elementary School, Kawmpang Elementary School and Latih elementary School The researchers has decided to choose these schools because she felt that there is much need for the district to improve the school climate if only to promote quality standard. Besides, the result of this study could serve as baselined data for some program interventions of the said district. Additionally, the researchers herself is presently employed in the same district. Hence, it is quite accessible for her to undergo the investigation.

Respondents of the Study

The respondents of this study were the elementary school teachers who are currently teaching at Patikul East District, MBHTE-Sulu school year 2022-2023. They are distributed as follows:

Table 3.1 : Distribution of respondents according to school

	Patikul East District	**Employees**
1	Don Jose Godinez elementary School	13
2	Kawmpang Elementary School	10
3	Latih Elementary School	7
	Total	30

Data Collection

After the validation of the instrument, the researchers asked the approval of the graduate school dean, the then Dr. Magna Anisa Hayudini, through the recommendation of her thesis adviser for launching of the study. Then, the researcherss secured a written

permission from the District Supervisor of Patikul East District to allow her to conduct the study. Once approved, the researchers to sent the letter to the school principal, attached with the approved permit from the supervisor, informing them for the administration of the questionnaire in their respective schools. The questionnaire was administered in the third week of April 2023 and was retrieved a day after.

Research Instrument

In this study, the researchers used survey-questionnaire to obtain data from the respondents. Questionnaire is simply a set of questions which, when answered properly by the required number of properly selected respondents supplied the necessary information to complete a research study (Calderon & Gonzales, 1993). In this study, the researchers' prepared questionnaire on the school climate of selected schools in Patikul East District. Said Questionnaire has two parts. The first part deals with the respondent's demographic profile; and the second part pertains to the school climate which also composed of three sub categories namely: administrative dimension, teachers' dimension and school dimension.

Statistical Techniques

To analyze the raw data gathered from the investigation, statistical tool is necessary. In this study, the researchers used frequency and percentage, weighted mean, t-test for independent variable, and one-way ANOVA. The frequency and percentage were used to analyzed the profile of the respondents. While, mean was utilized to assessed the school climates in respect to administrative dimension, teachers' dimension and school dimension. In like manner, t-test for independent variables was used to test the significant difference of school climate according to gender; and one-way ANOVA was used to test the difference of school climate according to age, length of service, and educational qualification.

Scope and Delimitation of the Study

This investigation aims to describe the school organizational climate in Patikul East District. The variables include administrative dimension, teachers' dimension and school dimension. Other dimensions such as technical dimension, human relation dimension and rational goal dimension are not included in this investigation. The respondents of the study are the selected elementary school teachers from three schools in Patikul District namely: Don Jose Godinez Elementary School, Kawmpang Elementary school, Latih Elementary School. Self- constructed questionnaire will be utilized. Meanwhile, time constraint is projected to be the limitation of the study.

RESULTS

This sections discusses the profile of the respondents in the context of gender, age, length of service, and educational qualification. This also tackles the school climate of Patikul East District selected schools, MBHTE, Sulu that include three dimensions: Administrative dimension, teachers' dimension and school dimensions.

Profile of the Respondents

Table 1 presents the profile of the elementary school teachers in the selected elementary schools in Patikul East District with respect to their gender, age, length of service and educational qualification. The distribution are as follows: As to gender, the majority (80%) were female; As to age, the majority (73.3%) were 34 years and above; in terms of length of service, the majority (30%) of the respondents have already served 11-15 years in teaching; And as to educational qualification, the majority (60%) have just finished their baccalaureate degree.

Table 1: The profile of the respondents

Gender	Frequency	Percent
Male	6	20
Female	24	80
Age		
23 years old below	1	3.3
24-27 Yrs. Old	0	0.0
28- 33 Old	7	23.3
34 years old and above	22	73.3
Length of Service		
5 Yrs. and below	5	16.7
6-10 yrs.	8	26.7
11-15 yrs.	9	30.0
16 years and above	8	26.7
Educational Qualification		
Bachelor's degree	18	60.0
With master's units	7	23.3
With master's degree	5	16.7
With Doctoral units	0	0.0
With Doctoral degree	0	0.0

School Climate

This section discusses the three dimensions of school climate which covers the administrator's dimension, teacher's dimension and school dimension based on the perception of the respondents.

A. School Climate on Administrator's Dimension

Table 2 reveals the administrator's dimension od school climate of Selected Schools in Patikul East District. The overall mean is 3.54 which has a verbal description of Strongly Agree. Meanwhile, the highest individual mean is 3.70; and the lowest individual mean is 3.37.

Table 2 : School climate Administrator's dimension

School climate's Administrators Dimension	mean	
1. The School administrator helps solve any school relevant concern of teachers	3.43	Agree
2. The school administrators helps settle minor differences of teachers and staff	3.60	Strongly Agree
3. The school administrator always arrive at the school early	3.40	Agree
4. The school administrator help solve individual conflict among teachers	3.37	Agree
5. The school administrator helps solve group conflict within the school	3.47	Agree
6. The school administrator sets an example by working hard for himself/herself	3.67	Strongly Agree
7. The school administrator keeps the teachers' be informed of the new DepEd thrusts	3.57	Strongly Agree
8. The school administrator is always speaking at the school functions	3.70	Strongly Agree
9. The principal schedules the teachers' work and activities timely	3.50	Strongly Agree
10. The school administrator treats everyone justly	3.54	Strongly Agree
Overall mean	3.54	Strongly Agree

Legend : 1.00-1.49 = Strongly disagree ; 1.50- 2.49 = Disagree; 2.50-3.49= Agree; 3.50-4.00= Strongly Agree

B. School Climate on Teacher's Dimension

Table 4.3 tackles the school climate based on teachers' Dimension of selected elementary school in Patikul East District. The overall mean is 3.62 which has a verbal description of strongly agree. While the highest individual mean is 3.83 and the lowest mean is 3.57.

Table 3 : School Climate teachers' dimension

School Climate Teachers' Dimension	mean	Verbal Description
1. The morale of the teachers are high	3.83	Strongly Agree
2. Teachers accomplish their work with vigour and enthusiasm	3.74	Strongly Agree
3. Teachers are high satisfied with their working relationship	3.57	Strongly Agree
4. Teachers have a smooth relationship with colleagues and school administrators	3.47	Agree

5. Teachers are willing to share their problems with colleagues and the school administrators	3.37	Agree
6. Teachers are socializing with each other	3.64	Strongly Agree
7. Teachers find works as highly motivating	3.64	Strongly Agree
8. Teachers are highly motivated to perform the tasks	3.57	Strongly Agree
9. Teachers invite other faculty members to their house for any special occasion	3.64	Strongly Agree
10. Teachers are willing to collaborate with colleagues to accomplish certain tasks	3.74	Strongly Agree
Overall mean	3.62	Strongly Agree

Legend : 1.00-1.49 = Strongly disagree ; 1.50- 2.49 = Disagree; 2.50-3.49= Agree; 3.50-4.00= Strongly Agree

C. School Climate on School Dimension

Table 4 exposes the school climate in an area of school dimension as rated by the elementary school teachers of Patikul East District. The overall mean is 3.59 which has a verbal description of strongly agree. The highest individual mean is 3.74 and the lowest is 3.40.

Table 4: School Climate School dimension

School climates' School Dimension	Mean	Verbal Description
1. The school has very conducive environment for teaching and learning	3.50	Strongly Agree
2. The school establishes a strong link with the parents.	3.54	Strongly Agree
3. The school establishes a strong link with other schools.	3.50	Strongly Agree
4. The school has a warmth welcoming environment for its guests.	3.74	Strongly Agree
5. The school establishes a strong link with the Local Government Units officials.	3.40	Agree
6. The school has a very encouraging environment to work	3.47	Agree
7. The school has set a very clear goal for the students.	3.74	Strongly Agree
8. The school has a very democratic environment for everyone.	3.70	Strongly Agree
9. The school has set its own standard for learning	3.74	Strongly Agree
10. The school has a friendly atmosphere for students and parents	3.67	Strongly Agree
Overall mean	3.59	Strongly Agree

Profile and School Climate

This Section presents the significant difference of school climate with the teacher's demographic profile as to gender, age, educational qualification and length of service.

A. School Climate and Gender

Table 5 depicts the significant difference of school climate in terms of administrator's dimension, Teacher's Dimension and School's dimension according to respondent's gender. The following were found: For administrator's dimension, the sig. value is 5.92; As to Techer's dimension, the sig. value is .883; and as to School's dimension, the sig. value is .922.

Table 5: Significant difference of school climate according to gender.

Group Statistics						
	Gender	N	Mean Diff.	Sig 2-tailed	Decision	Interpretation
Administrator's Dimension	male	6	208	5.92	Accept Ho	No Significant Relationship
	female	24	208			
Teacher's Dimension	male	6	058	.836	Accept Ho	No Significant Relationship
	female	24	058			
School's Dimension	male	6	025	.922	Accept Ho	No Significant Relationship
	female	24	025			

B. School Climate and Length of Service

Table 6 presents the significant difference of school climate in terms of administrator's dimension, Teacher's Dimension and School's dimension according to respondent's length of service The following were found: For administrator's dimension, the sig. value is .005; As to Techer's dimension, the sig. value is .017; and as to School's dimension, the sig. value is .118.

Table 6: Significant Difference of School climate according to length of service

		Sum of Squares	df	Mean Square	F	Sig.
Administrator's Dimension	Between Groups	3.485	3	1.162	5.412	.005

	Within Groups	5.581	26	.215		
	Total	9.067	29			
Teacher's Dimension	Between Groups	1.613	3	.538	4.052	.017
	Within Groups	3.450	26	.133		
	Total	5.063	29			
School Dimension	Between Groups	1.171	3	.390	2.150	.118
	Within Groups	4.719	26	.181		
	Total	5.890	29			

C. School Climate and Educational Qualification

Table depicts the significant difference of school climate in terms of administrator's dimension, Teacher's Dimension and School's dimension according to respondent's gender. The following were found: For administrator's dimension, the sig. value is .071; As to Techer's dimension, the sig. value is .460; and as to School's dimension, the sig. value is .233.

Table 7: Significant Difference of School climate according to educational qualification

		Sum of Squares	df	Mean Square	F	Sig.
Administrator's Dimension	Between Groups	1.613	2	.807	2.922	.071
	Within Groups	7.453	27	.276		
	Total	9.067	29			
Teacher's Dimension	Between Groups	.283	2	.142	.800	.460
	Within Groups	4.780	27	.177		
	Total	5.063	29			
School Dimension	Between Groups	.603	2	.301	1.540	.233
	Within Groups	5.287	27	.196		
	Total	5.890	29			

DISCUSSION

This section discusses the profile of the respondents; the school climate of selected schools of Patikul East District, MBHTE-Sulu according to administrative dimensions, teachers' dimension and school dimension.

A. Profile of the Respondents

Based from table 1, of the 30 teacher respondents from the selected elementary school of Patikul East District, the majority 24 (80 %) were female and only 6 (20%) were male. This indicates the female teachers remain dominant in the educational playing field.

As to respondents' age, the majority 22 (73.3%) were 34 years and above; while 7 (23.3%) were at the age bracket of 28-33 years old; and only one (3.3%) is belonging to 23 years old and below. The data pointed out that majority of the elementary school teachers in Patikul East District are at the middle age already and about to reach the peak of their career. This suggests that there is a need for the MBHTE-Sulu to hire more younger faculty members to carry out the most complex teaching responsibilities.

As to their length of service, the majority nine (30%) of the respondents are already in the service from 11-15 years; while eight (26.7%) are serving 6-10 years and other eight (26.7%) have rendered the same; and only five (16.7%) have been serving five years and below. Meanwhile, in terms of their educational qualification, 18 (60%) of the faculty members have finished their bachelor's degree; while seven (23.3%) of them have their master's units; and only five (16.7%) have already finished their masteral degree. This data clearly suggests that there is an urgent need for the faculty members to upgrade themselves through professional advancement if only to cope with the current explosion of information and technology in the landscape of education.

B. School Climate's Administrative Dimension

Gleaning from Table 2, as attested by an overall mean of 3.54 which has a verbal description of strongly agree, this indicates that the elementary school teachers of selected elementary schools in Patikul East District have strongly agreed that their school administrators have performed the administrative responsibilities emanates from their position as reflected in the same table. This means the school climate pertaining to administrative dimension is relatively very conducive.

When it is taken individually, the teachers have strongly agreed (mean=3.70) that the school administrators are always speaking at the school functions; that they set an example by working hard for themselves (mean=3.67); and they too help settle minor differences of teachers and staff (mean=3.67). Further, the respondents have strongly agreed (mean=3.57) that their school administrators have kept the teachers informed of the new DepEd thrusts; treats everyone justly (mean=3.54; and schedules the teachers' work and activities timely (mean=3.50).

On the other hand, the respondents agreed (mean=3.47) that their school administrators help them solve group conflict within the school; help solve any school relevant concern of teachers (m=3.43); always arrive at the school early (m=3.40); and they always help solve individual conflict among teachers (mean=3.370).

Corollary, effective leaders must ensure continuity in the school instructional program (Leithwood & Riehl, 2003) and must spend time to monitor instructional programs, curriculum implementation, and the quality of instructional practices (Fink & Resnick, 2001). Hoy, Sabo, & Barnes, (1996) and Abu-Saad & Hendrix, (1995) affirmed that the principal is the single most important individual in the development of a school's climate. In schools, therefore, school administrators can become effective change agents who are responsible for creating change and healthy school climate (Abdurahman N., Abdurahman N., et al.,2024).

In the same vein, Several quantitative studies (Hallinger & Heck, 1998; Hoy, Tarter, & Bliss, 1990; Kelley, Thornton, & Daughtery, 2005) have confirmed that school principals have the potential to the climate within the school building. A smoothly functioning school requires a leader's focused time and effort to effectuate change in the school setting. More than anything else, the school must first be a safe and has a positive learning environment for all. School leaders are charged to ensure this (Cotton, 2003). Schools showing academic improvement are more likely to have strong organizational managers who amplified their creativity and innovation in the workplace(Horng & Loeb, 2010; Danielson, 2002).

C. School Climate's Teachers Dimension

Gleaning from Table 3, with an overall mean of 3.62 which has a verbal description of strongly agree, this indicates that the elementary school teachers of selected elementary schools in Patikul East District have strongly agreed that the school climate pertaining to teacher's dimension is characterized with high teacher's morale, good working relationship , highly motivated, and with high spirit of collaboration and the like.

When taking singly, the teachers have strongly agreed (mean=3.87) that their morale is high; that they have accomplish their work with vigor and enthusiasm (mean=3.74); and that they are willing to collaborate with colleagues to accomplish certain tasks (mean=3.74); likewise, they strongly agreed (mean=3.64) that teachers are socializing with each other; find their works motivating; and even inviting each other to their own house. More so, teachers have strongly agreed (mean= 3.57) that they are highly satisfied with their working relationship and highly motivated to perform their own tasks.

Anent this findings, Farrant (1980) contends that the professional skills of the teachers establish a productive classroom atmosphere through a carefully planned teaching structures. He further asserts that professional competence often transforms into high quality of teaching that has consequential impact on the learning of the pupils. Also in Asanji et al (2024) in their study on Job Satisfaction of Teachers in selected

elementary school in Pangutaran District that if teachers morale is high, they are highly motivated to perform their daily tasks which thereby contributed much to their inner satisfaction in the workplace.

Meanwhile, researchers such as Goldhaber (2002), Greenwald, Hedges, and Laine (1996), Nye, Konstantopoulos, and Hedges (2004), Wenglinsky (2001), and Wilson and Floden (2003) however, found credentials such as graduate degrees to be weakly related to teacher performance, during their first and second year of their teaching career. Agyeman (1993) and Abdurahman (2024) reported that teachers, lacking of both the academic and the professional teacher qualification, would undoubtedly have a negative influence on the teaching and learning of the students. However, he further stated that a teacher who is academically and professionally qualified, but works under unfavorable conditions would be less dedicated to his work and thus be less productive in the work place than a teacher who is unqualified but works under favorable school climate.

D. School Climate's School Dimension

As exposed in Table 4, the elementary school teachers have strongly agreed, with an overall mean of 3.59, that the school climate under school dimensions have conducive learning environment, have strong link with parents and Local Government Units officials, have a very friendly atmosphere and the like.

Specifically, the teachers have strongly agreed (mean=3.74) that the school has a warmth welcoming environment for its guests ; has set a very clear goal for the students ; and has set its own standard for learning; They too strongly agreed (mean = 3.70) that the school has a very democratic environment for everyone; has a friendly atmosphere for students and parents (mean=3.67); and has establishes a strong link with the parents (mean 3.54). meanwhile, the teachers have also strong agreed (mean = 3.50) that the school has very conducive environment for teaching and learning and has establishes a strong link with other schools. Moreover, they further agreed (mean=3.47) that the school has a very encouraging environment to work; and ha establishes a strong link with the Local Government Units officials (mean=3.40).

Relative to the findings, Kuperminc et al. (1997) and Abdurahman and Abdurahman et al. (2024) observed that a positive school climate can yield best educational outcomes for students and personnel; whereas a negative climate can hinder optimal learning and development. Hence, it can be stated that school climate, if possible can provide an enriching environment, both for personal growth and academic success. According to Cohen et al. (2009) that Effective school improvement efforts involve the students, parents, and guardians, school personnel, and community leaders .

Meanwhile, a school environment or climate may indicate a great deal of cooperation among the various groups in the school setting while another might reveal a climate of tension, friction and even lack of cooperation among the groups. That is to say that the school climate of school could influence the performance of both teachers and

students positively or negatively as the case might be (Facunle & Ale, 2018). Moreover, Leithwood & Riehl, (2003) stated that principals of high achieving schools are clear about the school's vision and goals . While, Kearney & Harrington (2010) affirmed that school leaders must buy-in to both the vision and the learning goals and they must further seek commitment from the various stakeholders where the school is operated.

E. School Climate and Gender

Based on Table 5, there was no significant difference could be found in school climate in terms of administrator's dimension with the corresponding sig. value of 5.92; teacher's dimension with sig. value of .836; and school dimension with sig. value of .922 when grouped according to gender. All the sig. values were above the .05 alpha level and found to be insignificant. Therefore, the null hypothesis which state that " There is no significant difference of school climate according to age: was accepted. This means the perception of male and female teachers on the school climate as to administrator's dimension, teacher's dimension and school's dimension is almost the same.

F. School Climate and Length of Service

Gleaning from the Table 6, there was significant difference could be found in school climate in terms of administrator's dimension with respect to length of service as seen in the corresponding sig. value of .005 which is below the 0.05 alpha level; Hence, the null hypothesis is rejected. While there was no significant difference found on teacher's dimension with sig. value of .817; and school's dimension with sig. value of .118 which are above the 0.05 alpha level and the null hypothesis was accepted. This finding demonstrates that there exists a difference on the perception of the respondents in the area of administrative dimension. This means that the performance of the administrators with more than 10 years in service is better than those who were only serving five years and below.

G. School Climate and Educational Qualification

Based on Table 7, there was no significant difference could be found in school climate in terms of administrator's dimension with the corresponding sig. value of 0.71; teacher's dimension with sig. value of .460; and school dimension with sig. value of .233 when grouped according to educational qualification. All the sig. values were above the .05 alpha level and found to be insignificant. Therefore, the null hypothesis which state that "There is significant difference of school climate according to educational qualification was accepted. This means that regardless of educational qualification, the perception of the teachers on the school climate as to administrator's dimension, teacher's dimension and school's dimension is almost the same. This further implies that whether the administrator is a doctoral holder, master' s holder of a mere bachelor's degree holder, their performance as to managing the school climate do not vary significantly.

Compliance with Ethical Standards

Throughout the conduct of this study, the researchers have always safeguard the respondents' right to privacy and confidentiality in the pursuit of gathering the data of this investigation. Firstly, the researchers have sent a letter to the respondents that clearly explains the study's objectives, procedures, potential risks and benefits of the study. Teacher-respondents were also informed of their rights to-and-not to participate in the investigation. In respect to the privacy of the participants, data collection occurred in a private place and collected data were secured in an archive to ensure that no individual can access except the researchers themselves. Likewise, all participants were treated with high respect regardless of their different views and opinions. Moreover, the researchers created a comfortable space for the respondents to give them the freedom to express their free will during the course of the investigation.

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SCHOOL HEADS' LEVEL OF MANAGEMENT PRACTICES IN THE IMPLEMENTATION OF SCHOOL IMPROVEMENT PLAN IN PUBLIC ELEMENTARY SCHOOLS IN THE DIVISION OF QUEZON: BASIS FOR CRAFTING SIP MANAGEMENT FRAMEWORK

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ABSTRACT

This study aimed to reveal and analyze the difference in the level of management practices in the implementation of School Improvement Plan among the selected public elementary schools in the Third Congressional District of Quezon, with the aim of developing a management framework. This study also sought to answer the following questions: the profile of the schools in terms of the following: school size (small, medium, large); geographic location (central, non-central) and title of the school head (teacher-in-charge, head teacher, principal).The level of management practices of school heads in the implementation of School Improvement Plan as assessed by the teachers and the school heads themselves in the following phases: planning; implementing, monitoring and evaluation; and adjusting plans. The significant difference in the level of management practices in the SIP of school heads when grouped according to school profile. The challenges were encountered by the school heads in the implementation of management practices, the coping strategies employed by the school heads to address the challenges encountered. The SIP management framework can be proposed the schools in the districts were headed by full-fledged school principals. Data revealed that the SIP in the congressional district was distinctively to have a high level of practice among school heads. Hence, the School heads have different level of their management practices based from their school size, geographic location, and their current designation. However, challenges occur due to conflict of time, coordinating then collect feedback, and limited funds and resources. On the other hand, the way of coping strategies is to have quality, efficiency, and timeliness, creating localized monitoring and evaluation

tools, and solving difficulties in the plan and adjustments. A management framework that was made based from the results can be applied for school heads challenges in management practices

Keywords: *Management practice, School Improvement Plan, public elementary schools, Third Congressional District of Quezon*

INTRODUCTION

Governments worldwide are focused on improving and enhancing their educational systems to make them more significant and efficient. Education is the foundation for the knowledge and skill development of learners and is intended to help the institution accomplish its aims and objectives. As education is ought to be a priority, effective school leadership, exhibited by school administrators in collaboration with educators and other pertinent parties, must make a school successful.

With the onset of the Department of Education's new curriculum, transformation is a must for the entire educational community. The threat of declining quality education has prompted education architects to formulate innovations in educational management in the hope of improving student achievement and school performance. One of these innovations is empowering school heads and giving them the freedom to decide for their institution; thus, programs and projects associated with school improvement lie in their hand.

As stated in Republic Act 9155 or the Governance of Basic Education Act, a school must be managed by a school head who has “the authority, responsibility, and accountability for achieving higher learning outcomes.” Their roles include, but are not limited to, leadership, management, teacher evaluation, and enforcement. School heads are agents of change who significantly impact the educational milieu through their information-sharing methods, creating supportive social connections, participating in mentoring programs, and fostering progress. Their practices positively affect school performance (Aquino et al., 2021).

Thus, this study was undertaken to address several pivotal aspects, each with its compelling rationale. Firstly, in the evolving landscape of educational systems, ensuring that school heads are well-equipped to lead their institutions effectively is paramount. As educational paradigms shift, this study recognized the imperative for school heads to be adept leaders. By meticulously examining their management practices, the study sought to unearth areas primed for improvement, thereby contributing to the overarching advancement of education. Secondly, school heads play a pivotal role in nurturing elevated learning outcomes. Thus, the study's intent to assess the alignment between their responsibilities and actual practices holds significance. Such an evaluation becomes pivotal in maintaining a culture of accountability and raising the bar of educational quality. Moreover, the study's recognition of the distinct management practices across varying school profiles underscores the development of precisely tailored interventions. This personalized approach could effectively target specific challenges, catalyzing refining practices where necessary.

Furthermore, the study's spotlight on school heads as transformative agents within the educational landscape is well-aligned with the broader aspiration of cultivating transformational leadership in education. By unraveling effective practices, the study hopes to contribute to a positive transformational impact on the educational milieu. Lastly, the study's commitment to sustainable progress was realized through its intervention program. By arming school heads with strategies to optimize their School Improvement Plan practices, the study not only enhanced immediate outcomes but also set the stage for enduring advancements in school performance and student achievements.

Regardless of empowering school heads and through the implementation of the School Improvement Plan in the Division of Quezon, some institutions continue to face difficulties in achieving low school achievements. For this reason, there was a need to look into the school heads' management practices in the School Improvement Plan and reveal any significant difference in the level of training when categorized according to school profile. Through this, the strengths and weaknesses of each group toward becoming an integral part of the school and school transformation would be revealed. Hence, an intervention program as the output of the study is needed to enhance the management practices in SIP among school heads.

Research Questions

This study aimed to reveal and analyze the difference in the level of management practices in the implementation of School Improvement Plan among the selected public elementary schools in the Third Congressional District of Quezon, with the aim of developing a SIP Management Framework. This study also sought to answer the following questions:

1. What is the profile of the schools in terms of the following:
   1.1 school size (small, medium, large);
   1.2 geographic location (central, non-central);
   1.3 title of the school head (teacher-in-charge, head teacher, principal)?
2. What is the level of management practices of school heads in the implementation of School Improvement Plan as assessed by the teachers and the school heads themselves in the following phases:
   2.1 planning;
   2.2 implementing;
   2.3 monitoring and evaluation; and
   2.4 adjusting plans?
3. Is there a significant difference in the level of management practices in the implementation of School Improvement Plan of school heads when grouped according to school profile?
4. What challenges were encountered by the school heads in the implementation of management practices?
5. What are the coping strategies employed by the school heads to address the challenges encountered?

6. What SIP Management Framework can be proposed?

METHODOLOGY

Research Design

The descriptive research method employed in the study aimed to provide a thorough and systematic depiction and examination of both qualitative and quantitative data, ensuring the accuracy, validity, and reliability of the results (McCombes, 2019). In the context of the research on School Improvement Plan (SIP) management practices of school heads, this approach involved a comprehensive exploration and understanding of various aspects related to planning, implementing, monitoring and evaluation, and adjusting plans within the SIP framework.

A checklist questionnaire was utilized as a measurement tool to gauge the SIP management practices of school heads. This questionnaire was designed to systematically collect information and responses from school heads regarding their approaches and actions concerning planning, implementing, monitoring, evaluating, and adjusting the SIP. The questionnaire likely contained a series of items or statements related to each of these aspects, and participants were asked to indicate their level of agreement or disagreement, frequency of practice, or other relevant information for each item.

Based on the responses gathered through the questionnaire, the researchers obtained data that quantitatively assessed the school heads' practices in terms of SIP management. The results of this assessment served as the foundation for the intervention program proposed in the study. These results could provide insights into the strengths and weaknesses of the current SIP management practices, enabling the researchers to identify areas that require improvement, enhancement, or adjustment.

The management framework, as an output of the study, is a set of activities tailored to address the specific areas of SIP management that were identified as challenges or needing improvement. It would draw from the research findings and aim to guide school heads in enhancing their planning, implementing, monitoring, evaluation, and adjusting plans practices within the context of SIP. This framework, derived from the analysis of the questionnaire responses, could provide actionable strategies and guidelines to support school heads in their efforts to manage SIPs and achieve improved educational outcomes effectively.

The descriptive research method employed in the study involved systematically collecting and analyzing data related to SIP management practices. Using a checklist questionnaire, the researcher was able to quantitatively measure school heads' practices and subsequently develop a management framework based on the findings to enhance these practices and achieve better educational outcomes.

Research Locale

This study was conducted in the 12 selected public elementary schools from 4 different clusters in the Third Congressional District of Region IV-A, CALABARZON. One district per cluster was chosen as the respondent school. Using a fishbowl technique, the researcher chose three respondent schools, preferably one large, one medium, and one small school, totaling 12 schools as the respondent.

The researcher selected these schools to help future school heads and current school leaders become more proficient in planning, implementing, monitoring and evaluating, and adjusting plans. Also, this would help them develop the skills necessary to carry out the School Implementation Plan in their district. Further, this will enable school administrators to carry out their responsibilities with more efficiency and effectiveness.

Research Population and Sample

The respondents of this study were the 225 teachers and 12 school heads in the selected schools in the Third Congressional District of Quezon using grouping techniques according to cluster. They were chosen as the respondents of the study because they are the primary implementors of the school programs and activities. The teachers are knowledgeable about the four aspects of the SIP process, especially the planning stage in which they are involved. In monitoring and evaluation, they are also aware of the needs to be evaluated, the status of implementation, and the need for plans and future adjustments. In addition to that, teachers, as part of the team members in SIP, can provide concrete and current practices for their school in SIP.

The school heads were also included as respondents since they are the leaders and the managers of the SIP in their respective stations. They are known to forecast, be hands-on during the process, observe and monitor, conduct evaluations, and make plans. With their expertise and strategic planning, they would come out into an efficient SIP.

Research Instrument

This study used a comprehensive checklist questionnaire to determine the school heads' level of management practices on SIP in terms of planning, implementing, monitoring and evaluation, and adjusting plans. Each parameter in the SIP management practices comprised eight to fourteen self-made statements based on readings. The researcher also included all the current practices made in SIP, which is also based on the different kinds of literature and studies gathered.

Part I of the questionnaire includes the profile of the respondents in terms of size (small, medium, large), location (central, non-central), and title of the school heads (teacher-in-charge, head teacher, principal). Meanwhile, part II includes the level of management practices in the SIP in terms of planning, implementing, monitoring and evaluation, and adjusting plans of school heads as assessed by the teachers and the school heads themselves.

Another set of questionnaires for school heads includes the qualitative part. Five sets of questions were asked regarding the challenges encountered in implementing management practices and the coping strategies they employed to address these challenges. This was done through an interview guide. The research consists of questions dealing with planning, implementing, monitoring, and evaluation, as well as plan adjustments for crafting the questions.

Since the instrument was a self-made questionnaire, it underwent validation by three education program supervisors. Their suggestions were considered for modification, rephrasing, and deletion of some items. For content validation, 20 non-participant teachers from Macalelon District were asked to pilot test the instrument. The participants identified the words that were challenging to understand, so the researcher replaced these vocabularies with laypeople's terms. To ensure comprehensibility, the perceived unfamiliar words were modified, and complex sentence structures were rephrased and made concise. Likewise, the questionnaire underwent further validation. Thus, the responses were considered to confirm that the questionnaire was valid and ready for actual administration.

Data Gathering Procedure

The researcher sought permission first by sending letters to the public-school district supervisors of selected districts in the Third Congressional District of Quezon asking for their consent to conduct surveys, administer the questionnaire to the respondents, and obtain the data and information needed to conduct this research. Upon approval of the request, questionnaires on SIP management practices were distributed to the chosen respondents for their assessment and answers. After retrieving the questionnaire, the researcher tabulated, analyzed, solved, and interpreted the data with the help of the researcher's statistician, adviser, and other experts in the field.

Statistical Treatment of Data

The collected data from the respondents were tallied and presented in a matrix. The variables for evaluation of SIP management practices were computed and analyzed using frequency, percentage, mean, and standard deviation.

The scale below was used for the analysis of the data gathered.

Weight	Range Scale	Qualitative Description
5	4.21-5.00	Very Highly Practiced (VHP)
4	3.41-4.20	Highly Practiced (HP)
3	2.61-3.40	Moderately Practiced (P)
2	1.81-2.60	Minimally Practiced (MP)
1	1.00-1.80	Not Practiced (NP)

To find out the significant difference in the level of management practice in the school improvement plan when the respondents were grouped according to their school profile, T-Test and One-Way ANOVA were used.

Scope and Delimitations of the Study

The study was confined to the management practices of school heads in the implementation of School Improvement Plan, which was limited to planning, implementing, monitoring, evaluation, and adjusting plans. Also, the study revealed and analyzed the significant difference in management practices when respondents were grouped according to their school profile. Further, the results gathered would serve as the basis for SIP Management Framework as the output of the study. The study was conducted in public elementary schools in the third Congressional district of Quezon Province, where the respondents were teachers and school heads of 12 selected schools. The timeframe of the study was the School Year 2022-2023. It further assessed the current implementation of SIP and the school's plan for SIP.

RESULTS

Part I. Profile of the School

Profile of the School in Terms of School Size, Geographic Location, and Title of the School Head

Profile	Category	Frequency	Percent
School SIze	Large	4	33.33
	Medium	4	33.33
	Small	4	33.33
Total		12	99.9%
Geographic Location	Central	4	33.33
	Non-Central	8	66.66
Total		12	99.9%
Title of the School Head	Principal	4	33.33
	Head Teacher	4	33.33
	Teacher-in-Charge	4	33.33
Total		12	99.9%

Part II. Level of Management Practices in the Implementation of School Improvement Plan as Assessed by the School Heads and Teachers

Table 3 shows the level of management practices in the implementation of the School Improvement Plan (SIP) of school heads in terms of planning.

Table 3

Level of Management Practices in the implementation of School Improvement Plan in Terms of Planning

Indicators	School Heads		Teachers		Combined Mean		
	Mean	VI	Mean	VI	Mean	SD	VI
1. Looks for the previous data to be able to identify the Priority Improvement Areas.	4.04	HP	3.17	MOP	4.00	0.715	HP
2. Collects, reviews, and uses information for goal setting.	4.02	HP	3.00	MOP	4.00	0.740	HP
3. Collaborates and works with the school planning team in regard to priority projects and programs.	4.04	HP	3.25	MOP	4.00	0.750	HP
4. Uses varied assessment tools in identifying priority areas for improvement.	4.00	HP	3.34	MOP	4.00	0.752	HP
5. Analyzes the gathered data and make interpretations for programs and project adjustments.	4.00	HP	3.42	HP	4.00	0.752	HP
6. Finds out and report on the status based on the gathered data.	4.03	HP	3.34	MOP	4.00	0.735	HP
7. Uses the data on assessment in the planning process.	4.00	HP	3.34	MOP	4.00	0.708	HP
8. Leads the planning process.	4.01	HP	3.17	MOP	4.00	0.763	HP
9. Involves objective setting and determining a course of action.	3.97	HP	3.09	MOP	4.00	0.754	HP
10. Consults the school planning team in prioritizing programs and projects to be implemented.	3.98	HP	3.25	MOP	4.00	0.771	HP
11. Accepts suggestions from subordinates for maximizing the desired outcome.	3.93	HP	3.34	MOP	4.00	0.785	HP
12. Works collaboratively with teachers, parents, learners, and stakeholders during the planning process.	3.92	HP	3.17	MOP	4.00	0.883	HP

13. Creates a school improvement plan based on the identified problems and intervention.	3.90	HP	3.25	MOP	4.00	0.801	HP
14. Considers the environmental and other essential factors in crafting the plan.	3.88	HP	3.34	MOP	4.00	0.790	HP
Composite Mean	**3.98**	**HP**	**3.25**	**MOP**	**4.00**	**0.760**	**HP**

Legend: *4.20 - 5.00 Very Highly Practiced (VHP), 3.40 - 4.19 Highly Practiced (HP), 2.60 - 3.39 Moderately Practiced (MOP), 1.80 - 2.59 Minimally Practiced (MIP), 1.00 - 1.79 Not Practiced (NP), Standard Deviation (SD), Verbal Interpretation (VI)*

Table 4 presents the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of Implementing

Table 4

Level of Management Practices in the Implementation School Improvement Plan in Terms of Implementing

Indicators	School Heads		Teachers		Combined Mean		
	Mean	VI	Mean	VI	Mean	SD	VI
1. Implements the formulated school-based policies, rules, and procedures for continuous improvement of the school.	3.93	HP	3.25	MOP	4.00	0.770	HP
2. Involves community stakeholders In the implementation of programs, projects, and activities of the school.	3.94	HP	3.50	HP	4.00	0.768	HP
3. Executes programs, projects or delivery of services in support of the SIP/AIP.	3.94	HP	3.34	MOP	4.00	0.789	HP
4. Utilizes both human and material resources wisely.	3.95	HP	3.42	HP	4.00	0.775	HP
5. Provides assistance, guidance, and directions to the school planning team.	3.93	HP	3.50	HP	4.00	0.778	HP
6. Gives feedback to the school community for the betterment of the implementation.	3.92	HP	3.42	HP	4.00	0.801	HP
7. Adjusts program/ project/activity to meet the school target.	3.90	HP	3.50	HP	4.00	0.769	HP

8. Uses pilot-tested solutions using a small population before the application to the entire population.	3.86	HP	3.25	MOP	4.00	0.811	HP
Composite Mean	**3.92**	**HP**	**3.40**	**HP**	**4.00**	**0.78**	**HP**

Legend: *4.20 - 5.00 Very Highly Practiced (VHP), 3.40 - 4.19 Highly Practiced (HP), 2.60 - 3.39 Moderately Practiced (MOP), 1.80 - 2.59 Minimally Practiced (MIP), 1.00 - 1.79 Not Practiced (NP), Standard Deviation (SD), Verbal Interpretation (VI)*

Table 5 displays data on the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of monitoring and evaluation.

Table 5

Level of Management Practices in the implementation of School Improvement Plan in Terms of Monitoring and Evaluation

Indicators	School Heads		Teachers		Combined Mean		
	Mean	VI	Mean	VI	Mean	SD	VI
1. Conducts monthly monitoring and evaluation of different programs and projects.	3.83	HP	3.09	MOP	3.00	0.816	MOP
2. Identifies hindrances to effective implementation of the projects through Brainstorming with school planning Team.	3.90	HP	3.09	MOP	3.00	0.821	HP
3. Listens to the voice of the customer (pupils, parents, and stakeholders).	3.9	HP	3.42	HP	4.00	0.797	HP
4. Provides assessment tools for teachers to identify areas for improvement.	3.9	HP	3.25	MOP	4.00	0.808	HP
5. Uses varied assessment tools in identifying priority areas for improvement.	3.96	HP	3.5	HP	4.00	0.781	HP
6. Reviews and assesses whether the strategies used have been effective in pursuing the goals using the data gathered.	3.92	HP	3.42	HP	4.00	0.793	HP
7. Makes necessary adjustments to the activities to achieve the target.	3.96	HP	3.34	MOP	4.00	0.744	HP
8. Revises program/ project/ activities based on reliable data.	4.00	HP	3.34	MOP	4.00	0.767	HP
9. Involves teachers, pupil	4.03	HP	3.25	MOP	4.00	0.753	HP

representatives, the school planning team and stakeholders in the monitoring and evaluation process.							
10. Informs the parents, pupils, stakeholders, and representatives from the community on the status of the school through school report cards.	3.95	HP	3.75	MOP	4.00	0.773	HP
Composite Mean	**3.94**	**HP**	**3.35**	**MOP**	**3.80**	**0.790**	**HP**

Table 6 presents data on the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of adjusting plans.

Table 6

Level of Management Practices in the implementation of School Improvement Plan in Terms of Adjusting Plans

Indicators	School Heads		Teachers		Combined Mean		
	Mean	VI	Mean	VI	Mean	SD	VI
1.Assesses the existing data to identify the priority improvement areas.	3.98	HP	3.59	HP	4.00	0.769	HP
2. Check the progress of the school's programs/projects /activities used.	3.96	HP	3.59	HP	4.00	0.790	HP
3. Analyzes the impact of solutions that had been used for the plan adjustments.	3.96	HP	3.42	HP	4.00	0.758	HP
4. Collaborates with the school planning team in analyzing the effectiveness of programs/ projects/ activities used.	3.94	HP	3.67	HP	4.00	0.754	HP
5. Finds the root cause of the problems by listening to the voices of learners (learners, parents, stakeholders).	3.96	HP	3.25	MOP	4.00	0.804	HP
6. Considers the existing data in crafting the adjusted annual implementation plan.	3.97	HP	3.34	MOP	4.00	0.750	HP
7. Uses the collected data in formulating new programs/projects/activities.	3.96	HP	3.5	HP	4.00	0.753	HP
8. Make necessary adjustments to the strategies/techniques to be used in the realization of the plan.	3.95	HP	3.5	HP	4.00	0.775	HP
9. Crafts annual implementation plan together with the school planning team. 10. Consider the suggestions of the school planning team in the revisions/ adjustments of programs/projects/ activities	3.95	HP	3.25	MOP	4.00	0.787	HP
Composite Mean	3.95	HP	3.45	HP	4.00	0.770	HP

Legend: 1.00 - 1.79 Not Practiced (NP), 1.80 - 2.59 Minimally Practiced (MIP), 2.60 - 3.39 Moderately Practiced (MOP), 3.40 - 4.19 Highly Practiced (HP), 4.20 - 5.00 Very Highly Practiced (VHP)

Part III. Level of Management Practices in the Implementation of School Improvement Plan When Grouped According to School Profile

The following statistical table shows a significant difference in the level of management practices in the implementation of School Improvement Plan of school heads when grouped according to profile.

Table 7 shows that the difference in the level of management practices when the respondents are grouped into profiles is not statistically significant (p = .894, .990, .742, .681, .785, .681, .878, .878, .822, .878, .655, .778, .655 > .05).

Table 7

Significant Difference in the Level of Management Practices in the Implementation of School Improvement Plan When Grouped According to School Profile

Management Practices	Profile Variables	p-value	Interpretation	Decision
Planning	School Size	0.894	not significant	do not reject Ho
	Geographic Location	0.990		
	Title of School Head	0.742		
Implementing	School Size	0.681		
	Geographic Location	0.785		
	Title of School Head	0.681		
Monitoring and Evaluation	School Size	0.878		
	Geographic Location	0.822		
	Title of School Head	0.878		
Adjusting Plans	School Size	0.655		
	Geographic Location	0.778		
	Title of School Head	0.655		

Part IV. Challenges Encountered in the Implementation of Management Practices.

Figure 3 shows the themes generated from the interview with the school heads regarding the challenges they encountered in the implementation of management practices in terms of planning the School Improvement Plan (SIP).

Figure 3
Challenges in Planning School Improvement Plan

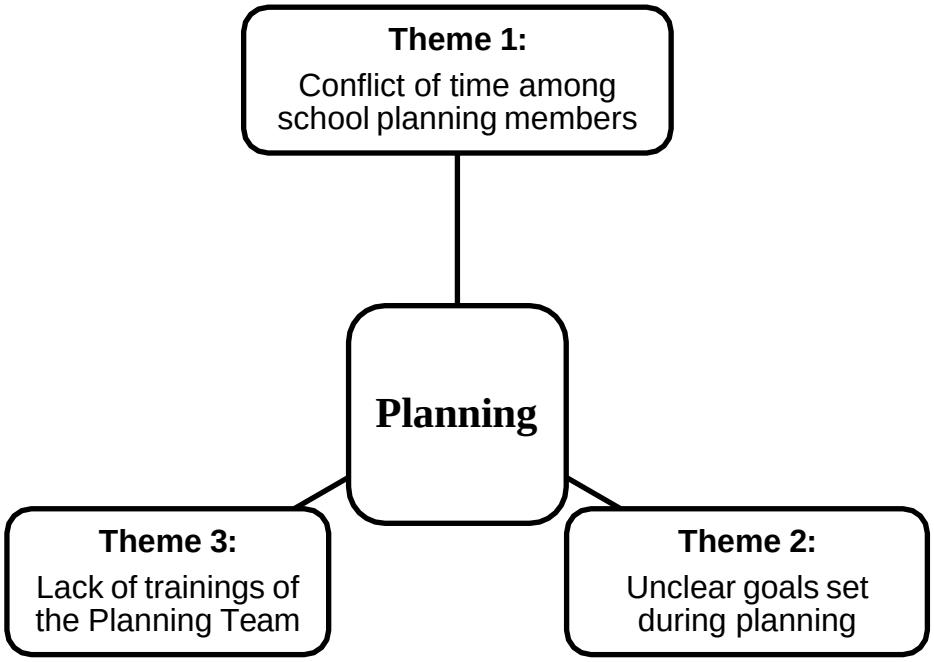


Figure 4 shows the themes regarding the challenges the school heads encountered in implementing management practices in terms of the SIP.

Figure 4
Challenges in Implementing a School Improvement Plan

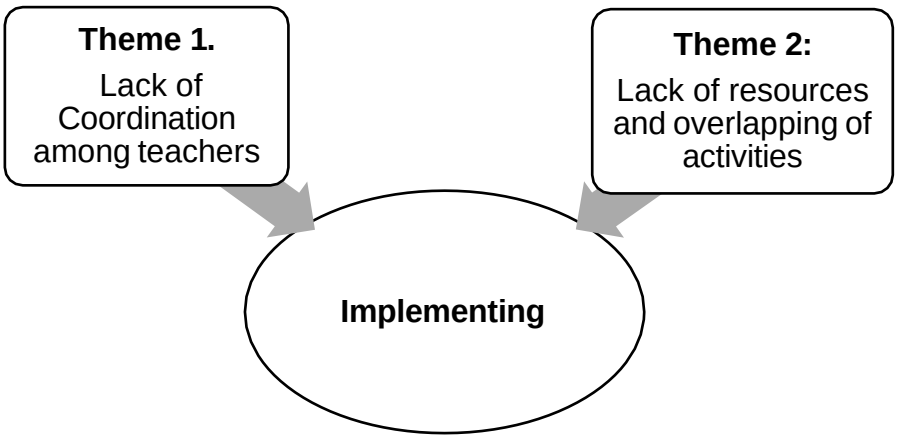


Figure 5 displays the themes regarding the challenges the school heads encountered in monitoring and evaluating the SIP.

Figure 5
Challenges in Monitoring and Evaluation of School Improvement Plan

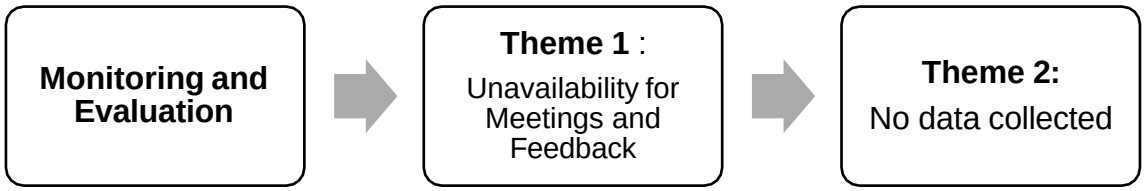
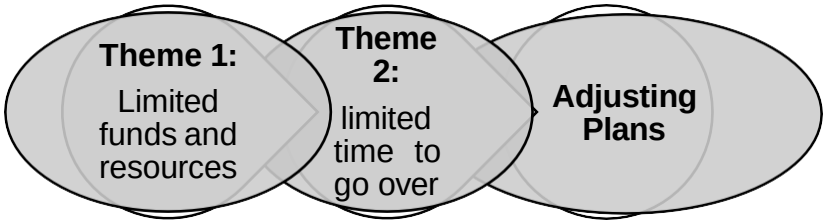


Figure 6 shows the themes regarding the challenges the school heads encountered in plan adjustment of the SIP.

Figure 6
Challenges in Adjusting Plans of School Improvement Plan



Part V. Coping Strategies Employed by the Respondents to Address the Challenges Encountered

Figure 7 presents the thematic analysis of the coping strategies the school heads employed to address the challenges they encountered in planning the School Improvement Plan (SIP).

Figure 7
Coping Strategies in Planning School Improvement Plan

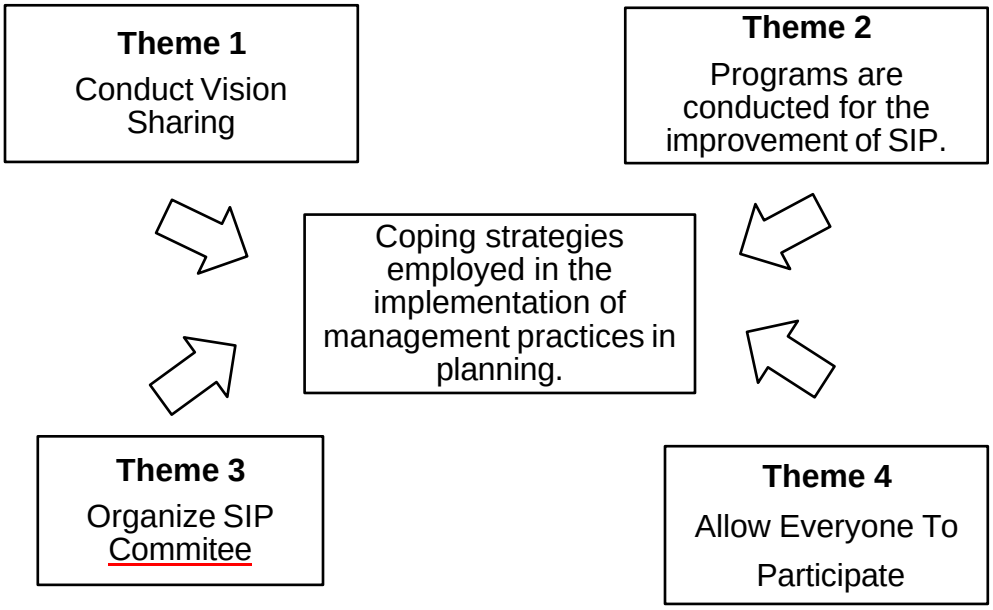


Figure 8 shows the themes of the coping strategies the school heads employed in implementing the SIP.

Figure 8
Coping Strategies in Implementing of School Improvement Plan

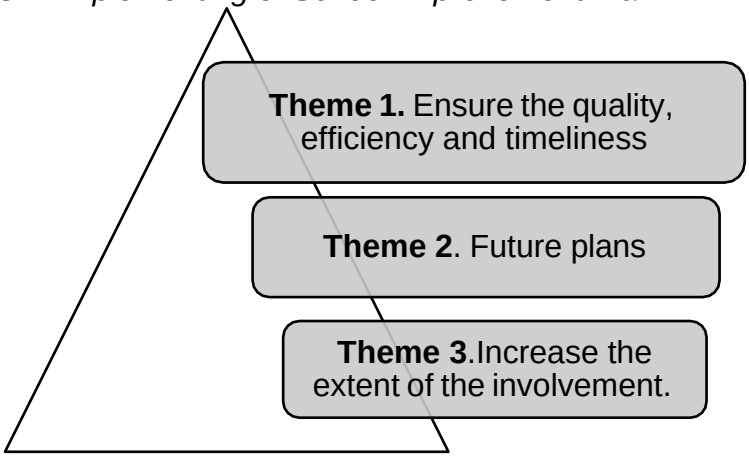


Figure 9 displays the themes of the coping strategies the school heads employed in monitoring and evaluating the SIP.

Figure 9
Coping Strategies in Monitoring and Evaluating the School Improvement Plan

Figure 10 shows the themes of the coping strategies the school heads employed in plan adjustment of the SIP.

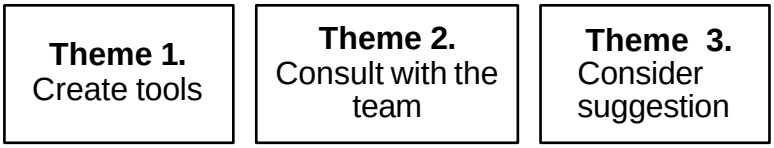
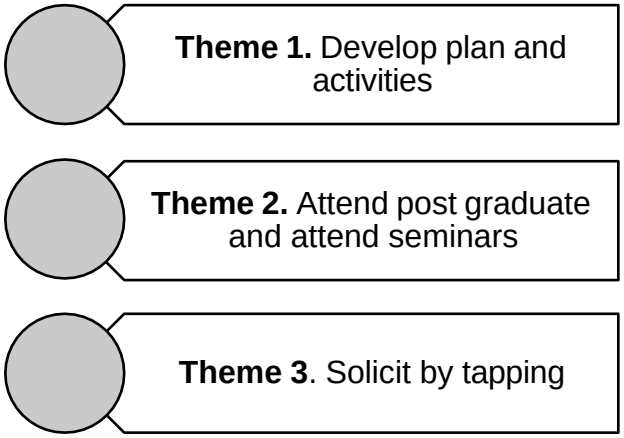


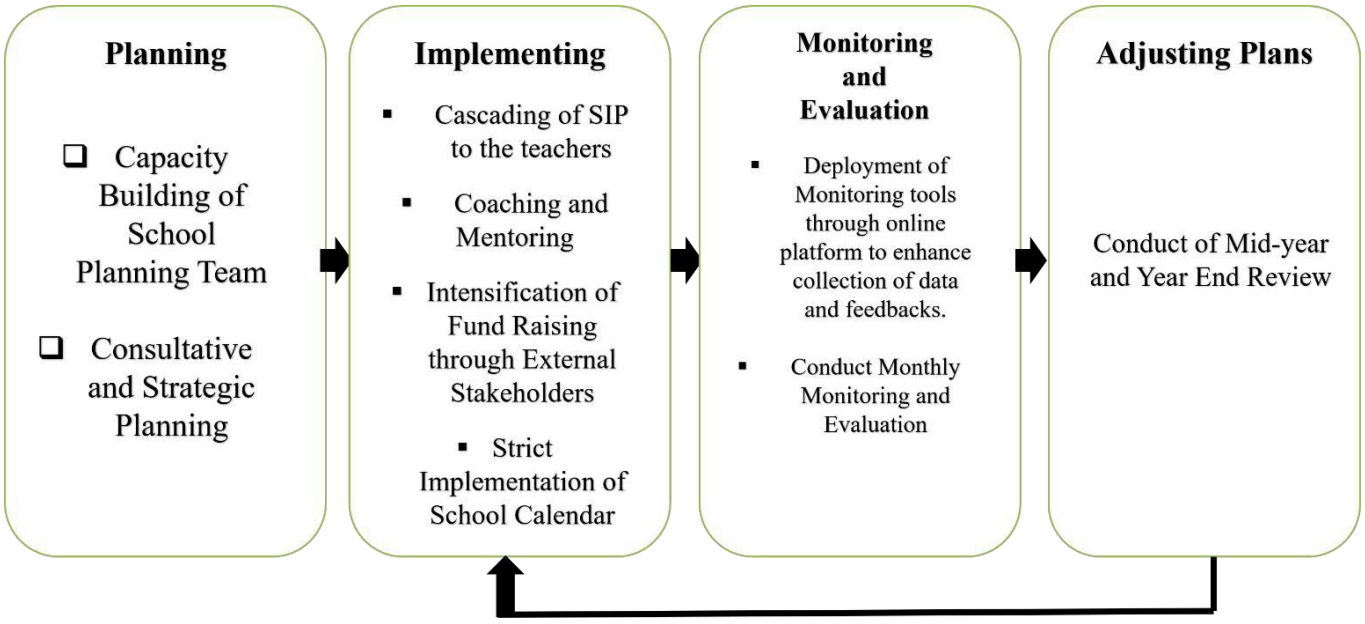
Figure 10
Coping Strategies in Adjusting Plans of the School Improvement Plan



Part V. Proposed SIP Management Framework

The following figure shows the proposed SIP management framework.

Figure 11
SIP Management Framework



DISCUSSION

Part I. Profile of the School

Table 2

Profile of the School in Terms of Size, Location, and Title of the School Head

Table 2 shows the school profile of the respondents in terms of the size, location, and title of the school heads. In terms of size, the schools represent an equal population for each school size with a frequency of 4 or 33.33% per category. This is aligned with the DepEd Memorandum No. 47, series 2017, which states that schools shall be categorized as small, medium, large, and mega based on the number of teachers.

Meanwhile, the data for location shows that 4 or 33.33% belong to central schools, while 8 or 66.66% belong to non-central schools. This implies that most of the schools are in metropolitan areas of the town.

In terms of the title of the school heads, there is an equal number of principals, head teachers, and teachers-in-charge.

Part II. Level of Management Practices in the Implementation of School Improvement Plan as Assessed by the School Heads and Teachers

Table 3
Level of Management Practices in the Implementation of School Improvement Plan in Terms of Planning

Table 3 shows the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of planning. The general mean of 3.98 from school heads and 4.0 from teachers reveal that the school heads' management practices in planning are highly practiced. These data indicate a commendably high level of engagement in planning within the context of the SIP. It suggests that, on average, the surveyed administrators are actively and effectively participating in various planning activities to enhance the overall functioning of the school.

Planning is paramount in managing SIPs. It encompasses systematic processes, involves collaborative efforts, and aligns with assessment practices. Effective planning, backed by thorough assessment, sets the stage for strategic initiatives that drive educational institutions toward optimal outcomes. Collaboration among stakeholders and careful consideration of both content and process lenses enhance the efficacy of planning within the context of school improvement. Further, commencement planning empowers educational establishments to define their objectives and aspirations for enhancement with precision. By pinpointing specific benchmarks, schools channel their energies toward targeted domains requiring amelioration, such as academic performance, student engagement, or infrastructural advancement (Smith, 2018).

Table 4
Level of Management Practices in the Implementation of School Improvement Plan in Terms of Implementing

Table 4 presents the level of management practices in implementing of School Improvement Plan (SIP) of school heads in terms of implementing. With an average mean score of 3.92 from school heads and 3.4 from teachers, the level of management practices in terms of implementing is described as "highly practiced". This infers that the administrators demonstrate a solid commitment to effectively implementing the SIP and associated activities for continuous school improvement.

Among the statements, it is notable that statements 1, 3, and 8, respectively, fall within the "moderately practiced". This indicates a proactive approach to involving policies, delivery, and pilot testing in program implementation and adhering to formulated school-based policies, rules, and procedures to enhance the school's continuous growth. Moreover, this means that the administrators are effectively translating planning into practice. This level of management practice underscores the commitment to executing the SIP and engaging stakeholders during the implementation. This dedication lays a strong foundation for actualizing school improvement strategies. Overall, the administrators' engagement demonstrates a robust commitment to implementing the SIP, fostering continuous improvement within the school community.

These findings are in consonance with the study of Jasul (2013), which stated that program implementation is converged to direct and monitor the conduct of various activities. It can be done by providing guidance and directions to work teams in the performance of assigned tasks, ensuring work programs are accomplished as planned, and monitoring actual accomplishments vis-a-vis identified needs and planned activities.

Table 5

Level of Management Practices in the Implementation of School Improvement Plan in Terms of Monitoring and Evaluation

Table 5 displays data on the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of monitoring and evaluation. With an average mean score of 3.94 from the school heads and 3.35 from the teachers, the level of management practices in terms of monitoring and evaluation is categorized as "highly practiced" and "moderately practiced" respectively. This means that administrators demonstrate a solid commitment to effectively monitoring and evaluating the SIP's implementation and outcomes. Moreover, these data underscore administrators' dedication to involving teachers, pupil representatives, school planning teams, and stakeholders in the monitoring and evaluation process, as well as revising programs and projects based on reliable data to improve effectiveness. In addition, these reflect administrators' commitment to providing valuable feedback to the school community, making necessary adjustments to meet targets, and informing stakeholders about the school's status through report cards.

Despite this level of management practice, Statements 1, 2, 4, 8, and 9 show slightly lower mean scores from teachers, which fall under "moderately practiced". These scores indicate administrators' dedication to identifying hindrances, listening to the perspectives of pupils, parents, and stakeholders, and conducting comprehensive reviews to ensure the effectiveness of implemented strategies. This also implies that administrators have a solid commitment to monitoring and evaluating aspects of the SIP.

Although there were differing levels of management practices from school heads and teachers, the data still highlight their dedication to continuously assessing and enhancing the implementation of programs and projects. This commitment establishes a solid foundation for measuring the success of the SIP and ensuring ongoing improvement within the school community.

This aligns with the study of Williams (2021), who argued that monitoring and evaluation catalyze continuous improvement in school management. Their findings indicate that schools that actively monitor and evaluate their improvement plans are more likely to engage in reflective practices, adapt strategies, and foster a culture of learning and accountability.

Table 6

Level of Management Practices in the Implementation of School Improvement Plan in Terms of Adjusting Plans

Table 6 presents data on the level of management practices in the implementation of School Improvement Plan (SIP) of school heads in terms of adjusting plans. With an average mean score of 3.95 from school heads and 3.45 from teachers, the level of management practices in terms of plan adjustment is categorized as “highly practiced". This means that administrators demonstrate a solid commitment to effectively adjusting plans for continuous improvement. This also indicates their proactive approach to assessing existing data to identify priority improvement areas and regularly checking the progress of school programs, projects, and activities for effective plan adjustments. These data reflect administrators' consistent commitment to identifying the root causes of problems through listening to learners' perspectives, incorporating existing data into crafting adjusted annual implementation plans, using collected data to formulate new programs, and making necessary adjustments to strategies and techniques.

Moreover, the findings suggest that administrators are dedicated to the process of plan adjustments within the SIP framework. The "highly practiced” category across the statements underscore their commitment to continuously improving and adapting plans based on data and stakeholder input. This proactive approach establishes a solid foundation for flexibility and responsiveness within the school's improvement initiatives, ultimately contributing to a more effective and dynamic school environment.

Part III. Level of Management Practices in the Implementation of School Improvement Plan When Grouped According to School Profile

The following statistical table shows a significant difference in the level of management practices in the SIP of school heads when grouped according to profile.

Table 7

Significant Difference in the Level of Management Practices in the Implementation of School Improvement Plan When Grouped According to School Profile

Table 7 shows that the difference in the level of management practices in the implementation of School Improvement Plan when the respondents are grouped into profiles is not statistically significant (p = .894, .990, .742, .681, .785, .681, .878, .878, .822, .878,

.655, .778, .655 > .05). These findings illustrate that the respondents' responses do not differ when grouped according to school size, geographic location, and title of the school head.

School heads are mandated by policies and memoranda, which they follow from the top management down to the schools and school managers. Republic Act 9155 established the School Improvement Plan (SIP) as an integral part of the DepEd's School-Based Management approach. SIP is a strategic roadmap for educational change, focusing on improving student achievement through curriculum enhancement, positive learning environments, and increased parental involvement. SIP follows three phases—Assess, Plan, and Act—and involves collaboration among school personnel, the community, and stakeholders. Implementing SIP practices has been shown to contribute significantly to better student and school performance.

The effective execution of a School Improvement Plan (SIP) holds considerable significance for the success of educational institutions, with the implementation process playing a vital role in influencing the level of management practice within SIP management. Implementation involves translating the plan's goals into actionable steps, and its efficacy directly affects the achievement of intended outcomes and overall school performance. Effective leadership, resource availability, collaboration among stakeholders, and communication channels influence successful implementation. The alignment of management practices with the SIP's strategies, evidenced-based decision-making, progress monitoring, feedback provision, and adaptive adjustments contribute to refined management practices. This, in turn, enhances student achievement and school standing, creating a symbiotic relationship between successful implementation and improved management practices (Spillane et al., 2004)

Part IV. Challenges Encountered in the Implementation of Management Practices.
Figure 3
Challenges in Planning School Improvement Plan

Theme 1. Conflict of Time

Based on the interview with the school heads, they all claimed that one of the challenges they face is conflict of time. This is because of the different school programs and activities held in their school.

Theme 2. Unclear Goals

The school heads also admitted that identifying or measuring goals is the top most challenge. This is because they see rising challenges in SIP.

Theme 3. Lack of Training

The school heads also admitted during the interview that lack of training for teachers and other stakeholders is one of the challenges they experience.

This implies that most school heads consider involving people, the community, and stakeholders to be their main challenge. Planning with difficulty in involvement may lead to problems in crafting a good SIP.

Dabesa et al (2021) the studied on the SIP and some of the cited challenges were the there is a shortage of financial support, lack of awareness and lack of training among stakeholders. The results also indicate that there is lack of learning facilities and poor community participation. The study revealed poor management, poor community mobilization, and poor collaboration in SIP implementation**.**

Figure 4
Challenges in Implementing a School Improvement Plan

Theme 1. Lack of Coordination

Most of the school heads admitted that one of the challenges they encounter in implementing SIP is the lack of coordination among teachers. It is clear that most of them have the same level of agreement on how they encounter coordination as difficult to the internal and external partners since they need to tap different agencies.

Theme 2. Lack of Resources

Another challenge that they encounter is the lack of resources and overlapping of activities in school. This is because of the different programs that need to be administered. Meanwhile, they believe that overlapping reports also hinder their ability to outsource and have more efficient time.

This is aligned with the challenges in the implementing the SIP. Coburn and Penuel (2016), claimed to accentuate the pivotal role of robust collaborative cultures and effective communication channels in nurturing successful implementation. Effective implementation necessitates aligning management practices with the goals and strategies enshrined in the SIP. Lack of coordination with the stakeholders and problems on resources affects the SIP implementation. However different activities or overlapping of Activities could also affect the implementing activities, programs and projects in SIP.

Figure 5
Challenges in Monitoring and Evaluation of School Improvement Plan

Theme 1. Unavailability for Meetings and Feedback

According to the interview, most school heads acknowledged that their biggest difficulty in monitoring and evaluating SIP is gathering feedback from stakeholders through meetings. This implies that getting together with internal and external partners to get their input and program results could be challenging or may take a longer period.

Theme 2. No Data Collected

Gathering and processing data also presented difficulties for a few of the school administrators. For some of the school heads, gathering the data required for reporting and documentation presented additional difficulties. Compiling all the necessary information might have taken a while.

In terms of monitoring and evaluation Blackstein (2020) several factors can affect its effectiveness but M& E is highly influence by unavailability for meetings and feedback among the stakeholders. Lack of meetings and feedback during the M&E leads to no data collection for evaluation.

Figure 6

Challenges in Adjusting Plans of School Improvement Plan.

Theme 1. Limited Funds and Resources

Most of the school heads claimed that there were limited funds and resources to implement the adjusted plan. Aspects of SIP is resource generation. Most school heads struggle to decide where to get funds for the activities and programs. Because of targeted plans and programs, some other factors might not have been possible to anticipate during the planning. This may lead to challenges and difficulties that need plans and adjustments.

Theme 2. Limited Time to Go Over

Another challenge that most of the school heads mentioned was the limited time to go over the adjusted plan. This suggests that school heads may fail to consider certain demands while planning, resulting in plans and modifications that are crucial components of SIP.

Agra (2023) the Department of Education may provide training to school personnel as well as representatives from its stakeholders for effective adjusting of plans the SIP in all schools may form a school improvement committee, which will begin the process of developing a school improvement plan in which the major challenges are the availability of resources or limited resources and school heads limited time to go over and create strategies to attract stakeholders to extend appropriate financial support and generate income-generating projects to finance the school projects and programs, and all schools may encourage practical involvement of all stakeholders by raising awareness of the importance of SIP implementation.

Part V. Coping Strategies Employed by the Respondents to Address the Challenges Encountered

Figure 7
Coping Strategies in Planning School Improvement Plan

Theme 1. Conduct Vision Sharing

To cope up with the challenges encountered in planning SIP, most school heads conduct vision sharing with the stakeholders**.**

Theme 2. Conduct of Programs for the Improvement of SIP

Some of the school heads also claimed that they conduct programs for the improvement of SIP.

Theme 3. Organize SIP Committee

Some of the school heads also organize SIP committee to cope up with the challenges in the planning stage.

Theme 4. Allow Everyone to Participate

Some of the school heads believed that letting them be part of the programs and committee would help them cope also with the challenges.

Brown and Johnson (2020) claimed that implementing effective management practices within school improvement plans is crucial for achieving successful educational outcomes. As various studies have demonstrated, leadership qualities like vision sharing, conduct different programs for SIP and communication skills significantly impact the execution of improvement plans

Figure 8
Coping Strategies in the Implementation of School Improvement Plan

Theme 1. Ensure Quality, Efficiency, and Timeliness

The school heads believe that their coping strategies mainly ensure the quality, efficiency, and timeliness of the implementation of SIP.

Theme 2. Dissemination of the Student's Performance

Based on the interview, some of the school heads claimed that the dissemination of students' performance is essential.

Theme 3. Increase the Extent of the Involvement

During the interview, one school head claimed that increasing the extent of involvement is their way of coping.

The school head, alongside the project team, crafts an annual implementation plan derived from the SIP. This plan outlines strategies, learning activities, time frames,

responsible individuals, and resources needed to achieve set objectives for the school year (Luistro, 2015).

Figure 9
Coping Strategies in Monitoring and Evaluating the School Improvement Plan

Theme 1. Create Tools

The school heads were able to create tools to help with the programs and activities to cope with the needs and challenges in the SIP.

Theme 2. Consult with the Team

The school heads believe that they should conduct a consultation with the team.

Theme 3. Consider Suggestions

Some of the school heads consider suggestions.

In Monitoring and Evaluation Brown (2018) emphasized that in monitoring and evaluation it is a must to create tools that would help greatly the monitoring of SIP. They also need to consult with the team every time they needed and lastly all the suggestions of the members must consider.

Figure 10
Coping Strategies in Adjusting Plans of the School Improvement Plan

Theme 1. Develop Plan and Activities

For plan adjustment, the school heads mentioned that they try to cope with the challenges by developing plans and activities.

Theme 2. Attend Postgraduate and Attend Seminars

Meanwhile, some school heads claimed that they attend postgraduate and seminars to cope with the plan adjustments in SIP.

Theme 3. Solicit by Tapping

School heads admitted that some of them solicit ideas from stakeholders. Plans and adjustments are necessary for the implementation. These involve translating the plan's goals into actionable steps. Their efficacy directly affects the achievement of intended outcomes and overall school performance. Effective leadership, resource availability, collaboration among stakeholders, and communication channels influence successful implementation.

Adjusting plans according to Vangronigen (2023) emphasized that SIP focused more on developing SIPs plan and activities, SIP team should attend seminar to raising concerns about SIPs continuing to be enacted out of compliance by soliciting by tapping to the

stakeholders rather than as a mechanism for spurring and sustaining improvement efforts in schools

Part V. Proposed SIP Management Framework

The results presented in the previous parts serve as input for developing the SIP Management Framework. The framework deals with four areas: planning, implementing, monitoring and evaluation, and adjusting plans. The management framework will guide school heads, the school planning team, and teachers in developing SIPs for planning, implementing, monitoring, evaluating, and adjusting school activities for the whole school year. It is also intended to resolve issues or challenges encountered during the project's planning, implementation, monitoring, evaluation, and plan adjustment phases.

Summary of Findings

This part presents the summary of findings which provides a gist of the significant results of the study.

1. On the Profile of the School

1.1 In terms of School Size, the school represents an equal population for each school size with a frequency of 4 or 33.33% per category.

1.2 In terms of Geographic Location, it shows that 4 or 33.33% belong to central schools, while 8 or 66.66% belong to non-central schools. This implies that most of the school are in urban areas of the town.

1.3 In terms of Title of the School Head, there is an equal number of principals, head teachers and teachers-in-charge with a frequency of 4 or 33.33%.

2. *On the Level of management practices of School Heads in the implementation of School Improvement Plan as assessed by the teachers and the school heads.*

2.1 The findings showed that the level of management practices in the implementation of School Improvement Plan of school heads in terms planning was 3.98 from school heads and 4.0 from teachers reveal that the school head’s management practices are highly practiced. These data indicate a commendably high level of engagement in planning.

2.2 As to level of management practices in the implementation of school improvement plan of school heads in terms of implementing is describe as highly practiced with an average mean score of 3.92 from school heads and 3. 4 from teachers. This infers that administrators demonstrated a solid commitment to effectively implementing the SIP.

2.3 With regards to the level of management practices in the implementation of School Improvement Plan of school heads the monitoring and evaluation is categorized as highly practiced with an average mean score of 3.94 from the school heads and moderately practiced from the teachers with 3.35 with an average mean score. The administrators demonstrate a solid commitment to effectively monitors and evaluates the SIP's implementation and outcomes.

2.4 Concerning the level of management practices in the implementation of School Improvement Plan of school heads in adjusting plans the average mean scores of 3.95 from school heads and 3.45 from teachers it is categorized as highly practiced that administrators demonstrate solid commitment into effectively adjusting plans.

3. *On the Level of Management practices of School Heads in the Implementation of School Improvement Plan as assessed by the teachers and the school heads.*

The significant difference in the level of management practices in the implementation of SIP of school heads when grouped according to school profile is not statistically significant. The respondents' responses do not differ when grouped according to school size, geographic location, and title of the school heads variables.

4. *On the challenges encountered by the school heads in the Implementation of Management Practices*

The challenges encountered in the implementation of management practices were gathering persons involved in planning due to conflict of time, coordinating with the internal and external stakeholders to create a plan for priority of improvement, meeting with the stakeholders to collect feedback, and limited funds and resources to implement the adjusted plan.

5. *On the coping strategies employed by the school heads to address Challenges Encountered*

Teachers and School heads coping strategies to address the challenges encountered included conducting vision sharing with the stakeholders, ensuring quality, efficiency, and timeliness, creating localized monitoring and evaluation tools, and solving difficulties in the plan and adjustments. They claimed that they develop plans and activities to attract stakeholders.

6. A SIP Management Framework was proposed based on the findings of the study that is intended to resolve issues or challenges encountered during the project's planning, implementing, monitoring, evaluation, and adjusting plans phases.

Conclusions

1. The school profile of the respondents in terms of school size and title of the school heads are the same while in geographic location most of the respondents came from non-central schools.

2. The level of management practices of school heads in the implementation of School Improvement Plan assessed by the teachers and school heads in the congressional district in phases of planning, implementing, monitoring and evaluation; and adjusting plans was distinctively to have a high level of practice.
3. There is no significant difference in the level of management practices in the implementation of SIP of school heads when grouped according to school profile, thus the hypothesis is accepted.
4. However, challenges occur due to conflict of time, coordinating then collect feedback, and limited funds and resources.
5. On the other hand, the way of coping strategies is to have quality, efficiency, and timeliness, creating localized monitoring and evaluation tools, and solving difficulties in the plan and adjustments.
6. A SIP Management Framework that was made based from the results can be applied for school heads challenges in management practices.

Recommendations

Based on the conclusions drawn, the following are recommended:

1. Since then, the profile of the schools is coming from non-central schools with head teachers leading the schools. The head teacher may continue to intensify collaborations with stakeholders on their needs and weaknesses to improve their current skills.
2. The implementation of School Improvement Plan (SIP) management practices of school heads are highly practiced. They may intensively help the teachers and students through consistent communication and provide training designs that will further improve the school.
3. Continuous coordination of schools and school stakeholders must be practiced for the improvement of the SIP implementation.
4. School heads may create a learning atmosphere conducive to building a collaborative environment and setting shared goals to achieve a comprehensive and inclusive approach to instruction. School heads may prioritize monitoring and evaluation as components of technical assistance practices. Through monitoring tools, school heads can utilize regular observations, documented progress, and timely teacher feedback.
5. Future researchers may conduct further research and investigation to pinpoint strategies to enhance practices related to consistent technical assistance/staffing scheduling, creating a hospitable setting for teachers and students, designing activities that encourage project flow, and planning training for teacher development.
6. Other schools can apply, use, and benchmark a SIP management framework plan to improve the implementation of the SIP.

Compliance with Ethical Standards

The study applied ethical consideration primarily to protect the respondents. To adhere to promote the aims of the research imparting authentic knowledge, truth and prevention of error. Furthermore, following ethics enables to deal collaborative approach towards the study with the assistance of their peers, mentors and other contributors to the study (Chetty, 2016). The researcher assures to protect the respondents by maintaining kept the identity of the respondents and use only the data for the data gathering only.

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SCIENCE TEACHERS AS DESIGN THINKERS: THE CASE OF PUBLIC HIGH SCHOOL LEARNING RESOURCE WRITERS

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ABSTRACT

This study explores the integration of design thinking in the creation of science learning resources in public high schools, emphasizing a user-centric approach for innovative solutions to educational challenges. Through qualitative research, including interviews with science learning resource creators, the study identifies the processes, opportunities, and challenges of implementing design thinking. Findings suggest that design thinking fosters creativity, empathy, and an iterative process, enhancing the quality of science instruction and promoting 21st-century skills among students. However, challenges such as a lack of a well-articulated pedagogical framework and the need for teacher training in design thinking principles persist. The research contributes to educational discourse by offering insights into effective design-thinking applications and developing a design-thinking-based learning module as a practical tool for educators. This study holds significance for science learning resource writers, educators, policymakers, and students, highlighting the transformative potential of design thinking in science education amidst evolving educational landscapes.

Keywords: *21st-century skills, design thinking, educational challenges, educational policy, empathy in education, innovative solutions, iterative process, learning resources, pedagogical framework, science education, stakeholder feedback, teacher training, user-centric approach*

INTRODUCTION

Over the last two decades, the scholarly interest in Design Thinking has notably increased, with the Web of Knowledge database now listing over 180 articles on the subject (Fleury, 2016). Initially rooted in the practices of engineers and designers, Design Thinking has evolved into a critical educational focus (Hynes, 2012; Koh & Chai, 2016; Blundell, 2022). Its appeal lies in its user-centric approach, prioritizing the needs and viewpoints of individuals to foster innovative solutions for complex global issues (Razzouk & Shute, 2012; Fleury et al., 2016; Yurkofsky et al., 2020; Blundell, 2022). This emphasis on understanding and addressing user needs has broadened its application beyond traditional fields (Sun, Wang, & Hu, 2023).

For educators, design thinking emerges as a conduit for ceaseless professional enhancement (Henriksen, Richardson, & Mehta, 2017; Kyza & Nicolaidou, 2017; Noh & Karim, 2021; DeLuca et al., 2015; Koh, Chai & Lim, 2017; Lor, 2018; Arrington & Willox, 2021; Chai, 2018, 2021; Chiu et al., 2021; Blundell, 2022). This method posits that a medley of astute observation, empathy, brainstorming, and prototyping can beget innovative ideas finely tuned to both the contextual nuance and broader educational sphere (Aksela, M. 2019; Andino, C.I., 2017; Yurkofsky et al., 2020; Blundell, 2022).

A surplus of models and versions of design thinking has been intertwined into the broader scope of educational research (McFadden & Roehrig, 2017; Kelly, N., et al., 2019; English, Adams & King, 2020; Spoon et al., 2020; Yeh, Chan, & Hsu, 2021; Kim, 2021; Georgiev, 2012). Proponents argue that the approach leverages the inherent dynamic and complex relational facets of educational settings, thereby enabling educators to engage in sustained self-betterment (Chai, 2018; Stevenson et al., 2019; Yeh et al., 2021; Tualaulelei & Halse, 2021; Noh & Karim, 2021; Blundell, 2022). Nonetheless, design thinking still lacks a well-articulated pedagogical framework (Spoon, 2020).

This study sheds light on science learning resource creators in public high schools, a group that has been overlooked thus far. The aim is to contribute meaningful insights to the conversation on design thinking in pedagogical circles. The results of this study could provide valuable insights into how design thinking can be more effectively incorporated into the creation of learning resources, enhancing science instruction and promoting the development of 21st-century skills among students. Moreover, the resulting design-thinking-based learning module could be a practical tool for other educators aiming to integrate design thinking into their work.

Research Questions

This study focuses on science teachers who make learning materials in public high schools. This research looks at how these teachers can use design thinking, a way of solving problems by really understanding what people need, to improve what they are doing. With that said, the main goals for this study are as follows:

1. Describe the design thinking processes of science learning resource writers,

2. Identify the opportunities and challenges they encounter in implementing design thinking, and
3. Develop a learning module informed by the principles of design thinking.

METHODOLOGY

Research Design

The qualitative methodology underpinning this study is designed to gain a deep understanding of the complex nature of design thinking as it applies to science learning resource creation. This approach, suited for exploring rich, detailed insights into the participants' interpretations and interactions within their social contexts (Creswell, 2007), is interpretative and centered on the phenomenon it seeks to understand (Braun & Clarke, 2006). Qualitative research design is particularly adept at exploring "how" or "what" questions (Creswell, 2007), allowing for a broad, in-depth exploration into how design thinking is operationalized by science learning resource writers and how this impacts both pedagogical approaches and learning outcomes.

This study employs a qualitative design that does not seek to generalize findings but to provide a detailed understanding of a central phenomenon within a bounded context. As such, it aligns with the tradition of qualitative case studies, which prioritize the depth of understanding over breadth and are tailored to investigate the nuances and complexities of a specific instance or setting (Creswell, 2007). The chosen design facilitates an exploration into the lived experiences, challenges, and successes of individuals deeply engaged with design thinking in the creation of learning resources. By delving into these experiences, the study aims to uncover the intricacies of design thinking as it intersects with educational practices within the Junior High School science context.

Research Locale

The Department of Education’s Schools Division Office (DepEd SDO) in Quezon Province serves as a critical component of the local education system, dedicated to upholding and improving the standards of pedagogy and student learning. The researcher chose this division as the setting for the study due to its notable cadre of skilled learning resource writers who play a crucial role in developing educational content. The researcher’s location within the same province further influenced the choice, facilitating an immersive and thorough comprehension of the division's operations. These writers form an integral part o’ the research. Their significant contributions and experiences provide valuable insights into the educational landscape, thus enhancing the depth and quality of the study overall.

Population and Sampling

The study follows a case study strategy of inquiry, which typically involves an in-depth exploration of a central phenomenon within a bounded system or with a defined set of participants (Creswell, 2007). In this study, a purposive sampling strategy was

employed to select a focused group of participants who are uniquely positioned to provide in-depth insights into the use of design thinking in the creation of science learning resources. Five experienced science teachers and learning resource writers from the Schools Division Office in Quezon Province were chosen due to their extensive involvement in curriculum development and their practical experience with innovative educational strategies.

The choice to include only five participants aligns with the qualitative case study's emphasis on depth over breadth. Creswell (2007) suggests that qualitative research should include language that delimits the scope of participation, helping to define the parameters of the research study. In this case, the limitation to five participants allows for a comprehensive exploration of each participant's unique contributions and experiences as both science teachers and learning resource writers. This focused approach facilitates a detailed and nuanced understanding of the central phenomenon—design thinking in learning module development—within the specific context of Junior High School science education.

The selected participants represent a diverse range of experiences and backgrounds in science education. Each participant brings a unique perspective to the study, having been involved in various capacities ranging from classroom teaching to the development of educational resources. Their experiences are particularly relevant as they align closely with the study's aim to explore the application and impact of design thinking in educational resource development. The participants' direct involvement in these areas provides valuable practical insights, making their contributions critical to the depth and richness of the study. The choice of five participants is based on the qualitative nature of the study, where depth rather than breadth is prioritized. This number allows for comprehensive and detailed data collection from each participant, ensuring that the study can delve deeply into individual experiences and perspectives while remaining manageable and focused. The small sample size is conducive to a detailed thematic analysis, allowing for a thorough exploration of complex themes and nuances in the data.

It is acknowledged that the small sample size and the specific context of the study may limit the generalizability of the findings. However, the depth and richness of the data gathered from this purposive sample offer significant insights into the topic. Future research could expand on these findings by including a broader and more varied sample, potentially enhancing the generalizability of the results.

The sampling strategy is directly aligned with the research questions of the study. By focusing on participants who are actively engaged in both teaching and resource development, the study ensures that the data collected is directly relevant to understanding how design thinking is operationalized in the development of science learning resources and its potential impact on teaching and learning.

Instrumentation

The Interview Guide Questionnaire for Learning Resource Writers was developed and utilized by the researcher as part of the data collection process in this study. The researcher carefully designed this tool to align with the study's objectives. It aims to elicit

detailed responses on design thinking process, challenges, opportunities, and developing a learning module within the context of science learning resource creation. As a self-designed instrument, it allows the researcher to tailor the questions to the specific research context, thereby enhancing the relevance and depth of the data collected. This semi-structured questionnaire provides a framework for conducting the interviews while allowing participants to share their thoughts and experiences beyond the provided prompts, ensuring nuanced understanding of the research topic. Being the interviewer, the researcher can also clarify any uncertainties during the interview, allowing for more accurate and comprehensive data.

For Objective 1: Describe science learning resource writers' design thinking. The researcher designed questions 1.1 and 1.2 to probe into the participants' creative processes when they develop new learning resources. It includes how they identify student needs, iterate and refine their ideas, and handle changes or revisions. The answers to these questions will provide insights into their design thinking process and practices.

Under Objective 2: Elicit opportunities and challenges for science learning resource writers in design thinking, questions 2.1 and 2.2 explore the participants' experiences with the obstacles and advantages they encounter when applying design thinking in their work. Their responses will reveal the challenges they face, the opportunities they recognize, and their suggestions for improving the process of creating learning resources.

Finally, to address Objective 3: Develop a learning module following the design thinking process, the researcher formulated questions 3.1 and 3.2 to seek the participants' insights on the essential elements, techniques, or methods to include in a training module on resource creation. Their responses will be crucial in developing a learning module that is grounded in the real-world experiences of science learning resource writers.

To ensure reliability and validity of the instrument, it underwent a comprehensive validation process. The questionnaire was reviewed and validated by a panel of experts consisting of three Science Master Teachers, recognized for their extensive experience and expertise in the field of science education. Additionally, a Master Teacher specializing in Applied Linguistics evaluated the instrument to ensure the clarity, appropriateness, and linguistic precision of the questions. Furthermore, a Teacher-III, who is also a Registered Guidance Counselor, reviewed questionnaire. This inclusion added a valuable perspective on the instrument's ability to effectively capture the psychological and behavioral aspects relevant to the study. Their collective insights and feedback were instrumental in refining questionnaire, ensuring that it is robust, comprehensive, and aligned with the study's goals.

Based on the feedback received from these experts, revisions were made to the questionnaire to enhance its clarity, relevance, and effectiveness. The final version of the instrument thus represented well-considered balance between scientific rigor and practical applicability, tailored to capture the nuanced complexities of the research topic.

Data Gathering Procedure

Upon obtaining the approval of the research adviser, the researcher initiated the data-gathering procedure, which was rooted in ethical research practices. The process began with the researcher securing signed consent forms from the participants, who were identified through purposive sampling. The sample consisted of five learning resource writers from the DepEd Schools Division Office in Quezon, chosen for their relevant experience and expertise in science education and resource development.

The researcher conducted interviews online to accommodate convenience and accessibility for all participants while ensuring a conducive environment for open and detailed discussion. The semi-structured interview guide served as a roadmap during these interactions, promoting a focused yet flexible exploration of the study's objectives. With the participants' consent, all interviews were recorded to maintain the integrity and authenticity of the data.

After completing interviews, the researcher diligently transcribed the recordings, paying attention to capturing the nuances of the responses. While meticulous and time-consuming, this task ensured that the data was accurately documented for the next stage of the research process - data analysis. Through these steps, the researcher gathered rich, qualitative data necessary for the study while upholding the principles of research ethics and participant confidentiality.

Adhering to the highest ethical standards was paramount in this research, guided by the principles outlined in the American Psychological Association's Publication Manual (2019). Central to our approach was informed consent, ensuring that all participants were fully aware of the study's purpose, procedures, and their rights as participants. Participation was voluntary, with participants informed of their right to withdraw from the study at any point without facing any consequences. Confidentiality was rigorously maintained, with all identifiable information anonymized in the study's findings and data securely stored, accessible only to the research team. Moreover, the well-being and comfort of participants were prioritized throughout the research process, particularly during the data collection phase. This ethical framework not only safeguarded the participants but also reinforced the integrity and credibility of the research findings.

Data Analysis

In line with that of Creswell's recommendations for qualitative research, this study employed NVivo, a specialized software that supports the systematic qualitative data evaluation and interpretation (Creswell, 2007). Following the thematic analysis framework outlined by Braun & Clarke (2006), the study utilized NVivo to organize, code, and map out concepts, thereby facilitating a comprehensive understanding of the collected data.

At the outset, all interview transcriptions were imported into NVivo. This initial step allowed for an organized review of the data, enabling the researcher to become intimately familiar with the depth and breadth of the content. Creswell highlights the importance of such systematic organization of data in qualitative research, and NVivo provided the necessary tools for this phase of analysis (Creswell, 2007).

The generation of initial codes was then conducted within NVivo, allowing the researcher to tag meaningful sections of text systematically. Creswell notes that software like NVivo is crucial for coding, retrieving, building theories, and conducting analyses of the data in a qualitative study (Creswell, 2007). This coding process within NVivo aided in preliminary themes identification that captured intricacies of participants' experiences.

NVivo's advanced analysis capabilities were leveraged to refine these themes, ensuring they accurately represented participants' perspectives. This aligns with Creswell's (2007) approach to qualitative data analysis, where the researcher iteratively revisits and refines the data to ensure the themes' robustness and relevance.

The final stage of the analysis involved using NVivo to define and name the themes, with the software's modeling features helping to establish connections between them. The result was a set of clearly articulated themes that were both representative of the data and reflective of the central phenomenon under study.

To conclude the analysis, NVivo's reporting the features were used to extract, summarize, and present the data findings. These findings, rich with detailed descriptions and direct quotations from participants, were synthesized into the final report, providing an insightful narrative of the experiences of science learning resource writers engaged in design thinking. This thematic analysis, enhanced using NVivo and informed by Creswell's methodological guidance, offered a nuanced understanding of qualitative data, illuminating the complex dynamics at play in the context of the study.

RESULTS

Table 1: Design Process of Science Learning Resource

Question	Excerpt from Response	Themes
1.1 Can you describe the process you typically follow when creating a new science learning resource?	*P1: "I start by thinking about the learning goals and understanding the learner's needs..."*	Understanding Learner's Needs, Learning Goals Orientation
	P2: "Brainstorming is the first step, then I do research on how to make the topic interesting..."	Brainstorming, Research, Making Learning Engaging
	P3: "I start with identifying the key concepts, then designing activities..."	Key Concepts Identification, Activity Design
	P4: "I begin by identifying the specific learning objectives for the topic..."	Learning Objectives Focus

	P5: "I consider first the Most Essential Learning Competency (MELC)..."	Importance of Learning Competencies

Table 2: Dealing with Changes or Revisions

Question	Excerpt from Response	Themes
1.2 How do you deal with changes or revisions during the development of your resources?	*P1: "I try to be open to feedback and understand where it is coming from..."*	Openness to Feedback
	P2: "I usually get a lot of feedback, which I use to make changes..."	Use of Feedback for Revisions
	P3: "Revisions are inevitable. I ensure I have a systematic process for addressing them..."	Systematic Revision Process
	P4: "I'm very systematic when it comes to revisions. I divide the whole content into smaller parts..."	Partitioned Approach to Revisions
	P5: "I revise the module by part from beginning to end..."	Strategic Revision Process

Table 3: Challenges in Resource Creation

Question	Excerpt from Response	Themes
2.1 What are the main challenges you face when trying to innovate in your resource creation?	*P1: "Sometimes the curriculum can be a limitation..."*	Curriculum Limitations
	P2: "The biggest challenge is to make the resources interesting and engaging..."	Engaging Resource Creation Challenge
	P3: "One of the main challenges is incorporating technology..."	Incorporation of Technology
	P4: "The challenge lies in designing learning resources that align with both the learning objectives and students' needs..."	Aligning Learning Objectives and Students' Needs
	P5: "The main challenge I encounter during my resource creation was	Home-based Learning Challenge

	formulating activities for the lesson that is applicable at home setting..."	

Table 4: Opportunities and Benefits in Design Thinking

Question	Excerpt from Response	Themes
2.2 Can you share any opportunities or benefits you've experienced when applying design thinking in your work?	*P1: "Design thinking allows for greater creativity and innovation..."*	Greater Creativity, Innovation
	P2: "Design thinking helps me to put myself in the student's shoes..."	Empathy, Student-centric Approach
	P3: "Applying design thinking allows me to explore multiple possibilities..."	Exploration of Possibilities
	P4: "I've been able to create more personalized and effective learning resources..."	Personalized and Effective Learning Resources
	P5: "By applying design thinking, you are able to test your ideas and enables to generate more ideas beneficial to the learning process..."	Idea Testing, Generation of Beneficial Ideas

Table 5: Key Elements in Resource Creation Training

Question	Excerpt from Response	Themes
3.1 If you were to train other science teachers on resource creation, what key elements or steps would you include in that training?	*P1: "Understanding the students, brainstorming ideas, creating a draft, testing the resource, and making revisions..."*	Understanding Students, Brainstorming, Testing, Revisions
	P2: "Identifying learning objectives, doing research, creating a detailed plan..."	Learning Objectives Identification, Research, Planning
	P3: "The training should cover learning theory, understanding the learners' needs..."	Learning Theory, Understanding Learners' Needs
	P4: "The key elements I would focus on are needs assessment, understanding the curriculum..."	Needs Assessment, Understanding the Curriculum

	P5: "Brainstorming, Look for Reliable Resources, Planning Stage, Formulating modules with Higher Order Thinking Skills Questions..."	Brainstorming, Resource Reliability, Planning, Higher Order Thinking Skills

Table 6: Techniques or Methods for Resource Creation

Question	Excerpt from Response	Themes
3.2 Can you suggest any specific techniques or methods that should be part of a learning module on resource creation?	*P1: "Use of visual aids, simulations, and interactive elements..."*	Visual Aids, Simulations, Interactivity
	P2: "Interactive activities, assessments, use of multimedia..."	Interactive Activities, Assessments, Multimedia Use
	P3: "The learning module should include active learning strategies..."	Active Learning Strategies
	P4: "Methods like problem-based learning, case studies, and project-based learning..."	Problem-based Learning, Case Studies, Project-based Learning
	P5: "With the use of different activities and assessments, the students will have a deepening of their understanding..."	Variety of Activities, Assessments, Deep Understanding

DISCUSSION

Table1

Participant 1's approach to prioritizing learning goals and understanding learners' needs is pivotal to the design thinking process in education, reflecting a user-centered approach that aligns with principles outlined by Brown (2009). This is supported by recent findings suggesting that understanding the student perspective is a critical aspect of successful learning resource creation (Auditor & Mutya, 2022).

The brainstorming and research stages emphasized by Participant 2 are in line with the iterative nature of design thinking, where multiple ideas are generated and explored. This approach to making learning engaging is crucial, especially in the digital era where student engagement is a significant challenge (Lake et al., 2021).

Participant 3's method of identifying key concepts and designing activities resonates with the principles of active learning, a core component of design thinking in

education. The focus on activity design underscores the necessity of interactive and engaging educational materials (Lake et al., 2021).

Participant 4's focus on identifying specific learning objectives echoes the need for aligning educational resources with desired outcomes, a principle supported by the design thinking approach (Auditor & Mutya, 2022). This focus on learning objectives ensures that the resources are purposeful and meet educational standards.

The emphasis on learning competencies by Participant 5 aligns with the broader educational trend towards competency-based learning, a fundamental aspect of design thinking education, preparing students for complex real-world challenges (Lake et al., 2021).

The processes described by the participants illustrate a strong alignment with the principles of design thinking in education, wherein understanding the user, iterating on ideas, and creating engaging, competency-focused resources are paramount. This approach not only serves immediate educational needs but also prepares students for future challenges, thereby fulfilling education's dual role as a means of knowledge dissemination and a platform for skill development.

Table 2

Participant 1's embrace of feedback is a symbol of the creative and iterative process outlined by both previous discussion and the design thinking framework. This openness to feedback is a critical mechanism for *improvement*, reflecting the pedagogical commitment to fostering creativity and personalization in education (Barber et al., 2013; Liedtka & Ogilvie, 2011).

Participant 2's application of feedback for making changes is aligned with the responsive and adaptive approach advocated by Christensen et al. (2008), and the principle of iteration that lies at the heart of both design thinking and the active engagement of learners (Dam & Siang, 2020).

Participant 3's systematic revision process, Participant 4's partitioned approach to revisions, and Participant 5's end-to-end strategic revision process collectively embody the methodical, detail-oriented quality assurance and adaptability necessary for modern educational resource development. These methods reflect the iterative principles of design thinking and constructivist perspective, ensuring that learning resources remain relevant and responsive to the dynamic educational landscape (Carlgren, Rauth, & Elmquist, 2016; Luchs, Swan, & Griffin, 2016; Beckman & Barry, 2007).

Table 2 highlights the participants' dedication to quality and innovation in resource development. Their strategies are informed by both the principles of design thinking and the constructivist approach to education, demonstrating a commitment to continuous improvement, learner engagement, and preparation of students for a globalized and technologically advanced world. The integration of feedback, active learner involvement, and an iterative, non-linear approach to resource creation encapsulates the dynamism required in today's educational landscape, as participants act as "creative creators" within evolving framework of 21st-century skills and innovation (ACTRC, 2015; Serrat, 2010).

Table 3

Participant 1 finds curriculum limitations a significant barrier to innovation. The strictness and prescriptive nature of many curricular structures can impede incorporation of novel teaching methods and content, necessitating a balance between adhering to educational standards and embracing pedagogical innovation. Such constraints require educators to seek flexible and creative solutions to foster meaningful learning experiences, highlighting the need for curricular reform to accommodate contemporary educational demands (Schneider & Preckel, 2017; UNESCO, 2021).

Participant 2 stressed that creating resources engaging and interesting remains a central challenge, particularly in an era filled with digital distractions. Engaging students requires innovative educational resources that leverage both pedagogical insights and technological advancements. Research underscores the crucial role of digital innovation in transforming education by enhancing the quality and relevance of learning and improving educational governance (Herrington, Reeves, & Oliver, 2010; UNESCO, 2024).

For Participant 3, the COVID-19 pandemic has highlighted both opportunities and challenges in incorporating technology into educational settings. Educators have had to rapidly adapt to using various technologies, often without prior training, emphasizing the need for ongoing professional development in technological pedagogy. This adaptation underscores broader challenge of integrating technology in a way that enhances learning without overshadowing educational content (Bond et al., 2021; Kirkwood & Price, 2014).

Participant 4 said aligning learning objectives with students' needs is essential for successful educational innovation. This challenge involves designing resources that not only adhere to curricular goals but also cater to diverse student profiles and learning preferences. The alignment ensures that educational innovations are both pedagogically sound and personally relevant to students, highlighting the need for personalized education (Darling-Hammond, Zielezinski, & Goldman, 2014; UNESCO, 2021).

Lastly, Participant 5 shared that rapid shift to home-based learning has introduced new challenges in educational resource development. Educators have had to innovate to create resources suitable for at-home learning, which requires considering the unique contexts and constraints of the home environments. This shift underscores the growing importance of flexibility in educational resource creation to support remote learning (Bond et al., 2021; Trust & Whalen, 2020).

Table 4

Participant 1's experience that design thinking fosters greater creativity and innovation is supported by recent literature, which underscores the method's potential to unlock creative potential and drive innovative solutions in educational settings. Design thinking's iterative process, with its emphasis on ideation and prototyping, encourages educators to develop novel approaches to teaching and learning.

The emphasis on empathy and a student-centric approach, as Participant 2 claimed, aligns with the core principles of design thinking. This approach helps educators to understand the needs and perspectives of students, leading to the development of

resources that are more aligned with student needs (Henriksen, Richardson, & Mehta, 2017).

Participant 3's ability to explore multiple possibilities through design thinking is a testament to the methodology's capacity for fostering open-ended exploration of solutions. This flexible and explorative approach is essential for adapting to the complex and ever-changing landscape of education (Razzouk & Shute, 2012).

The creation of personalized and effective learning resources by Participant 4 through design thinking underscores the approach's potential for tailoring education to individual learner needs. This personalized approach is increasingly recognized as a crucial factor in effective education (Schneider & Preckel, 2017).

Participant 5's experience with testing ideas and generating beneficial ideas is reflective of design thinking's iterative nature. This process allows educators to prototype and refine ideas continuously, enhancing the learning process by ensuring that the final resources are both innovative and effective.

Table 5

Participant 1 emphasized training should begin with understanding students' needs and perspectives, followed by brainstorming ideas, creating drafts, testing resources, and making necessary revisions. This process is reflective of iterative and empathetic approach central to design thinking in education (Ladachart, Khamlarsai, & Phothong, 2022).

Participant 2 believed that identifying the clear learning objectives, conducting research, and creating detailed plans are crucial for resource creation. This structured approach aligns with the principles of backward design, ensuring that resources are goal-oriented and effective (Wiggins & McTighe, 1999).

Participant 3 shared that training must cover various learning theories and focus on understanding learners' needs, which is essential for developing pedagogically sound resources and tailored to diverse learners (Hattie & Donoghue, 2021).

Participant 4 said key elements should include a needs assessment and a thorough understanding of the curriculum. Training should emphasize the alignment of resources with curricular goals while also addressing the specific needs of the student population (Darling-Hammond et al., 2020).

Participant 5 reiterated that training should also include brainstorming sessions, strategies for finding reliable resources, planning stages, and formulating modules that incorporate higher-order thinking skills questions to promote deep learning (Anderson & Krathwohl, 2001).

In essence, participants' resource creation approach embodies the dual nature of Design Thinking, blending a mindset shift with a dynamic process (Carrol, 2014). This blend underpins the development of the learning resources, stimulating innovation, and enhancing teaching effectiveness.

Table 6

A learning module on resource creation should incorporate visual aids, simulations, and interactive elements to facilitate an immersive learning experience according to Participant 1. Visual aids can help conceptualize complex ideas, while simulations and interactive elements offer hands-on practice and engagement, aligning with the principles of multimedia learning (Mayer, 2020).

However, Participant 2 stated that techniques such as interactive activities, varied assessments, and the use of multimedia can significantly enhance the learning process. These methods cater to different learning styles and ensure that assessment is ongoing and multifaceted (Clark & Mayer, 2021).

Participant 3 believed that active learning strategies are crucial for resource creation module as they involve learners directly and encourage critical thinking and problem-solving. The techniques such as collaborative discussions, peer teaching, and reflective exercises can be particularly effective (Freeman et al., 2014).

Moreover, Participant 4 specified that incorporating problem-based learning, case studies, and project-based learning into resource creation modules can provide practical and contextual learning experiences. These methods encourage learners to apply theoretical knowledge to real-world problems (Bell, 2010).

Participant 5 said that a diverse range of activities and assessments can lead to a deeper understanding of the subject matter. By engaging students with various methods, they are more likely to internalize content and apply it effectively (Ambrose et al., 2010).

Therefore, the development and innovation of educational resources through design thinking offer a multifaceted approach that can significantly enhance teaching and learning experiences. From understanding and empathizing with students' needs to the practical application of brainstorming, testing, and revision processes, educators are empowered to create resources that are not only tailored to educational objectives but also resonate with diverse learner profiles. The integration of interactive elements, multimedia, and active learning strategies further underscores the shift towards a more dynamic, student-centered approach to education. Moreover, by incorporating methodologies such as problem-based learning and embedding higher-order thinking skills into resource creation, educators can foster deeper understanding and engagement among students. Collectively, these elements reflect a comprehensive model for teacher training in resource creation that is grounded in creativity, innovation, and a commitment to continuous improvement and adaptability in response to the evolving educational landscape.

Conclusions

The conclusion of this research study offers a nuanced synthesis of the design thinking process's significant implications within the realm of science education. It clarifies the challenges educators face, the iterative refinement essential for resource effectiveness, the manifold benefits of design thinking, and crucial recommendations for both training and resource creation techniques. This comprehensive analysis not only

mirrors the study's objectives but also projects a pathway for future educational practices and inquiries.

- **Educational Policy Implications:**

The identified challenges and the transformative potential of design thinking underscore the need for educational policies that foster innovation and adaptability. Policy changes should aim to provide educators with the flexibility to integrate design thinking principles, such as by enabling curriculum adjustments that accommodate new teaching methodologies and by supporting incorporation of technology in the classroom. Initiatives could include funding for design thinking training programs, incentives for schools that implement innovative teaching practices, and the development of platforms for sharing resources created through design thinking processes.

- **Connections to Educational Theories and Frameworks:**

The findings of this study align with constructivist learning theories, which posit that learners construct knowledge through experiences. Design thinking, with its emphasis on empathy and iterative learning, complements this by offering a structured yet flexible approach to creating educational experiences. Furthermore, SAMR model (Substitution, Augmentation, Modification, Redefinition) and the TPACK framework (Technological Pedagogical Content Knowledge), which guide technology integration in education, are enriched by design thinking's focus on creative problem-solving and user-centered design. This suggests that these frameworks can serve as a theoretical foundation for integrating design thinking into educational resource development (Puentedura, 2006; Mishra & Koehler, 2006).

- **The Role of Collaboration:**

While this study focused on individual experiences, the potential for collaboration in the design thinking process cannot be overstated. Collaboration among educators, administrators, and students can significantly enhance the resource creation process, fostering a culture of shared innovation and continuous improvement. This collective approach can lead to more diverse and effective educational resources, aligning with the collaborative nature of design thinking itself.

- **Long-term Implications for Teacher Training:**

Long-term implications for teacher education programs are profound. Integrating design thinking principles into teacher training curricula can prepare future educators to meet the challenges of modern classrooms with agility and creativity. Such training should not only focus on the mechanics of design thinking but also emphasize its philosophical underpinnings—creativity, empathy, and a willingness to embrace failure as a step towards innovation.

- **The Impact of Technology:**

The importance of technology integration identified in this study highlights the role of emerging technologies, such as artificial intelligence (AI), virtual and augmented reality (VR/AR), and educational apps, in facilitating design thinking process. These technologies can provide immersive and personalized learning experiences, further

advancing the capabilities of educators to create resources that are engaging, effective, and tailored to students' needs.

This study highlights the crucial role of design thinking in the development of educational practices, specifically in the creation of the science learning resources. By advocating for policy changes, fostering collaborative environments, improving teacher training programs, and utilizing technology, the education sector can incorporate the principles of design thinking to better navigate the complexities of modern-day education. These findings not only address the immediate results of the research but also set the foundation for future studies on the vast potential of design thinking in education.

Recommendations

Based on the thematic analysis and conclusions, the following recommendations are proposed:

1. **Refinement and Validation of the Learning Module:** The developed learning module, aiming to enhance teachers' abilities to employ Design Thinking in resource creation, represents a promising tool based on the study's findings. However, it's recommended that this module undergo further refinement and validation. The efficacy, acceptability, and utility of the module should be systematically assessed through pilot implementation, feedback collection, and subsequent iterations to improve its quality and relevance.
2. **Adopting Design Thinking in Resource Creation:** Encouraging the use of Design Thinking in the development of educational resources could foster creativity and innovation. It would also promote a learner-centric approach that could significantly improve learning materials engagement and effectiveness.
3. **Fostering Flexibility and Adaptability:** The educational context and learners' needs are continually evolving. As such, it is crucial to foster flexibility and adaptability in resource creation, allowing for the continual adjustments and refinement based on feedback and shifts in educational environment and needs.
4. **Nurturing Creativity and Innovation in Learners:** As the demand for these skills is high in modern workplace, educational resources should be designed to nurture creativity and innovation in learners. Nurturing could be achieved by incorporating problem-solving tasks and creative exercises in the learning materials.
5. **Emphasizing the Integration of Theory and Practice:** Incorporating experiential learning activities that integrate theory and practice could enhance the learning experience. These activities would also provide students with an opportunity to apply theoretical knowledge in practical contexts.
6. **Strengthening Alignment with 21st-Century Skills:** Educational resources should be designed to align with the 21st-Century Skills model, emphasizing critical thinking, creativity, problem-solving, and innovation. This alignment

would ensure the relevance of learning materials in an increasingly globalized and technologically advanced society.

7. **Creating Supportive Environment for Innovation:** Schools and educational institutions should create environment that encourages and supports innovative practices in resource creation. This environment could include providing the training, resources, and time for teachers to experiment and innovate.
8. **Embracing Technological Advancements:** Given rapid growth of technology and its integration into education, teachers should be encouraged and trained to leverage various technological tools in resource creation. This leverage could enhance the interactivity and engagement of learning materials.
9. **Training and Professional Development:** Training programs for teachers should be developed to equip them with the necessary skills and knowledge to create effective learning resources. These programs should cover Design Thinking principles, modern pedagogical approaches, and the use of technology in education.
10. **Collaboration and Sharing of Best Practices:** Encouraging collaboration among teachers and the sharing of best practices could enhance the quality and effectiveness of educational resources. Collaboration platforms could be established to facilitate this sharing and learning process.

It is strongly suggested that contemporary teaching techniques be employed in order to enhance educational materials, put learners' requirements first, and foster originality and inventiveness.

For future research in the area of resource creation and educational practices, the following recommendations are proposed:

1. **Evaluation of the Learning Module:** Future research should conduct a thorough evaluation of the learning module, focusing on its effectiveness in enhancing teachers' abilities to create innovative and engaging resources using Design Thinking. The assessment could be based on various factors such as teachers' feedback, students' engagement, learning outcomes, and usability and adaptability of the module in different educational contexts.
2. **Longitudinal Studies on Design Thinking Implementation:** In order to fully comprehend the effects of Design Thinking on educational resource development, further research could be conducted through longitudinal studies. These studies would allow for a deeper understanding of how this approach develops and changes in response to different contexts and needs over time.
3. **Comparative Studies across Different Education Systems:** Researchers could conduct comparative studies across different education systems or countries to gain insights into how cultural and systemic factors influence the application of Design Thinking and other innovative practices in resource creation.
4. **Impact of Technological Advancements:** Given the rapid technological advancements in the field of education, future studies could explore how emerging technologies, like artificial intelligence and augmented reality, can be integrated

into resource creation and how they influence student engagement and learning outcomes.

5. **Role of Teacher Training in Resource Creation:** Research could be conducted to understand the impact of teacher training programs on the quality of resources developed and the pedagogical practices employed. The effectiveness of different training approaches could also be evaluated.
6. **Student-Centric Approaches:** Further research could delve into the effectiveness of student-centric approaches in resource creation. Studies could assess the impact on student engagement, understanding, and learning outcomes when students are placed at the heart of resource design.
7. **Collaboration in Resource Creation:** Future research could explore the impact of collaboration among teachers, and possibly students, in resource creation. It would be valuable to understand how sharing ideas and practices influence the innovation and effectiveness of resources developed.
8. **Exploring Alternative Pedagogical Approaches:** Beyond Design Thinking, there are other pedagogical approaches, like Inquiry-Based Learning, that can influence resource creation. Future research could compare the effects of these different methodologies.

As the world rapidly evolves with new technologies and ways of learning, it is crucial for researchers to continuously explore and experiment with innovative methods for creating educational resources. By doing so, they can better understand how to cater to the dynamic needs of learners in today's fast-paced educational landscape. With a focus on efficiency and effectiveness, such research can lead to the development of more engaging and impactful learning materials, ultimately benefiting students and educators alike.

Compliance with Ethical Standards

Adhering to the highest ethical standards was paramount in this research, guided by the principles outlined in the American Psychological Association's Publication Manual (2019). Central to our approach was informed consent, ensuring that all participants were fully aware of the study's purpose, procedures, and their rights as participants. Participation was voluntary, with participants informed of their right to withdraw from the study at any point without facing any consequences. Confidentiality was rigorously maintained, with all identifiable information anonymized in the study's findings and data securely stored, accessible only to the research team. Moreover, the well-being and comfort of participants were prioritized throughout the research process, particularly during the data collection phase. This ethical framework not only safeguarded the participants but also reinforced the integrity and credibility of the research findings.

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SECURITY AND EMPLOYEE ENGAGEMENT: PREDICTORS OF THEIR LOYALTY IN THE LODGING INDUSTRY

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ABSTRACT

Understanding the interplay of security measures and employee engagement is vital for enhancing employee loyalty in the lodging industry. This study examines the influence of security and engagement on employee loyalty within Bukidnon's lodging establishments. Security is categorized into management, operational, and physical security, while employee loyalty includes both behavioral and attitudinal loyalty. A descriptive correlational research design was used to analyze data from 120 employees, employing a survey questionnaire based on the previous studies: Torralba and Ylagan (2021), Anichiti et al. (2021), and Ahla and Osac (2014) for hotel security, Narciso and Narciso (2022) for engagement, Dede and Sazkaya (2018) and Kolomiets (2016) for employee loyalty. Regression analysis assessed the influence of lodging security and engagement on employee loyalty. Findings reveal that employees generally rate security measures positively across various dimensions, including management, operational, and physical security. They also demonstrate very high levels of engagement in maintaining a secure environment, and behavioral and attitudinal loyalty. The analysis indicates that employees' positive assessment of security and engagement significantly influences their loyalty. Specifically, management and physical security have the strongest positive influence on employee loyalty, while operational security and employee engagement have less impact. The study recommends enhancing management, operational, and physical security and implementing initiatives to foster engagement to create a safer and more committed workforce. By implementing these recommendations, lodging establishments can create a more secure environment, enhancing employee loyalty. This contributes to the sustained success and competitiveness of Bukidnon's lodging industry.

Keywords: *Employee Engagement, Lodging Industry, Loyalty, Security*

INTRODUCTION

In the lodging industry, fostering employee loyalty is essential and is linked to two key factors: security and the level of engagement among employees. When the establishment implements effective security measures, it ensures everyone's safety and cultivates a positive workplace atmosphere. Employees who feel safe, engaged, and valued tend to be happier in their jobs, leading to better performance and directly impacting the service guests receive. Creating a work environment where security and engagement go hand in hand builds a strong team and fosters employee loyalty.

Ensuring safety among employees fosters a positive workplace atmosphere, enhancing their sense of security, engagement, and commitment to their work. Clifton (2023) noted that intensified security concerns must be addressed by proactively initiating and implementing safety and security planning as important parts of their operations. This proactive approach is essential for stimulating overall security measures and ensuring the well-being of both employees and guests, thereby promoting loyalty to the organization. Supporting this concept, Mazzetti and Schaufeli (2022) suggest that when employees feel secure and engaged, they exhibit greater job satisfaction and performance, resulting in enhanced service quality for guests. This emphasizes the critical connection between security and engagement, fostering a collaborative work environment that cultivates strong relationships among team members and nurtures long-term employee loyalty within the lodging industry.

There are several security issues encountered by the lodging industry within global, national, and even local contexts, that shed light on the critical importance of the conduct of this study. This is demonstrated by two recent high-profile security incidents: the Ivory Coast hotel hostage crisis 2023 of Ivory Coast, West Africa, in which terrorists kidnapped numerous guests before their capture by local police forces (BBC NEWS, 2016), and the Davao City, Philippines, bombing event in 2022 that attacked a hotel, caused multiple injuries, and heightened regional security concerns (BBC NEWS, 2016). In the local context of this study, incidents ranging from theft and vandalism to terrorism and cyber-attacks highlight the need for vigilance and effective security measures. These events serve as reminders of the challenges lodging industry faces at all levels (Visnov, 2024).

Numerous studies have examined the connection between security and employee engagement and their effect on loyalty in the lodging sector (Agaku et al., 2020). Nonetheless, a substantial gap exists in the literature, especially when it comes to investigating the connection between several security facets—operational, physical, and managerial security—and employee engagement. However, very little is known about how these variables affect behavioral and attitudinal loyalty in the specific setting of Bukidnon's lodging sector. To respond to this gap, this study will look into how, in this particular regional context, extensive security and employee engagement measures influence loyalty.

Framework

This study assumed that lodging establishments with strong security protocols—which include management, operational, and physical security—as well as a focus on employee engagement, would exhibit significantly higher levels of employee loyalty. Furthermore, by ensuring a secure and engaging work environment, these establishments are likely to foster trust and commitment among their employees, leading to increased employee loyalty. This assumption is anchored on the Theory of Social Exchange by George Homans (1961).

Social Exchange Theory suggests that when people interact, they aim to gain mutual benefits. In the context of the lodging industry, there's an implicit agreement between the establishment and its employees. When an establishment puts effort into strengthening its security and fostering positive employee engagement, employees perceive this as a distinct advantage. This sense of security not only makes employees feel safer but also instills a greater desire to work, thereby enhancing their loyalty towards the organization. This sense of security not only makes employees feel safer but also instills a greater desire to work, thereby enhancing their loyalty towards the establishment.

The studies of Abdul Majid and Samsudin (2017) have underscored that strengthening security measures in the lodging sector increases employees' sense of safety and fosters loyalty to the organization. Employees gain from this sense of stability, which fosters commitment and loyalty. The mutually reinforcing nature of these exchanges, based on SET principles, provides the foundation for comprehending how security and employee engagement work together to foster organizational loyalty in the hotel sector. The investigation of how these categories interact and affect employee attitudes and behaviors—which in turn shape the performance and atmosphere of the organization—is guided by this theoretical framework. The findings from Srinivasan's study add to the ongoing discussions about security in lodging establishments, confirming that addressing security concerns is essential for keeping employees loyal. These studies highlight that both physical and psychological security play a big role in making employees feel loyal.

Within the hospitality industry, lodging security has a big impact on employee loyalty. Employees are immediately affected by the security measures in their everyday work environment in addition to being in charge of putting them into place. According to research, when employees feel valued and engaged at work, they are more likely to feel safe and secure, which raises job satisfaction and loyalty levels. Successful security procedures may provide employees confidence and trust by assuring them that the organization values their safety. According to Morch (2022), one important thing is that security should cover more than just protecting things like equipment. Now, employees see security measures as essential not only for keeping physical things safe but also for ensuring their own safety and well-being at work.

Several security measures substantially influence employee loyalty, such as management, operational, and physical security. Management security has a significant influence on employee loyalty. Elphick (2024) highlights that control protection is a key and vital part of the hospitality industry. Lodging establishments pay a lot of attention to

dealing with safety issues. Control safety is important for employee safety and property security, creating a secure and welcoming atmosphere that improves the overall work experience. Moreover, it shields the establishment's valuable assets, reducing financial risks and disruptions in operations.

Operational security is another dimension influencing employee commitment and loyalty. Conrad (2011) describes it as the application of controls to reduce threats and vulnerabilities, including the security of confidential information. This intricate area includes various procedures, guidelines, and methods to keep guests, employees, and property safe. Roar (2023) provides an essential insight into efficiently managing and implementing operational security in the lodging industry. Finally, physical security represents another crucial facet of security. Devoteam (2023) highlights the critical role of physical security as a safeguard for employees, facilities, and assets against real-world threats, whether internal or external. Cobb (2022) found that by implementing physical security measures, lodging establishments protect their employees and assets, from unauthorized access or physical actions that could result in damage or substantial losses, serving as a preventive measure against security breaches and threats in the physical space.

Employee engagement is another dynamic variable affecting employee loyalty. In security, employee engagement refers to the enthusiasm, devotion, and commitment of employees in maintaining a safe environment. This includes adherence to security procedures, alertness to risks, and participation in security awareness programs. According to Smith (2023), employee engagement encompasses not only the mental and emotional commitment of workers to their jobs but also their readiness to make contributions toward the organization's overall security objectives. Employees that are actively involved in security are more likely to display actions that improve security protocols, like promptly reporting suspicious activity, adhering to established protocols, and cooperating with security staff members. For this reason, employee engagement in security is essential to guaranteeing the effectiveness of security protocols and protecting both the safety of guests and employees.

The dependent variable, employee loyalty, refers to the steadfast commitment of hotel employees to their workplace. Employee loyalty is essential for maintaining an engaged and effective workforce, which influences service quality and guest satisfaction. Recent studies (Henry, 2023) indicate that employment satisfaction, organizational culture, and leadership effectiveness significantly influence employee loyalty. Workers who feel supported, respected, and valued by their employer are more likely to develop strong loyalty. Research by Cornell (2019) shows that employee loyalty can be divided into two key aspects: attitudinal loyalty and behavioral loyalty. It is crucial to understand how security and employee engagement contribute to both attitudinal and behavioral loyalty in the lodging industry.

Training employees is crucial for improving their behavior, particularly in security. Attitudinal loyalty, focusing on emotional commitment, highlights the role of trust in fostering positive attitudes toward security measures (Halbusi et al., 2023). Garcia et al. (2022) explore how job satisfaction relates to attitudinal loyalty.

Figure 1, on the next page, illustrates the intricate relationship among the variables examined in this study. The independent variable consists of two components: the first one includes the level of security, encompassing dimensions such as management security, operational security, and physical security. The second independent variable is employee engagement. Meanwhile, the dependent variable involves employee loyalty, covering both behavioral loyalty and attitudinal loyalty. The central argument suggested in this study is that employee loyalty is significantly influenced by the level of security and employee engagement.

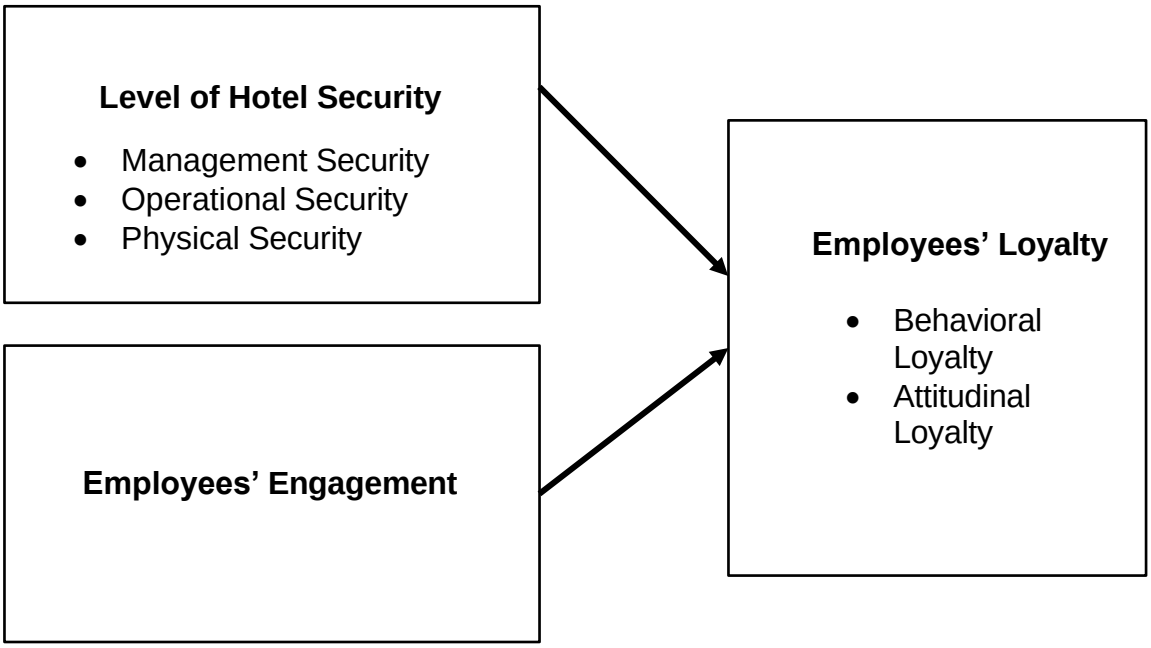


Figure 1. Schematic Diagram of the Study

Research Objective

This study aimed to determine the influence of security and employee engagement on employee loyalty among lodging establishments in the province of Bukidnon

METHODOLOGY

The participants of this study were employees from five DOT-accredited lodging establishments in Bukidnon regardless of contract, with a minimum of one year of experience were considered eligible to participate. There were 120 participants who responded to the study. Participants were chosen based on their availability and willingness to join the study. The researcher employed accessible population sampling.

Smith & Jones (2018) defined accessible population sampling as the inclusion of individuals or subjects who are readily available and easily accessible for research purposes. The selected hospitality establishments were chosen from the Department of Tourism's (DOT) official list.

The selected lodging establishments were situated in Bukidnon and are varied in size, ranging from small to medium-sized establishments accommodating between 20 to 100 guests. Annually, they cater to approximately 200 to 500 guests, depending on the season. The establishments, categorized as business and resort hotels, have been operational since the early 2000s. They offer a wide range of amenities and facilities, including accommodations, business and meeting facilities, recreation and leisure facilities, entertainment options, kids' clubs, and family amenities, as well as 24-hour front desk and security services, among others.

RESULTS AND DISCUSSION

Table 1 summarizes the assessment of hotel security. The data show that hotel security is generally rated as "Very Good," with an overall mean rating of 4.30. This indicates a positive perception of hotel security among the participants. A stable and secure environment is facilitated by the hotels' strong administrative protocols, well-defined security rules, regular staff training, and proactive risk management. The average ratings for various aspects of lodging security, such as management security (M=4.41), operational security (M=4.24), and physical security (M=4.25), also reflect a positive perception among the participants. These results are consistent with research conducted by Bertulino (2022), highlighting the importance of management, operational, and physical security as an investment that not only protects employees but also enhances their well-being, productivity, and loyalty to the organization. The variation in assessments underscores the critical necessity of consistently evaluating and adapting hotel security measures to maintain a safe and secure workplace environment for employees.

Table 1.
Summary Table of Assessment of Hotel Security

Dimensions	Mean	Interpretation	SD
Management Security	**4.41**	**Very Good**	**0.57**
Operational Security	**4.24**	**Very Good**	**0.61**
Physical Security	**4.25**	**Very Good**	**0.56**
Overall Assessment	**4.30**	**Very Good**	**0.54**

Management security received the highest mean rating of 4.41, indicating employees' strong confidence in the lodging's management practices and their effectiveness in ensuring security. This high rating suggests that the lodging operations have established security policies and procedures on security staff training, guest information management, emergency response planning, access control systems, reporting security incidents, and updating security equipment. However, the lower rating for operational security (M=4.24), although still rated as very good, indicates areas for

improvement, such as enhancing staff training programs, implementing advanced security technologies, and streamlining operational procedures for increased efficiency and effectiveness. Lodging security is crucial for providing peace of mind and reducing theft risks, particularly for valuable items like jewelry and electronics. Kumar (2023) emphasizes the importance of protecting lodging employees, guests, and assets. A proper security system is essential for safeguarding staff, guests, and physical resources, including equipment, buildings, gardens, and guest belongings.

Table 2 presents the frequency, percentage, and mean distribution of participants' assessment of employee engagement. The data show that employees assessed their engagement as very high, as indicated by the overall mean of 4.67. This reflects a very high level of perceived effectiveness in responding to employee engagement through the provision of positive workplace factors such as supportive management, good working conditions, effective communication, and opportunities for professional growth. This overall assessment is supported by the frequency and percentage distribution indicated in the table, where the majority of employees rated engagement as "Very High" (70.0%). These factors show that employees in the selected hotels in Bukidnon generally feel highly engaged in their work.

Table 2.
Frequency, Percentage and Mean Distribution of Participants' Level of Engagement in the Selected Hotels in Bukidnon

Range	Interpretation	Frequency	Percentage
4.51-5.00	Very High	84	70.0
3.51-4.50	High	36	30.0
2.51-3.50	Moderate	0	0.0
1.51-2.50	Low	0	0.0
1.00-1.50	Very Low	0	0.0
	Total	**120**	**100.0**
	Overall Mean	**4.67**	
	Interpretation	**Very High**	
	SD	**0.28**	

However, it is also noteworthy that 30% of the participants rated their engagement as "High." While this designation still reflects a positive assessment of employees' engagement, it indicates that there is room for improvement. These factors show that employees in the selected hotels in Bukidnon generally feel highly engaged in their work. This high level of engagement could be attributed to various positive workplace factors such as supportive management, good working conditions, effective communication, and opportunities for professional growth. Although the high rating represents a favorable evaluation, specific areas like communication and feedback need improvement. Engaged employees contribute positively to productivity and a positive work environment. Security training is crucial for maintaining safety for both employees and guests. Management should focus on improving communication channels, encouraging participation, and providing feedback opportunities to enhance security measures and ensure a safe

working environment. Overall, the results show that employees have a high opinion of the security measures and engagement practices in place. This positive perception underscores the importance of continuing to develop and refine these areas to maintain and further enhance employee satisfaction and loyalty. By addressing the identified areas for improvement, hotels can foster an even more secure and engaging environment for their staff, leading to sustained success and competitiveness in the industry.

Table 3 presents a summary of employee loyalty across two dimensions: behavioral and attitudinal loyalty. With an overall mean of 4.13 and a "High" interpretation, this emphasizes a strong demonstration of employees' loyalty. These findings are particularly remarkable in the hotel industry, where maintaining high levels of employee loyalty is important for delivering consistent service quality and enhancing satisfaction. These findings underscore a positive workplace culture where employees maintain favorable attitudes towards their work, colleagues, and supervisors, fostering a cohesive and supportive environment. Overall, these results highlight the high level of employee loyalty demonstrated by hotel employees.

Table 3.
Summary Table of Employee Loyalty

Dimensions	Mean	Interpretation	SD
Behavioral Loyalty	4.22	High	0.54
Attitudinal Loyalty	4.03	High	0.56
Overall Employee Loyalty	**4.13**	**High**	**0.52**

Among the two dimensions, behavioral loyalty shows the highest mean score of M=4.22. This is associated with employees demonstrating consistent and committed behaviors in their roles within the hotel establishment. This implies that when employees feel valued, engaged, and empowered, they are more likely to demonstrate dedication and consistency in their work. As supported by Henry (2023), loyal employees are more engaged, productive, and committed to achieving organizational goals.

On the other hand, attitudinal loyalty, which receives a mean score of 4.03 and is also considered "High," is defined as employees' emotional attachment, commitment, and alignment with the goals, values, and objectives of the hotel organization. This shows that employees encompass positive attitudes, beliefs, and feelings towards their work, colleagues, supervisors, and the overall hotel environment, which promotes a cohesive and positive workplace culture.

These findings indicate that the observed high levels of employee loyalty, both behavioral and attitudinal, are crucial for the hotel industry's success. Employees are likely to exhibit consistent and committed behaviors in their roles, contributing to the delivery of consistent service quality and heightened guest satisfaction. These findings underscore the importance of nurturing and maintaining employee loyalty as a key factor in achieving operational excellence and a competitive advantage within the hotel industry (Ogbeide & Isokpan, 2020).

Table 4 presents the regression analysis which provides valuable insights into the participants' assessment of hotel security and engagement on their loyalty. Findings reveal that the whole model is significant (F=33.22 p = .000), indicating that the null hypothesis can be rejected. Participants who gave high ratings to the hotel security also tend to have higher loyalty.

As for their engagement, even though this variable alone does not significantly influence their loyalty, it contributes to the variability of their loyalty when combined with their assessment of hotel security. This underscores the interconnected nature of factors influencing employee loyalty.

Among the specific indicators, physical security has the highest influence on employee loyalty, indicating that for every unit increase in their assessment of physical security, there is a corresponding
0.280 increase in their loyalty (B=0.280, t=2.39, p=0.019). This indicates that employees place significant importance on physical security measures when evaluating their loyalty to the hotel. As attested by Agaku et al. (2020), the singular power of words underscores the paramount importance of safety and security in the hospitality industry, particularly for employees and guests. To attract, retain, and remain competitive, hoteliers must prioritize creating a safe and conducive environment for both guests and employees. This factor also significantly contributes to fostering loyalty among employees.

Table 4.
Regression Table on the Influence of Participants' Assessment of Hotel Security and Engagement on their Loyalty

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.06	.217		4.89	.000
Management Security	-.037	.077	-.041	-.486	.628
Operational Security	.057	.084	.071	.681	.498
Physical Security	.233	.097	.268	2.41*	.018
Engagement	.216	.084	.265	2.58*	.011
Model Summary					
R =.732	R^2 = .536	Adjusted R^2 = .520	F = 33.22**	p = .000	

**significant at 0.01 level *significant at 0.05 level

Furthermore, the findings suggest that while operational security and engagement individually do not significantly impact loyalty, they still play a role in contributing to the overall variability in loyalty when combined with other factors. This highlights the complex nature of employee loyalty, which is influenced by various aspects of their experience at the hotel. These results align with existing literature on the subject which emphasizes the importance of security measures in shaping employee perceptions and loyalty. Studies have shown that lack of adequate security measures can negatively impact their loyalty and overall satisfaction. Given that these actions may increase employee loyalty, hotels may want to prioritize fortifying their operational security procedures and improving their

physical security infrastructure.

Conclusions and Recommendations

This study reveals valuable insights into the effect of employees' assessments of hotel security and engagement on their loyalty in the lodging industry. Among the specific indicators, physical security has the highest influence on their loyalty, The findings support the assumption that employees in hotel establishments with high security measures and high engagement levels are more likely to feel happy and loyal to their establishment.

Additionally, the findings provide empirical evidence for the application of Social Exchange Theory (SET) in the context of this study. SET posits that when hotel employees receive positive security measures and heightened employee engagement, they are more likely to exhibit increased loyalty and commitment to the organization. In this study, positive treatment is exemplified through factors security, employee engagement, and loyalty.

Further analysis of the findings emphasizes that management and physical security have the strongest positive influence on employee loyalty. This suggests that lodging establishments should enhance existing programs supporting security measures, such as security awareness training, leadership development workshops, customer service training, and technical skills enhancement, to promote a safe and supportive work environment. While employee engagement and operational security are significant factors in overall loyalty, this study suggests they may not be perceived as primary drivers of loyalty by the employees. Instead, the provision of operational and security measures alone may not suffice to instill a deep sense of commitment to the organization.

Compliance with Ethical Standards

The researcher ensured that proper protocols were observed in the gathering of data. First, approval from the The school’s Research and Ethics Committee was sought. Once the ethical clearance was granted, permission from the management of the five identified hotel establishments was sought. Then, participants were asked to sign a consent form before the study commenced. Upon approval, the researcher physically administered the survey questionnaire to the participants during their breaks or off-duty hours. Additionally, health protocols such as wearing masks and physical distancing were strictly observed. Participants in this study were thoroughly informed about the purpose and details of the research, ensuring transparency throughout. They were given the option to refrain from answering questions or discontinue their participation if they felt uncomfortable or offended. Research ethics aims to protect people's rights in research and ensure fairness. Researchers should be transparent, and honest, and avoid exploiting participants when seeking ethical approval (Nchasi, 2021). As a gesture of appreciation for their involvement, participants received tokens of gratitude. It was

emphasized that all data collected during this research would be treated with complete confidentiality.

Furthermore, participants were assured that their privacy and confidentiality were safeguarded through adequate measures. The study's results did not include any personal identifiers, preserving the anonymity of individuals. Participants also were informed that they had the right to withdraw from the study for personal reasons, and their test results became part of Lourdes College. Any release of such information occurred only with the explicit approval of the Department Chairperson or College Dean, reinforcing the commitment to the ethical handling of participant data.

To safeguard the privacy of participants and comply with the Data Privacy Act, the researcher implemented the Belmont Report specifically on respect for persons, beneficiaries, and justice. Access to the research data was restricted to the researcher and authorized personnel only, ensuring that participants' information remained confidential throughout the study and beyond. Furthermore, participants received tokens as a gesture of appreciation for their valuable contribution to the research.

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SENSORY DESCRIPTION AND CONSUMER HEDONIC PERCEPTION OF LEMONGRASS (*Cymbopogon citratus*) AND WIREGRASS (*Eleusine indica*) AS APPLIED TO FILIPINO CONFECTIONS

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ABSTRACT

This study explored the incorporation of lemongrass and wiregrass into Filipino confections, evaluating their nutritional profiles, sensory attributes, and shelf life. Nutritional analysis revealed diverse profiles, with pastillas high in protein and polvoron higher in fat. Sensory evaluation showed the confections were *"Liked Extremely"* across all attributes, with adults and teenagers providing the highest ratings, though aroma characteristics exhibited statistically significant differences between variants. Shelf-life studies indicated one month for powdered ingredients and 10-11 days for the confections. The findings demonstrate strong consumer acceptance, highlighting the market potential of these botanically-infused treats, and provide recommendations to enhance aroma further, extend shelf life, and target specific consumer groups for product development and commercialization.

Keywords: *Lemongrass, Wiregrass, Filipino confections, Sensory evaluation, Shelf life*

INTRODUCTION

The Philippines boasts a rich culinary heritage characterized by a diverse array of traditional sweets and confections that have delighted the palates of generations. Pastillas and polvoron have gained popularity among these cherished treats for their unique flavors, textures, and cultural significance. Despite their enduring presence in

Filipino cuisine, these confections have remained relatively conventional, with little innovation in flavor profiles (De Leon, 2018; Fernandez, 2019).

Filipino cuisine is known for its fusion of flavors, blending indigenous ingredients with influences from various Asian cultures and the Spanish colonial era. Within this culinary landscape, Filipino confections hold a special place. These confections, typically composed of coconut and rice flour, are often infused with regional ingredients such as jackfruit, pandan, and yam, resulting in a delightful interplay of flavors and textures (Garcia, 2020). While beloved for their cultural significance, these treats remain traditional, lacking the innovative touches seen in other culinary domains. To innovate Filipino confections, it is essential to consider sensory science and consumer perception. The culinary world is increasingly exploring unique and indigenous flavors, and the confectionery domain is no exception (Sanchez, 2021).

Lemongrass, known for its citrusy aroma and refreshing taste, has long been cherished in Filipino cooking for its aromatic essence and subtle tanginess. Traditionally used in soups, stews, and teas, lemongrass imparts a distinctively bright and zesty flavor that enhances savory and sweet dishes (Smith, 2016). Similarly, wiregrass, though often overlooked, possesses a unique flavor profile characterized by subtle earthiness and herbal notes. Widely used in local delicacies and herbal remedies, wiregrass adds depth and complexity to traditional Filipino recipes (Torres, 2022).

Incorporating lemongrass and wiregrass into confections represents a novel and innovative approach to flavor exploration. By harnessing the aromatic qualities and healthful properties of these indigenous ingredients, Filipino confectioners can create a new wave of treats that celebrate the country's rich cultural heritage while captivating the modern palate (Lee & Bautista, 2023).

This study focuses on the sensory description and consumer hedonic perception of Filipino confections infused with lemongrass and wiregrass. While there is growing interest in sensory analysis in the food industry, a noticeable gap exists in understanding the specific characteristics and consumer preferences associated with these distinctively Filipino ingredients. Previous research has delved into sensory analysis and consumer hedonic perception in various food studies, emphasizing the importance of flavor profiling in consumer acceptance. However, within the confectionery realm, there is a relative dearth of studies specifically exploring the sensory attributes of lemongrass and wiregrass. Most existing literature tends to focus on more common flavor profiles, neglecting the potential richness these ingredients could bring to confections (Garcia, 2020; Smith, 2016).

The research gap identified in this study highlights the need for a more comprehensive exploration of lemongrass and wiregrass in the context of Filipino confections. Lemongrass is documented for its numerous biological properties, including antibacterial, antifungal, antiprotozoal, anti-inflammatory, antioxidant, anti-carcinogenic, cardio-protective, and anti-rheumatic activities (Ekpenyong et al., 2015). Wiregrass offers various benefits, such as anti-inflammatory, antibacterial, anti-diabetic, and antioxidant

properties, although it is not recognized as a medicinal plant by the Department of Health (Eslit, 2018).

Given the array of benefits associated with these ingredients, it becomes essential to subject the developed products to sensory evaluation and assess the hedonic perception of consumers. This is particularly crucial given that lemongrass and wiregrass are not conventionally utilized in the production of pastillas and polvoron. Investigating consumers' hedonic perceptions of these confections will offer insights into the factors that influence their overall enjoyment, thus contributing to a broader discourse on food preferences and cultural foodways (Jun & Lee, 2019; Methven, 2014).

Finally, the results of this study may not only increase our appreciation of Filipino confections made with lemongrass and wiregrass but may also inform chefs, food producers, and decision-makers about the potential for innovation and preservation in this cherished area of Filipino cuisine. Moreover, it may contribute to a broader understanding of the intricate interplay between sensory experiences and cultural food preferences, shedding light on the multifaceted nature of culinary heritage in the Philippines and elsewhere (Ares & Varela, 2017; Fiorentini, 2020).

Research Questions

This study aimed to develop Filipino confections such as ***pastillas*** and ***polvoron*** with lemongrass and wiregrass as primary ingredients. Specifically, the study shall answer the following questions:

1. What is the nutritive content of lemongrass and wiregrass confections?
2. What are the processes involved in the formulation of each type of confection?
3. What are the sensory attributes (taste, aroma, texture, etc.) of the confections with lemongrass and wiregrass as perceived by the evaluators in terms of the following:
    a. flavor profile;
    b. aroma characteristics;
    c. texture and mouthfeel; and
    d. visual appeal?
4. Is there a significant difference between the sensory attributes of the confections with lemongrass and wiregrass as perceived by the evaluators?
5. What is the general level of acceptability of the confections with lemongrass and wiregrass as evaluated by the different age groups of respondents?
6. What is the shelf life of the lemongrass and wiregrass confections?

METHODOLOGY

Materials

The following tools, equipment, and ingredients were used during the conduct of the study.

Table 1. Tools and Equipment for the Recipes and Formulations

Preparatory Tools	Measuring Tools	Cutting Tools	Equipment
Bowls	Measuring Cup	Knife	Gas range
Casserole	Measuring Spoon	Kitchen Scissor	Pulverizing Machine
Laddle			Oven
Mixing Bowl			
Non-stick pan			
Polvoron Molders			
Rubber Scraper			
Mortar and Pestle			
Transparent Microwavable Food Container			
Transparent Glass Container			

Ingredients

Powdered Lemongrass and Wiregrass

Table 2. Ingredients to be Used for the Preparation of Pastillas.

Ingredients	Measurement
Lemon grass powder	3 grams
Wiregrass powder	3 grams
Condensed milk	178 ml
Refined Sugar (for dusting)	64 grams
Skim milk	270 grams
Powdered milk	220 grams
Vanilla	2.84 grams

Table 3. Ingredients to be Used for the Preparation of Polvoron

Ingredients	Measurement
Wiregrass powder	3 grams
Lemon grass powder	3 grams
All-purpose flour	250 grams
Skim milk	135 grams
Powdered milk	110 grams
Refined sugar	190 grams
Margarine	95 grams
Vanilla	2.84 grams

Lemon grass and Wiregrass Extract

Table 4. Ingredients to be Used for the Preparation of Pastillas.

Ingredients	Measurement
Lemon grass extract	20 ml
Wiregrass extract	20 ml
Condensed milk	178 ml
Refined Sugar (for dusting)	64 grams
Skim milk	270 grams
Powdered milk	220 grams
Vanilla	2.84 grams

Table 5. Ingredients to be Used for the Preparation of Polvoron

Ingredients	Measurement
Wiregrass extract	20 ml
Lemon grass extract	20 ml
All-purpose flour	250 grams
Skim milk	135 grams
Powdered milk	110 grams
Refined sugar	190 grams
Margarine	95 grams
Vanilla	2.84 grams

Table 6. Ingredients to be Used for the Preparation of Lemon Grass and Wiregrass Extract.

Ingredients	Measurement
Lemon grass/ Wiregrass Extract	236 ml
Sugar	190 grams
Water	59 ml

Developmental Procedures

The developmental procedures consisted of two stages (1) the process of making powdered and extracted wire grass and lemon grass, and (2) the development of pastillas and polvoron.

A. Process of Extracting Wire Grass and Lemon Grass Juice

1. Washing

Start by washing the wire grass and lemon grass thoroughly to remove any dirt, dust, or impurities. Use clean, cold water to rinse them properly. For lemongrass, peel off any dry or damaged outer layers.

2. Pat Drying

After washing the lemon grass and wire grass thoroughly to remove any dirt and impurities, lay out a paper towel or a clean kitchen towel on a clean and dry surface. Spread the washed lemon grass and wire grass in a single layer on the towel, ensuring they are not stacked on top of each other to allow proper drying. Gently pat the lemon grass and wire grass with another kitchen towel or paper towel to absorb excess moisture.

3. Cutting

Using a pair of scissors, cut the lemongrass and wire grass into small pieces. Make sure to cut the ingredients uniformly to ensure even extraction during pounding.

4. Pounding

Put the lemon grass and wire grass in a bowl. Pound thoroughly to break down their cellular structure and release the extract. Once you have pounded the leaves thoroughly, strain the mixture to separate the extract from any solid remnants of the leaves. Collect the strained extract in a bowl.

5. Sugar Concentration

Simmer the extract for 1 minute. In a saucepan, combine equal measurements of extracted lemon grass or wire grass and sugar (1 cup of extract to 1 cup of refined sugar). Add ¼ cup of water for every 1 cup of extract. Place the saucepan over medium heat and stir the mixture until the sugar is completely dissolved, ensuring it doesn't stick to the bottom of the pan. Reduce the heat to low and let the syrup simmer gently for about 3-5 minutes to thicken slightly and ensure it is fully combined. Remove the saucepan from the heat and let the syrup cool to room temperature. As it cools, it will thicken slightly.

6. Storing

Select transparent glass containers that are airtight and made of materials suitable for storing powdered products. Ensure that the containers are clean and completely dry, as any moisture can lead to clumping or spoilage of the powder. Clearly label each container with the name of the powdered product and the date

of storage. Store the powdered products in a cool, dry place away from direct sunlight and sources of heat.

Development of Pastillas and Polvoron

1. Pastillas with powdered lemon grass and wire grass

In a bowl, combine skim milk, powdered milk, wire grass, and lemongrass. Mix until well combined. Gradually pour the condensed milk into the mixture, mixing until a dough-like texture is formed. Scoop 1 teaspoon to 1 tablespoon of the mixture and roll it with your hand to form a sphere shape. Repeat for the rest of the mixture and coat each sphere with sugar.

2. Polvoron with powdered lemon grass and wire grass

In a frying pan over medium heat, put in the flour. Toast it until the color turns light brown and it becomes aromatic, stirring regularly to prevent the flour from burning. Once the flour is toasted, turn off the heat. Add skim milk, powdered milk, sugar, lemon grass, and wire grass, and toast the mixture for 1 minute or until well combined. Transfer the mixture to a mixing bowl. Pour in the melted margarine and mix well. Let it cool for at least 5 minutes. Using a polvoron molder, scoop the mixture and place it on top of individual cellophane or Japanese paper to wrap.

3. Pastillas with lemon grass and wire grass extract

In a bowl, combine skim milk, powdered milk, wire grass, and lemongrass extract. Mix thoroughly until well combined. Gradually pour the condensed milk into the mixture, stirring continuously until a dough-like texture is formed. Next, scoop 1 teaspoon to 1 tablespoon of the mixture and roll it between your hands to form sphere shapes. Repeat this process for the remaining mixture. Once formed, coat each sphere generously with sugar.

4. Polvoron with lemon grass and wire grass extract.

In a frying pan over medium heat, toast flour until it turns light brown and aromatic, stirring constantly to prevent burning. Once toasted, remove from heat and add skim milk, powdered milk, sugar, lemon grass extract, and wire grass extract, toasting for about a minute until well combined. Transfer the mixture to a bowl, then pour in melted margarine and mix thoroughly. Let the mixture cool for 5 minutes before using a polvoron molder to shape portions onto individual pieces of cellophane or Japanese paper for wrapping. These treats combine the aromatic flavors of lemongrass and wire grass with a sweet, buttery texture, ideal for sharing or gifting.

Hedonic Perception

Eighty (80) individuals were randomly selected from the groups of children, teenagers, adults, and experts who were requested to evaluate the finished products. Twenty respondents from each group were randomly selected. Using a 9-point hedonic scale, the evaluators rated each Filipino confection using four (4) samples.

The following scale was utilized:

Scale	Descriptive Rating
9	Like extremely
8	Like very much
7	Like moderately
6	Like slightly
5	Neither like nor dislike
4	Dislike slightly
3	Dislike moderately
2	Dislike very much
1	Dislike extremely

RESULT AND DISCUSSION

A. Nutritive Content of Lemongrass and Wiregrass Confections

Table 7. Report of Analysis on the Nutritive Value of Lemongrass and Wiregrass Confections

Sample	Sample Description	Crude Protein %	Crude Fiber %	Crude Fat %	Moisture %	Ash %
FT-24-0057	Pastillas *(Powdered Lemongrass and Wiregrass)*	11.45	0.54	1.71	10.11	3.35
FT-24-0058	Pastillas *(Lemongrass and Wiregrass Extracts)*	11.27	0.68	1.53	10.89	3.31
FT-24-0059	Polvoron (Powdered Lemongrass and Wiregrass)	9.12	0.90	11.18	5.41	2.17
FT-24-0060	Polvoron *(Lemongrass and Wiregrass Extracts)*	8.95	0.98	11.63	9.44	1.87

The table exhibits the report analysis on the nutritive content of the lemongrass and wiregrass confections. As shown in the table, the confections offer diverse nutritional profiles, catering to different dietary needs.

The Pastillas with powdered lemongrass and wiregrass are high in protein (11.45%), moderate moisture (10.11%) and minerals (3.35%), low fat (1.71%), and fiber (0.54%). This means that it is suitable for those seeking a protein-rich treatment.

The Pastillas with lemongrass and wiregrass extracts are also high in protein (11.27%) and moisture (10.89%), higher fiber (0.68%), and low fat (1.53%). This indicates that it is ideal for a balanced, digestible option.

The Polvoron with Powdered Lemongrass and Wiregrass are high in fat (11.18%), moderate protein (9.12%), high fiber (0.90%), low moisture (5.41%), and minerals (2.17%). An indulgent option with digestive benefits.

The Polvoron with Lemongrass and Wiregrass Extracts is very high in fat (11.63%), low protein (8.95%), highest fiber (0.98%), higher moisture (9.44%), lowest minerals (1.87%). This suggests that it is best for those seeking a rich, flavorful treat with digestive benefits.

The above findings highlight the nutritional benefits of integrating lemongrass and wiregrass into confections, offering a range of options from protein-rich to high-fiber and indulgent treats. These indicate further that integrating lemongrass and wiregrass into confections not only diversifies the nutritional profiles of these treats but also opens up new avenues for product innovation, market segmentation, and consumer education. This can lead to the development of confections that not only satisfy taste but also provide various health benefits, thereby aligning with modern dietary trends and preferences.

Based on the data provided by the Nutritionist and Dietitian of the Provincial Hospital of the City of Ilagan, crude protein is an unnatural protein which means the protein found in the product is not the natural protein that is found in fish, eggs, etc. but it is safe to consume. The crude protein found in the product is based on the ingredients that were used. Meanwhile, the crude fiber found was the result of lemon grass and wiregrass inclusion in the confectioners. On the other hand, the crude fat in the confections was not usually the same as the fats found in pork; rather, it is frequently a result of the components the researcher utilized, such as margarine or butter. In the meantime, the product's moisture content refers to its moist content. Its ash content is determined by the food products' alkalinity. For example, if you heat lemon grass and wiregrass to a high temperature, ash will be the result. However, this has no bearing on how safe it is to consume these products.

Table 8. Nutritive Value of the Confections with Lemongrass and Wiregrass

	Pastillas with Powdered Lemongrass and Wiregrass	Pastillas with Lemongrass and Wiregrass Extract	Polvoron with Powdered Lemongrass and Wiregrass	Polvoron with Lemongrass and Wiregrass Extract
Number of Servings per Container	*9.3*	*9.3*	*9.3*	*9.3*
Serving Size	*27 g*	*27 g*	*27 g*	*27 g*
Amount Per Serving	*%RENI 4%*	*%RENI 4%*	*%RENI 4%*	*%RENI 4%*
Energy (kcal)	96	95	115	111
Energy from fat (kcal)	4	4	27	28
Total Fat (g)	0	0	3	3
Total Carbohydrates (g)	20	20	19	18
Crude Fiber (g)**	0	0	0	0
Total Protein (g)	3	3	2	2

** Certified by the Department of Agriculture*

Table 8 presents the nutritive value of the products with lemongrass and wiregrass as certified by the Department of Science and Technology. The analysis covers four (4) types of confectionery products. Each product has lemongrass and wiregrass in different forms namely: Pastillas with powdered lemongrass and wiregrass, Pastillas with lemongrass and wiregrass extract, Polvoron with powdered lemongrass and wiregrass, and Polvoron with lemongrass and wiregrass extract. Each product offers 9.3 servings per container, with a serving size of 27 grams.

As shown in the table, it is evident that the energy content ranges from 95 to 115 kcal per serving. Polvoron varieties have a higher caloric value compared to pastillas, largely due to their higher fat content. Also, for Fat Content. the pastilla varieties have no fat content, while the polvoron varieties have 3 grams of fat per serving, contributing significantly to the higher caloric content of polvoron. In terms of its Carbohydrate Content, the carbohydrate content is relatively similar across all products, ranging from 18 to 20 grams per serving. This suggests that the carbohydrate source is consistent and not significantly affected by the form of lemongrass and wiregrass used.

As to its Protein Content, Pastillas varieties contain slightly more protein (3 grams per serving) compared to polvoron varieties (2 grams per serving). This minor difference indicates that pastillas may be slightly better for those looking to increase their protein intake.

About its Fiber Content, all products contain 0 grams of crude fiber, indicating that these confections are not significant sources of dietary fiber.

Results show that for its Energy and Macronutrients, the Pastillas have lower calories and fat, making them a lighter option compared to polvoron. This is suitable for those looking to manage their fat intake. On the other hand, the Polvoron has higher calories and fat, providing a richer and more energy-dense option. This is suitable for those needing higher energy intake or preferring a more indulgent treat. As to its Protein, the pastilla varieties offer a slight advantage in protein content, which could be beneficial for those looking to increase their protein intake even with sweets. In terms of Carbohydrates and Fiber, all products have similar carbohydrate content and lack fiber, indicating they are primarily sources of quick energy without much benefit for digestive health.

The above findings underline the importance of understanding the nutritional profiles of different confections incorporating lemongrass and wiregrass. For consumers, these insights facilitate more informed dietary choices, catering to their specific needs, whether it is lower calorie intake or higher energy and protein needs. For manufacturers, the findings offer opportunities for targeted product development and marketing, ensuring that a diverse range of consumer preferences and dietary requirements are met. Educating consumers about these nutritional aspects further supports healthier eating habits and overall well-being.

B. Development of the Products

Table 9. Preparation of Powdered Lemongrass and Wiregrass

Product/s	Process	Observation/ Remarks	Result/Photo
Powdered Wiregrass	• Washing • Mechanical Drying • Pulverizing • Shifting • Storing	- has a smooth and powdery texture with a light-green color. - has a lemony flavor with subtle hints of ginger and mint.	
Powdered Wiregrass	• Washing • Mechanical Drying • Pulverizing • Shifting • Storing	- has a smooth and powdery texture. - has a light green color. - has a mild, earthy flavor with subtle grassy undertones.	

Table 9 presents the preparation of powdered lemongrass and wiregrass. It starts with washing the raw materials to guarantee cleanliness, followed by mechanical drying to remove moisture to a temperature of about 15 to 20 °F. Pulverize them into a smooth

powder, shifting them to achieve uniform particle size, removing larger or unwanted particles, and storing them at room temperature (20 to 30 °C) to extend their shelf life.

As a result, the lemon grass powder has a smooth and powdery texture with a light-green color and lemony flavor with subtle hints of ginger and mint. While the wiregrass powder also has a smooth and powdery texture. Moreover, the powder has a light green color, has a mild, earthy flavor with subtle grassy undertones.

Table 10. Preparation of Lemon Grass and Wire Grass Extract

Product/s	Process	Observation/ Remarks	Result/Photo
Lemon grass Extract	• Washing • Pat Drying • Cutting • Pounding • Sugar Concentration • Storing	- has a brown to dark color. - exudes a fresh lemon flavor with subtle hints of ginger and mint. - has a sweet fragrance and taste.	
Wiregrass Extract	• Washing • Pat Drying • Cutting • Pounding • Sugar Concentration • Storing	- has a light brown color. - has a mild earthy flavor with subtle grassy undertones. - has a sweet fragrance and taste.	

Table 10 displays the preparation of lemon grass and wire grass extract. It starts with washing the raw materials to guarantee cleanliness, followed by pat drying to remove moisture content, cutting to ensure uniformity when extracting, pounding to break and release the extract, sugar concentration to prolong the life span of the raw materials, and storing them in a cool dry place.

As a result, the Lemon grass extract has a brown to dark color and exudes a fresh lemony flavor with subtle hints of ginger and mint. While wiregrass extract has a light brown color and a mild earthy flavor with subtle grassy undertones. Both have a sweet fragrance and taste.

Table 11. Preparation of Pastillas with Powdered Lemon grass and Wiregrass

Product	Process	Measurement/Ingredients	No. of Yields	Observation/s
Pastillas with Powdered Lemon grass and Wiregrass	• Mise–en–place • Measuring • Mixing • Portioning • Packing	- 3 grams of Lemon grass Powder - 3 grams Wiregrass Powder - 178 ml Condensed Milk - 270 grams of Skim Milk - 220 grams of Powdered Milk - 64 grams of Refined Sugar - (for dusting) - 2.84 grams Vanilla	- 250 grams - Approximately 26-30 pieces. - No. of serving per container 9.3 - Serving size:27 grams	- exhibited herbaceous notes from Lemon grass and Wiregrass - has a vibrant green color - has a smooth and firm texture coated with sugar.

Table 11 presents the development product of pastillas with powdered lemon grass and wiregrass involves careful preparation and highlights accurate measurement of ingredients to generate a product with a consistent texture, flavor, and appearance of the product. Also, this recipe produced approximately 26-30 pieces with a serving size of 9.3 per container. Finally, the pastillas exhibited herbaceous notes from lemon grass and wiregrass with a vibrant green color and a smooth and firm texture coated with sugar.

Table 12. Preparation of Pastillas with Lemon grass and Wiregrass Extract

Product	Process	Measurement/Ingredients	No. of Yields	Observation
Pastillas with Lemon grass and Wiregrass Extract	• Mise-en - Place • Measuring • Mixing • Portioning • Packing	- 20 ml Lemon grass Powder - 20 ml Wiregrass Powder - 178 ml Condensed Milk - 270 grams of Skim Milk - 220 grams of Powdered Milk - 64 grams Refined Sugar(for dusting) - 2.84 grams Vanilla	250 grams Approximately 26-30 pieces. No. of servings per container 9.3 Serving size:27 grams	- has the citrusy aroma of lemon grass - has a mild earthly scent of wiregrass with a hint of creamy aroma - has a smooth and velvety touch and is coated

				with sugar.

Table 12 shows the preparation of pastillas with lemon grass and wiregrass extract. It requires meticulous preparation and precise measuring of materials to produce a product with a consistent texture, flavor, and appearance. Additionally, this recipe yielded about 26–30 pieces, or 9.3 servings per container. The product has the citrusy aroma of lemon grass and a mild earthly scent of wiregrass with a hint of creamy aroma with a smooth and velvety touch and is coated with sugar.

Table 13. Preparation of Polvoron with Powdered Lemon grass and Wiregrass

Product	Process	Measurement/Ingredients	No. of Yields	Observation/s
Polvoron with Powdered Lemon grass and Wiregrass	• Mise-en–Place • Measuring • Mixing • Portioning • Packing	- 3 grams of Lemon grass Powder - 3 grams Wiregrass Powder - 250 grams All Purpose Flour - 135 grams of Skim Milk - 110 grams of Powdered Milk - 190 grams of Refined Sugar - 95 grams Margarine - 2.84 grams Vanilla	- 250 grams - Approximately 26-30 pieces. - No. of serving per container 9.3 - Serving size:27 grams	- has a herbal scent of lemon grass and wiregrass - has smooth edges, perfect shape, and consistent size.

Table 13 displays the development product for pastillas with lemon grass and wiregrass extract. Precise component measurement and meticulous preparation are required to produce a product with a consistent texture, flavor, and appearance. Additionally, 26–30 pieces, or 9.3 servings per container, were made by this recipe. This confection has an herbal scent of Lemon grass and wiregrass with smooth edges, perfect shape, and consistent size.

Table 14. Preparation of Polvoron with Lemon grass and Wiregrass Extract

Product	Process	Measurement/ Ingredients	No. of Yields	Observation/s
Polvoron with Lemon grass and Wiregrass Extract	• Mise-en – Place • Measuring • Mixing • Portioning • Packing	- 20 ml Lemon grass Extract - 20 ml Wiregrass Extract - 178 ml Condensed Milk - 270 grams of Skim Milk	- 250 grams - Approximately 26-30 pieces. - No. of serving per container 9.3	- has a sweet fragrance and a taste notes of lemon grass and Wiregrass

	- 220 grams of Powdered Milk - 64 grams of Refined Sugar (for dusting) - 2.84 grams Vanilla	- Serving size:27 grams	- Each piece is perfectly shaped, with smooth edges and consistent size.

Table 14 shows that the development product for pastillas infused with lemon grass and wiregrass extract requires careful preparation, and exact components of measurements to produce a product with a consistent texture, flavor, and appearance. Moreover, this dish yielded 26–30 pieces or 9.3 servings of each container. The polvoron has a sweet fragrance and a taste note of Lemon grass and Wiregrass. Each piece is perfectly shaped, with smooth edges and consistent size.

C. Sensory Attributes of the Confections

Table 15. The Sensory Attributes of the Confections with Lemongrass and Wiregrass as Perceived by the Evaluators in terms of Flavor Profile, Aroma Characteristics, Texture and Mouthfeel, and Visual Appeal

Confections	**Sensory Attributes**			
	Children	**Mean**	**Sd**	**Description**
Pastillas with Powdered Lemongrass and Wiregrass	Flavor Profile	8.35	0..4687	Like Extremely
	Aroma Characteristics	8.37	0.5440	Like Extremely
	Texture and Mouthfeel	8.44	0.4121	Like Extremely
	Visual Appeal	8.48	0.3994	Like Extremely
	Overall Mean	**8.41**		**Like Extremely**
	Teenagers	**Mean**		**Description**
	Flavor Profile	8.58	0.4222	Like Extremely
	Aroma Characteristics	8.61	0..3810	Like Extremely
	Texture and Mouthfeel	8.59	0.5046	Like Extremely
	Visual Appeal	8.64	0.5374	Like Extremely
	Overall Mean	**8.61**		**Like Extremely**
	Adults	**Mean**		**Description**
	Flavor Profile	8.76	0.2956	Like Extremely
	Aroma Characteristics	8.81	0.3754	Like Extremely
	Texture and Mouthfeel	8.73	0.3450	Like Extremely
	Visual Appeal	8.74	0.3315	Like Extremely
	Overall Mean	**8.76**		**Like Extremely**

	Food Experts	**Mean**		**Description**
	Flavor Profile	8.61	0.5931	Like Extremely
	Aroma Characteristics	8.65	0.4730	Like Extremely
	Texture and Mouthfeel	8.67	0.5516	Like Extremely
	Visual Appeal	8.72	0.5126	Like Extremely
	Overall Mean	**8.66**		**Like Extremely**
	Children	**Mean**		**Description**
Pastillas with Lemongrass and Wiregrass Extract	Flavor Profile	8.33	0.6340	Like Extremely
	Aroma Characteristics	8.28	0.7958	Like Extremely
	Texture and Mouthfeel	8.39	0.8829	Like Extremely
	Visual Appeal	8.39	0.5170	Like Extremely
	Overall Mean	**8.35**		**Like Extremely**
	Teenagers	**Mean**		**Description**
	Flavor Profile	8.61	0.4762	Like Extremely
	Aroma Characteristics	8.67	0.3908	Like Extremely
	Texture and Mouthfeel	8.71	0/3170	Like Extremely
	Visual Appeal	8.55	0.5615	Like Extremely
	Overall Mean	**8.62**		**Like Extremely**
	Adults	**Mean**		**Description**
	Flavor Profile	8.88	0.2880	Like Extremely
	Aroma Characteristics	8.84	0.3648	Like Extremely
	Texture and Mouthfeel	8.70	0.5770	Like Extremely
	Visual Appeal	8.78	0.4444	Like Extremely
	Overall Mean	**8.80**		**Like Extremely**
	Food Experts	**Mean**		**Description**
	Flavor Profile	8.66	0.6245	Like Extremely
	Aroma Characteristics	8.54	0/6715	Like Extremely
	Texture and Mouthfeel	8.68	0.5325	Like Extremely
	Visual Appeal	8.73	0.5079	Like Extremely
	Overall Mean	**8.65**		**Like Extremely**
	Children	**Mean**		**Description**
Polvoron with Powdered Lemongrass and Wiregrass	Flavor Profile	8.44	0.4359	Like Extremely
	Aroma Characteristics	8.33	0.5322	Like Extremely
	Texture and Mouthfeel	8.60	0.4135	Like Extremely
	Visual Appeal	8.51	0.4179	Like Extremely

	Overall Mean	**8.47**		**Like Extremely**
	Teenagers	**Mean**		**Description**
	Flavor Profile	8.75	0.2924	Like Extremely
	Aroma Characteristics	8.80	0.2340	Like Extremely
	Texture and Mouthfeel	8.75	0.2743	Like Extremely
	Visual Appeal	8.68	0.4175	Like Extremely
	Overall Mean	**8.75**		**Like Extremely**
	Adults	**Mean**		**Description**
	Flavor Profile	8.78	0.4860	Like Extremely
	Aroma Characteristics	8.79	0.3865	Like Extremely
	Texture and Mouthfeel	8.73	0.4462	Like Extremely
	Visual Appeal	8.70	0.4790	Like Extremely
	Overall Mean	**8.75**		**Like Extremely**
	Food Experts	**Mean**		**Description**
	Flavor Profile	8.71	0.5211	Like Extremely
	Aroma Characteristics	8.58	0.6321	Like Extremely
	Texture and Mouthfeel	8.67	0.5322	Like Extremely
	Visual Appeal	8.65	0.5491	Like Extremely
	Overall Mean	**8.65**		**Like Extremely**
	Children	**Mean**		**Description**
Polvoron with Lemongrass and Wiregrass Extract	Flavor Profile	8.46	0.4679	Like Extremely
	Aroma Characteristics	8.41	0.5524	Like Extremely
	Texture and Mouthfeel	8.56	0.4045	Like Extremely
	Visual Appeal	8.54	0.4350	Like Extremely
	Overall Mean	**8.49**		**Like Extremely**
	Teenagers	**Mean**		**Description**
	Flavor Profile	8.59	0.3828	Like Extremely
	Aroma Characteristics	8.57	0.3389	Like Extremely
	Texture and Mouthfeel	8.70	0.2763	Like Extremely
	Visual Appeal	8.81	0.1651	Like Extremely
	Overall Mean	**8.67**		**Like Extremely**
	Adults	**Mean**		**Description**
	Flavor Profile	8.75	0.5194	Like Extremely
	Aroma Characteristics	8.81	0.3754	Like Extremely
	Texture and Mouthfeel	8.79	0.4236	Like Extremely

Visual Appeal	8.76	0.4524	Like Extremely
Overall Mean	**8.78**		Like Extremely
Food Experts	**Mean**		**Description**
Flavor Profile	8.65	0.6145	Like Extremely
Aroma Characteristics	8.53	0.6845	Like Extremely
Texture and Mouthfeel	8.66	0.5577	Like Extremely
Visual Appeal	8.56	0.7155	Like Extremely
Overall Mean	**8.60**		Like Extremely

Table 15 exhibits the analysis and interpretation of the sensory attributes of confections with lemongrass and wiregrass as perceived by various groups of evaluators (children, teenagers, adults, and food experts). The attributes evaluated include flavor profile, aroma characteristics, texture and mouthfeel, and visual appeal. Each group rated these attributes on a scale where a higher mean indicates a higher level of liking.

As shown in the table, the *pastillas with powdered lemongrass and wiregrass* were highly rated by all groups, with adults giving the highest rating of 8.76. The aroma characteristics received high ratings, with adults providing the highest score mean of 8.81. The texture and mouthfeel were also highly liked, with adults rating it the highest. The visual appeal was highly liked, particularly among teenagers and adults. Adults had the highest overall mean score equal to 8.76, followed by food experts with a mean score of 8.66, teenagers with a mean of 8.61, and children having a mean of 8.41.

Results indicate that the confections with lemongrass and wiregrass were extremely well-received across all age groups and food experts. The high ratings in all sensory attributes (flavor profile, aroma characteristics, texture, mouthfeel, and visual appeal) suggest that these confections are highly appealing to a broad audience. The slightly higher ratings by adults and food experts may indicate a greater appreciation for the nuanced flavors and overall quality of the product.

It can be gleaned from the table that the *pastillas with lemongrass and wiregrass extract* were liked extremely across all groups. The pastillas with lemongrass and wiregrass extract were highly favored by all groups, with adults rating the flavor profile the highest with a mean score of 8.88. Food experts also gave a high rating, indicating professional approval. The aroma characteristics were well-received across all age groups, with adults rating this attribute the highest with a mean score of 8.84. The texture and mouthfeel were appreciated by all groups, and the visual appeal was highly rated by adults having mean scores of 8.70 and 8.78, respectively.

Findings indicate that the confections are highly regarded by all evaluators, with adults scoring the highest and food experts confirming their quality and appeal. They have an excellent flavor, aroma, texture, mouthfeel, and visual appeal. Additionally, the confections are perceived as having an excellent flavor profile, aroma, texture, mouthfeel, and visual appeal, making them highly desirable to consumers of all ages.

As presented in the table, the flavor profile, aroma, texture, mouthfeel, and visual appeal of lemongrass and wiregrass confections were highly rated by all groups, with adults and food experts receiving the highest scores. The aroma was particularly appealing to adults, with a mean of 8.80 and 8.79 respectively. The texture and mouthfeel were highly appreciated by teenagers and adults, with a mean of 8.75. The visual appeal was highly rated by adults, with a mean of 8.70. Overall, the sensory attributes of the confections were highly liked by all evaluators, regardless of age or expertise.

The overall mean scores reflect a strong positive reception across all groups, with teenagers and adults rating the confections the highest with a mean = 8.75. Food experts, while slightly more critical, still provided an extremely favorable overall mean score of 8.65. Therefore, the sensory attributes of the confections with lemongrass and wiregrass are universally liked extremely by all evaluators, regardless of age or expertise. The flavor profile, aroma, texture mouthfeel, and visual appeal all received very high ratings, with the overall mean scores reflecting a consistently positive perception. This indicates that the combination of lemongrass and wiregrass in confections is highly successful in appealing to a broad audience, including children, teenagers, adults, and food experts. The highest ratings were consistently given by teenagers and adults, suggesting a particular resonance with these age groups.

Data revealed that despite slight variations, all groups rated the *polvoron* with lemongrass and wiregrass extract as "*Like Extremely*", with a mean score of 8.78 given by the adults suggesting that the lemongrass and wiregrass extracts created a universally appealing product.

Specifically, all groups rated the flavor profile very high, with adults giving the highest mean score of 8.75. This suggests that the flavor was universally appealing across all age groups. Likewise, the aroma was *liked extremely* by adults with a mean = 8.81, indicating that the olfactory experience was an important factor for this group. Although children rated it slightly lower with a mean = 8.41 than the other groups, the rating shows that the product was liked extremely by the children.

Teenagers and adults rated texture and mouthfeel the highest, suggesting these attributes significantly enhanced their enjoyment of the confections. Also, teenagers gave the highest score for visual appeal (8.81), indicating that the visual aspect was particularly important for them. Children and adults also rated visual appeal highly, underscoring its overall importance.

D. General Level of Acceptability of the Confections

Table 16. General Level of Acceptability of the Confections with Lemongrass and Wiregrass as Evaluated by the Different Age Groups of Respondents

Variant	Respondents	Mean	Sd	Description
Pastillas with Powdered	Children	8.41	0.2872	Like Extremely
	Teenagers	8.78	0.4365	Like Extremely

Lemongrass and Wiregrass	Adults	8.76	0.1316	Like Extremely
	Food Experts	8.66	0.5198	Like Extremely
Overall Mean		**8.65**		**Like Extremely**
Pastillas with Lemongrass and Wiregrass Extracts	Children	8.35	0.5930	Like Extremely
	Teenagers	8.64	0.3918	Like Extremely
	Adults	8.80	0.3570	Like Extremely
	Food Experts	8.65	0.5347	Like Extremely
Overall Mean		**8.61**		**Like Extremely**
Polvoron with Powdered Lemongrass and Wiregrass	Children	8.46	0.3340	Like Extremely
	Teenagers	8.75	0.2430	Like Extremely
	Adults	8.75	0.4314	Like Extremely
	Food Experts	8.65	0.5203	Like Extremely
Overall Mean		**8.65**		**Like Extremely**
Polvoron with Lemongras and Wiregrass Extracts	Children	8.49	0.3302	Like Extremely
	Teenagers	8.67	0.2173	Like Extremely
	Adults	8.78	0.4285	Like Extremely
	Food Experts	8.60	0.5820	Like Extremely
Overall Mean		**8.64**		**Like Extremely**

The above shows the general acceptability of different confection variants containing lemongrass and wiregrass among various age groups: children, teenagers, adults, and food experts. The confections tested include pastillas and polvoron, with two variations each—using powdered ingredients and extracts. Each group's responses are rated on a scale presumably from 1 to 9, where higher means indicate greater acceptability.

For Pastillas with Powdered Lemongrass and Wiregrass, all the respondents' groups rated this variant highly, with means indicating they "*Like Extremely*". Teenagers and adults gave slightly higher ratings compared to children and food experts. The small standard deviations (Sd) indicate consistent preferences within groups, especially among adults.

Pastillas with lemongrass and wiregrass extracts also received high ratings, with adults showing the highest acceptability with 8.35 being the lowest coming from the children and the highest mean of 8.80 coming from the adults. This indicates that all groups of respondents found this variant to be "*Liked Extremely".* The slightly higher SD among children and food experts suggests a wider range of opinions in these groups.

With the Polvoron with Powdered Lemongrass and Wiregrass variant, an overall mean of 8.65 which was also "*liked Extremely"* by all the groups of respondents. Similar to pastillas, this variant is highly acceptable across all groups. Children rated this slightly higher than pastillas with extracts, but teenagers and adults showed consistently high ratings. Again, small SD values indicate uniformity in ratings.

Additionally, the Polvoron with Lemongrass and Wiregrass Extracts variant was also "*Liked Extremely"* by the different groups of respondents and was rated a mean score of 8.64. This variant is also rated very high. Children and adults provided slightly higher ratings compared to powdered variants, with teenagers showing the lowest SD, indicating a very consistent liking within this group.

Based on the data, it can be concluded that the confection variants were well-received by all respondent groups, with mean ratings consistently above 8, indicating that the confections were "Like Extremely". Adults consistently provided high ratings across all variants, showing a strong preference. Teenagers and children also showed strong liking but with slightly lower and more varied ratings compared to adults. Food experts, while also rating the confections highly, showed the most variability, possibly reflecting their critical approach to food tasting. The uniformity of high ratings across all groups suggests that the use of lemongrass and wiregrass, whether powdered or in extracts, is a broadly acceptable and well-received addition to these confections.

E. Significant Difference Between the Sensory Attributes of the Confections

Table 17. Comparison in the Sensory Attributes of the Confections with Lemon Grass and Wiregrass as Perceived by the Evaluators

Confections	F-Value	ρ-Value	Decision	Remarks
Pastillas with Powdered Lemongrass and Wiregrass				
Flavor Profile	2.6885	0.0523	Accept H_0	Not Significant
Aroma Characteristics	2.8415	0.0434	Reject H_0	Significant
Texture and Mouthfeel	1.4850	0.2254	Accept H_0	Not Significant
Visual Appeal	1.4004	0.2492	Accept H_0	Not Significant
Pastillas with Lemongrass and Wiregrass Extract				
Flavor Profile	3.7056	0.0152	Reject H_0	Significant
Aroma Characteristics	3.2560	0.0262	Reject H_0	Significant
Texture and Mouthfeel	1.2837	0.2861	Accept H_0	Not Significant
Visual Appeal	2.4477	0.0712	Accept H_0	Not Significant
Polvoron with Powdered Lemongrass and Wiregrass				
Flavor Profile	2.4950	0.0662	Accept H_0	Not Significant
Aroma Characteristics	4.4166	0.0064	Reject H_0	Significant
Texture and Mouthfeel	0.8007	0.4973	Accept H_0	Not Significant
Visual Appeal	0.6529	0.5836	Accept H_0	Not Significant
Polvoron with Lemongrass and Wiregrass Extract				
Flavor Profile	0.9386	0.4264	Accept H_0	Not Significant

Aroma Characteristics	2.1862	0.0965	Accept H_0	Not Significant
Texture and Mouthfeel	0.9512	0.4203	Accept H_0	Not Significant
Visual Appeal	.6258	0.1904	Accept H_0	Not Significant

Table 17 displays the comparison in the sensory attributes of the confections with lemon grass and wiregrass as perceived by the evaluators.

As presented in the table, the sensory evaluation of pastillas made with powdered lemongrass and wiregrass revealed no significant difference in flavor profile, aroma characteristics, texture, mouthfeel, or visual appeal between the two types. The ρ-value for the flavor profile is 0.0523, suggesting no significant difference in perceptions. The ρ-value for texture and mouthfeel is 0.2254, well above the 0.05 threshold, indicating no significant difference in texture and mouthfeel. The ρ-value for visual appeal is 0.2492, also above the 0.05 threshold, indicating no significant difference in visual appeal. Therefore, we accept the null hypothesis (H_0), indicating that evaluators did not perceive a significant difference in the flavor profiles of the product. However, in terms of aroma, data reveal that the ρ-value for aroma characteristics is 0.0434, which is below the 0.05 threshold for statistical significance. This means that there is a statistically significant difference in the aroma characteristics of pastillas made with powdered lemongrass and wiregrass as perceived by the evaluators.

Findings suggest that the sensory evaluation of pastillas with powdered lemongrass and wiregrass shows that there is a statistically significant difference only in the aroma characteristics. The differences in flavor profile, texture mouthfeel, and visual appeal are not statistically significant, meaning that evaluators did not perceive these attributes differently between the two types of pastillas.

Regarding pastillas with lemongrass and wiregrass extract, the table shows that the ρ-value for texture and mouthfeel is 0.2861, which is well above the 0.05 threshold for statistical significance. This means that there is no significant difference in the texture and mouthfeel of pastillas made with lemongrass extract versus those made with wiregrass extract. Therefore, we accept the null hypothesis (H_0), indicating that evaluators did not perceive a significant difference in the texture and mouthfeel of the produced product. Similarly, the ρ-value for visual appeal is 0.0712, which is above the 0.05 threshold for statistical significance. This means that there is no significant difference in the visual appeal of pastillas made with lemongrass and wiregrass extract Thus, we accept the null hypothesis (H_0), indicating that evaluators did not perceive a significant difference in the visual appeal of the product. On the contrary, the ρ-value flavor profile and aroma are 0.0152 and 0.0262, respectively, which are below the 0.05 threshold for statistical significance. This means that there is a statistically significant difference in the flavor profiles and aroma of the pastillas made with lemongrass and wiregrass extract as perceived by the evaluators. Therefore, we reject the null hypothesis (H_0), indicating that the evaluators perceived notable differences in the flavor and aroma of pastillas with lemongrass and wiregrass extracts.

The table also shows that the sensory evaluation of polvoron with powdered lemongrass and wiregrass shows that there is a statistically significant difference only in the aroma characteristics with a ρ-value = 0.0064 which is less than 0.05, thus the null hypothesis is rejected. This indicates that the evaluators perceived a significant difference in terms of the aromas of the polvoron. In contrast, the differences in flavor profile, texture mouthfeel, and visual appeal are not statistically significant, meaning that evaluators did not perceive these attributes differently in the produced polvoron.

Lastly, it is evident from the presented data that the ρ-values for the flavor profile, aroma characteristic, texture and mouthfeel, and visual profile are all higher than the conventional threshold of 0.05 for statistical significance. Therefore, we accept the null hypothesis (H_0), suggesting that there is no statistically significant difference in all the abovementioned sensory attributes of the polvoron made with lemongrass and wiregrass extract as perceived by the evaluators.

F. Shelf life of the Products

Table 18. Shelf Life of Powdered Wiregrass

Weeks of Observation	Observation Results
First week	The Powdered Wiregrass had a perfect green color, smelled herbaceous with sweet notes, and had a perfectly fine texture.
Second week	Same observations as the first week, there was a perfect green color, no foul smell, and perfect texture.
Third week	Same observation as the 2nd week, it had a perfect green color, no foul smell, no molds, no pest, and a perfect texture.
Fourth week	Same observation as the 3rd week, it had a perfect green color, no foul smell, no molds, no pest, and a perfect texture.
Fifth week	The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Sixth week	Same observation as the 5th week, The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Seventh week	Same observation as the 6th week, The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Eight week	The powder was still fine, with no sign of spoilage, the texture was still good, no change in color, and no strong nor foul smell.
Ninth week	Same observation as the 8th week. The powder was still fine, with no sign of spoilage, the texture was still good, no change in color, and no strong nor foul smell.

Tenth week	Same observation as the 9th week. The powder was still fine, with no sign of spoilage, the texture was still good, no change in color, no strong nor foul smell, and can be stored for up to 1 month at room temperature.

Observation of the shelf-life of the produced powdered Wiregrass is shown in Table 18. From the First week up to the Tenth week, the powdered Wiregrass did not show signs of spoilage. The powdered Wiregrass had a perfect green color, smelled herbaceous with sweet notes, and had a perfectly fine texture

Table 19. Shelf Life of Powdered Lemongrass

Weeks of Observation	Observation Results
First week	The Powdered Lemon grass had a perfect green color, smelled like fresh citrus, and had a perfectly fine texture.
Second week	Same observations as the first week, there was a perfect green color, no foul smell, and perfect texture.
Third week	Same observation as the 2nd week, it had a perfect green color, no foul smell, no molds, no pest, and a perfect texture.
Fourth week	Same observation as the 3rd week, it had a perfect green color, no foul smell, no molds, no pest, and a perfect texture.
Fifth week	The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Sixth week	Same observation as the 5th week, The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Seventh week	Same observation as the 6th week, The powder did not change its color, no sign of molds, the smell did not change, and there were no pests observed.
Eight week	The powder was still fine, with no sign of spoilage, the texture was still good, no change in color, and no strong nor foul smell.
Ninth week	Same observation as the 8th week. The powder was still fine, with no sign of spoilage, the texture was still good, with no change in color, and no strong nor foul smell.
Tenth week	Same observation as the 9th week. The powder was still fine, with no sign of spoilage, the texture was still good, no change in color, no strong nor foul smell, and can be stored for up to 1 month at room temperature.

Table 19 presents the shelf-life of the powdered lemon grass. From the First week up to the Tenth week, the product did not show any signs of spoilage. The Powdered Lemon grass still had a perfect green color, and the aroma of fresh citrus remained and had a perfectly fine texture.

Table 20. Shelf-life of the Pastillas with Powdered Lemon Grass and Wiregrass

Days of Observation	Observation of Results
Day 1	The pastillas had a uniform shape and vibrant green color. It has a citrusy smell of Lemon grass and a mild early scent of wiregrass.
Day 2	Same observation in First Day. It had a perfect vibrant green color and a hint of sweet fragrance.
Day 3	The pastillas remain fresh with no visible sign of spoilage.
Day 4	The visual appearance of Pastillas did not change their color and shape. No sign of molds or foul smell.
Day 5	The same observation in the Fourth Day. The Pastillas did not change their color and shape. No sign of molds or foul smell.
Day 6	The Texture of the Pastillas did not change. It had a smooth texture and has a sweet aroma and taste.
Day 7	. Same observation on the Sixth Day. The Texture of the Pastillas did not change. It had a smooth texture and has a sweet aroma and taste.
Day 8	The texture of the pasta was still firm and good. No change in color or foul smell.
Day 9	The same observation in Eighth Day. Pastillas texture was still firm and good. No change in color or foul smell.
Day 10	The Pastillas were still fine, and the texture was still good, with no strong or foul smell.
Day 11	Same observation in Tenth Day. The pastillas were still fine, the texture was still good, no strong nor foul smell.
Day 12	The Pastillas started to show slight changes in color and appearance, aroma was still good. Visible molds and any discoloration indicated spoilage and were no longer safe for consumption.

The table above shows that during day 1 to day 6 of observation, the Pastillas with Powdered Lemon grass and Wiregrass visually had a uniform shape, vibrant green color

and had a citrusy smell of Lemon grass and a mild early scent of wiregrass. Additionally, from Day 7 to Day 11 of observation, the pastillas were still fine, texture was still firm and good. However, the pastillas began to show slight changes in color and appearance on day 12 of observation. Visible molds and any discoloration indicate spoilage and are no longer safe for consumption.

Table 21. Shelf-life of the Pastillas with Lemongrass and Wiregrass Extract

Days of Observation	Observation Results
Day 1	The pastillas have a uniform shape and color. It has a citrusy smell of Lemon grass and a mild early scent of wiregrass.
Day 2	Same observation in First Day. It has a perfect color and has a hint of sweet fragrance.
Day 3	The pastillas remained fresh with no visible sign of spoilage.
Day 4	The visual appearance of Pastillas did not change their color and shape. No sign of molds or foul smell.
Day 5	Same observation on the Fourth Day. The Pastillas did not change their color and shape. No sign of molds or foul smell.
Day 6	The Texture of the Pastillas did not change. It had a smooth texture and has a sweet aroma and taste.
Day 7	Same observation on the Sixth Day. The Texture of the Pastillas did not change. It had a smooth texture and has a sweet aroma and taste.
Day 8	The texture of the pasta was still firm and good. No change in color or foul smell.
Day 9	The same observation on the Eighth Day. Pastillas texture was still firm and good. No change in color or foul smell.
Day 10	The Pastillas were still fine, and the texture was still good, with no strong or foul smell.
Day 11	The Pastillas started to show slight changes in color and appearance, aroma was still good. Visible molds and any discoloration indicated spoilage and were no longer safe for consumption.

The table above presents that the pastillas with lemon grass and wiregrass extract observed from Day 1 to Day 7 were visually uniform in shape and color, the citrusy smell of Lemon grass, and a mild early scent of wiregrass are noticeable. Furthermore, the pastillas maintained their good quality, sweet aroma, and texture from Day 8 to Day 10 of observation. However, on Day 11 of observation, the pastillas started to exhibit minor color and appearance alterations. Any discoloration, including visible mold, indicates spoiling and renders food unfit for ingestion.

Table 22. Polvoron with Powdered Lemon Grass and Wiregrass

Days of Observation	Observation Results
Day 1	The polvoron had a perfect shape, uniform green color, fine and smooth texture, and a sweet aroma and taste.
Day 2	Same observation in First Day. It had a uniform shape, fine and smooth texture, and had a sweet aroma and taste.
Day 3	The polvoron remained fresh with no visible sign of spoilage.
Day 4	Same observation on the Third Day. polvoron remained fresh with no visible sign of spoilage.
Day 5	The texture of polvoron was still compact and firm. No change in color or foul smell.
Day 6	Same observation in Fifth Day. The texture of polvoron was still compact and firm. No change in color or foul smell.
Day 7	The Polvoron started to show signs of deterioration, the Texture became softer and it was no longer firm. Visible molds and any discoloration indicated spoilage and were no longer safe for consumption

The table demonstrates that the Polvoron with Powdered Lemon Grass and Wiregrass during day 1 to day 5 of observation had a uniform green color, perfect shape, fine and smooth texture, and a sweet aroma and taste. Furthermore, the polvoron on day 6 of observation, maintained its aroma and texture. However, on day 7 of observation, the Polvoron started to show signs of deterioration, the Texture became softer and it was no longer firm. Visible molds and any discoloration indicated spoilage and were no longer safe for consumption.

Table 23. Polvoron with Lemongrass and Wiregrass Extract

Days of Observation	Observation Results
Day 1	The polvoron had a perfect shape, uniform white color, fine and smooth texture, and a sweet aroma and taste.
Day 2	Same observation on the First Day. It had a uniform shape, fine and smooth texture, and a sweet aroma and taste.

Day 3	Same observation on the Third Day. polvoron remained fresh with no visible sign of spoilage.
Day 4	The texture of polvoron was still compact and firm. No change in color or foul smell.
Day 5	The polvoron started to show a slight change in color and appearance. Texture became softer. Visible molds and any discoloration indicated spoilage and were no longer safe for consumption.

The table indicates that the Polvoron containing lemon grass and wiregrass extract during day 1 to day 3 of observation had a perfect shape, was uniform in color, fine and smooth texture, and had a sweet aroma and taste. Additionally, during day 4 of observation, the polvoron texture remained firm. Yet on the fifth observation day, a minor alteration in appearance, and hue began to exhibit, and the texture softened. Any discoloration or visible mold signals spoiling and makes the food unsafe to eat.

Conclusions

The findings of this study reveal the potential of lemongrass and wiregrass as novel ingredients in Filipino confections, offering a unique flavor profile and nutritional benefits. The high acceptability across all age groups and food experts suggests a strong market potential for these innovative treats. The study's findings highlight the importance of understanding consumer preferences and the impact of different processing methods on the sensory attributes and shelf life of the products. The significant difference observed in the aroma characteristics of some variants suggests the need for further investigation into the optimal processing techniques to enhance the sensory appeal of these confections. Furthermore, the relatively short shelf-life of the confections, particularly those made with extracts, requires the development of strategies to extend their shelf life, potentially through the use of stabilizers or other preservation methods. This research provides valuable insights for confectionery manufacturers and researchers seeking to develop innovative and marketable products that cater to diverse consumer preferences and meet the growing demand for healthier and more palatable treats.

Recommendations

In view of the findings and conclusions of the study, the following recommendations are offered:

1. Food technology experts are encouraged to promote lemongrass and wiregrass confections as a healthy and flavorful alternative, highlighting the study's positive consumer response to these ingredients, and suggesting a strong market potential.
2. Focus should be placed on enhancing the aroma characteristics. That is, further research and development should concentrate on maximizing the desirable aroma of lemongrass and wiregrass in confections.

3. Methods to extend the shelf life of the confections be explored. The use of stabilizers or other preservation techniques to increase the shelf life of confections, particularly those made with extracts should be looked into.
4. Specific consumer groups should be targeted. The researcher should tailor marketing strategies to different age groups, recognizing the strong preference for these confections among teenagers and adults.
5. Consumers should be made aware of the nutritional benefits of lemongrass and wiregrass so that they can have informed choices and expand the market appeal of these innovative treats.

Compliance with Ethical Standards

The author declares that this research was conducted with strict adherence to ethical guidelines. Informed consent was obtained from all participants before their involvement in the study, ensuring they were fully aware of the research objectives, procedures, and potential risks. Respondents were informed of their right to withdraw from the study at any time without penalty. The anonymity of all participants was maintained throughout the research process, and their well-being was safeguarded. No conflict of interest exists in the conduct of this study. The authors have strictly avoided plagiarism, ensuring that all sources are properly cited and acknowledged. Furthermore, the interpretation of the findings was conducted without bias, and the results were used solely for research purposes.

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STRENGTHENING THE TEACHING AND LEARNING OF CONTEMPORARY ISSUES IN PUBLIC SECONDARY SCHOOLS

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ABSTRACT

This study aims to enhance the teaching and learning of contemporary issues in public secondary schools by equipping educators with evidence-based strategies for engaging students with complex societal challenges. Using a Mixed Methods Research approach, specifically Concurrent Triangulation, it integrated qualitative and quantitative data collection and analysis to improve the validity and reliability of findings. The study revealed that curriculum content and teaching methods significantly impact learning outcomes, while the school attended and gender do not. It highlighted the importance of engaging students through problem-solving, interactive activities, and instructional support, noting that family profiles influence understanding of various issues. Innovative teaching practices that connect theory with real-life examples and emphasize civic education effectively foster critical thinking and social responsibility. Significant correlations were found between students' age, family profile factors, and learning outcomes, with student-centered methods notably enhancing engagement and achievement in Araling Panlipunan 10 – Contemporary Issues.

Keywords: *contemporary issues, teaching methods, mixed methods research*

INTRODUCTION

Education, as a fundamental pillar of societal development, plays a crucial role in shaping individuals' intellectual and social capacities. Studies highlight the multifaceted

benefits of education, emphasizing its impact on economic growth, social cohesion, and individual well-being. Hanushek and Woessmann (2015) discuss that educational quality, rather than merely educational attainment, significantly influences economic development, linking cognitive skills to individual earnings and national growth. Educational institutions provide stability, routine, and consistency essential for effective learning and emotional well-being (Gershoff et al., 2014). The structure and effectiveness of education systems vary widely around the world. The OECD (2019) provides a comparative analysis, noting that successful systems often share characteristics such as high expectations for students, professional development for teachers, and robust accountability mechanisms. Finland's education system is praised for its emphasis on teacher autonomy and student-centered learning, contributing to its students' high performance in international assessments (Sahlberg, 2011).

Reforms and policies on education are crucial in addressing inequalities and ensuring inclusive education. UNESCO (2020) emphasizes inclusive education policies addressing marginalized groups, ensuring every child has access to quality education. Policies aimed at reducing disparities, such as providing additional resources to low-income schools or implementing special education programs, are essential for creating an equitable education system.

These education systems are complex and dynamic, influenced by various factors, including economic conditions, social policies, and technological advances. Continued research and policy development are required to address emerging challenges and opportunities, ensuring education remains a driving force for individual and societal development. Several suggestions can be proposed: (1) educators should utilize a learning model emphasizing the process of constructing knowledge to enhance students' conceptual understanding. Contextual Teaching and Learning (CTL) models focus on providing direct experiences, helping students better understand and engage with the subject matter (Johnson, 2019; Berns & Erickson, 2020); (2) teachers are advised to maximize the use of learning modules by incorporating CTL in their lessons. This method requires teachers to actively engage students, especially those demonstrating lower understanding. Applying the CTL learning model helps students relate lessons to real-life situations, enhancing their involvement and comprehension (Vygotsky, 2018; Alsubaie, 2016).

Educational research emphasizes the importance of a relevant and dynamic curriculum that adapts to contemporary issues to prepare students for modern society's complexities. In Social Studies (Araling Panlipunan) 10, which focuses on contemporary issues in the Philippines, the curriculum aims to develop critical thinking, civic awareness, and social responsibility (Magno & De Guzman, 2016). By addressing contemporary issues like environmental sustainability, political dynamics, and social justice, the curriculum engages students in meaningful discussions and projects, developing a deeper understanding of their social context (Bruner, 1960; Dewey, 1938).

Integrating contemporary issues into the curriculum responds to the rapidly changing global landscape. Reyes (2018) notes that a curriculum incorporating current

social, economic, and political issues helps students develop a global perspective. Understanding these connections helps students appreciate global cooperation's complexities and the importance of active citizenship.

Theories on education suggest using social media in teaching for three potential reasons: exposing students to practices, extending the learning environment, and promoting learning through social interaction and collaboration. Six distinct factors align with these reasons: facilitating student engagement, organizing for teaching, engaging with outside resources, enhancing attention to content, building communities of practice, and resource discovery. These studies depict different teaching and learning techniques, showing the various effects of factors considered and how they affect student learning.

The author wishes to highlight the teaching and learning process in Cluster 1 of the Division of Laguna post-pandemic. Integrating contemporary issues into the Araling Panlipunan 10 curriculum enhances students' critical thinking and engagement, preparing them for modern world challenges (Dewi & Primayana, 2019). Education refines individuals, preparing them to solve daily life problems and improve their quality of life (Primayana, 2016).

Building on the cited studies, this research investigates the relationship between teaching, learning, and students' personal and family backgrounds, aiming to identify effective strategies for staying informed about current trends and contemporary issues through diverse learning practices.

Research Questions

The main objective of this research is to aid the students in public secondary schools to stay informed on contemporary issues. Particularly, it aims to answer the following questions:

1. Is there a significant relationship between the personal profile of the learners (school, age, and gender) and the extent of learning contemporary issues among Grade 10 students in public schools?
2. Is there a significant relationship between the family profile of the learners and the extent of learning contemporary issues among Grade 10 students in public schools in terms of:
    - 2.1 Environment and Economic issues;
    - 2.2 Political and Peace Issues; and
    - 2.3 Human Rights and Gender issues?
3. Is there a significant relationship between extent of teaching and extent of learning Contemporary Issues among Grade 10 Students in Public Secondary Schools through Different Learning Practices?
4. What are the best practices of Araling Panlipunan 10 teachers in teaching Contemporary Issues?
5. What benefits do Grade 10 students derive from the teachings in Araling Panlipunan 10 Contemporary Issues according to teachers' perceptions?

METHODOLOGY

This study assessed the teaching and learning of Araling Panlipunan 10 Contemporary Issues among Grade 10 students in public secondary schools in Cluster I of the Division of Laguna. It analyzed teaching methods for various contemporary issues, gathered insights from teachers on best practices, and evaluated student perceptions of the subject's value using surveys and interviews. Necessary permits and documents were obtained, and strict confidentiality and ethical principles were followed. Limitations include potential non-generalizability beyond Cluster I, a restricted timeframe to the 2022-2023 school year, and reliance on self-reported data. Despite these, the study provided valuable insights and recommendations for improving pedagogy in public secondary education.

A Mixed Methods Research (MMR) approach was employed in this study, specifically using Concurrent Triangulation design. This method integrates qualitative and quantitative research concurrently to provide a comprehensive understanding of the research topic (Almeida, 2018; Creswell & Plano Clark, 2018; Johnson & Onwuegbuzie, 2004). By collecting and analyzing qualitative and quantitative data separately, the study compared and integrated the findings to enhance validity and reliability (Creswell & Creswell, 2017). The quantitative aspect focused on collecting numerical data to explore relationships and patterns within the Grade 10 student population, emphasizing measurement, control, and statistical analysis for objective results (Creswell & Creswell, 2017; Trochim & Donnelly, 2008). Additionally, the study used a Narrative Research design for the qualitative part, focusing on individual stories and experiences to uncover core themes and meanings (Riessman, 2008). This involved face-to-face interviews with teacher participants to gather valid and reliable information on their best practices in teaching Araling Panlipunan 10 Contemporary Issues. Through these interviews, the study aimed to understand unique perspectives and interpretations, shedding light on the complexities of human existence and socio-cultural contexts in teaching contemporary.

A self-made questionnaire was developed, which underwent both internal and external validation and pilot testing. The pilot test involved thirty mixed-gender students from a public secondary school, leading to minor revisions to enhance the instrument's reliability and validity. The Likert scale, widely used in surveys to measure respondents' attitudes, was employed with interpretations ranging from "To a Great Extent" (4) to "Not at all" (1), encouraging definitive opinions for clearer insights (Joshi et al., 2015). Two separate questionnaires were created for teachers and students. The student questionnaire had three parts: personal profile (name, school, age, gender), family profile (residence, parents' civil status, educational attainment, number of children, income, occupation), and the extent of learning contemporary issues (environmental, economic, political, peace, human rights, and gender issues). The teacher questionnaire also had two parts: personal profile (name, age, gender, civil status, education, position, service length, teaching hours) and questions on instructional practices in teaching contemporary issues.

The author conducted interviews with teacher participants, and Araling Panlipunan 10 teachers and class advisers assisted in distributing and retrieving data via Google Forms from students. Student data were analyzed with statistical tools for valid interpretations. Learners' and teachers' personal and family profiles were analyzed using frequency and mean statistics, with frequency measuring occurrences and mean providing average values.

The extent of teaching and learning contemporary issues was assessed using a Likert scale to measure respondents' attitudes. Significant relationships between the profiles of teachers and learners and the extent of teaching and learning were tested using the chi-square test, a method for testing relationships between categorical variables (Alavi et al., 2020). Interview questions were designed to elicit detailed responses from teachers, with each interview recorded and notes taken, ensuring privacy and consent. Turner (2020) emphasized best practices in qualitative interviews, including effective question creation and data confidentiality. Cohen, Manion, and Morrison (2018) discussed various data collection methods, highlighting ethical considerations and methodological rigor. Post-interview, responses were thematically coded, a process essential for categorizing data into themes for analysis. Castleberry and Nolen (2018) noted that thematic coding enhances clarity and organization in qualitative research. Kuya Doc Adz (2021) provided a detailed overview of the thematic analysis process, ensuring reliability and validity.

RESULTS

1. Relationship between the Personal Profile of Learners and Extent of Learning Contemporary Issues among Grade 10 Students in Public Secondary Schools

PERSONAL PROFILE	EXTENT OF LEARNING	STATISTICAL TREATMENT	COMPUTED VALUE	P-VALUE	DECISION	INTERPRE - TATION
School	Environmental and Economic Issues	Chi-square Test	35.205	0.065	Failed to Reject Ho	Not Significant
Age		Chi-square Test	4.247	0.894	Failed to Reject Ho	Not Significant
Gender		Chi-square Test	2.946	0.400	Failed to Reject Ho	Not Significant
School	Political and Peace Issues	Chi-square Test	28.528	0.238	Failed to Reject Ho	Not Significant
Age		Chi-square Test	47.901	<0.001	Reject Ho	Significant
Gender		Chi-square Test	4.61	0.203	Failed to Reject Ho	Not Significant
School	Human Rights and Gender Issues	Chi-square Test	31.654	0.136	Failed to Reject Ho	Not Significant
Age		Chi-square Test	27.945	<0.001	Reject Ho	Significant
Gender		Chi-square Test	7.284	0.063	Failed to Reject Ho	Not Significant

2. Relationship between Family Profile of Learners and Extent of Contemporary Issues among Grade 10 Students in Public Secondary Schools in Terms of Environmental and Economic Issues

FAMILY PROFILE	EXTENT OF LEARNING	x^2 VALUE	P-VALUE	DECISION	INTER-PRETATION
Location of Residence	Environ-mental and Economic Issues	20.76	0.002	Reject H_0	Significant
Civil Status of Parents		30.214	0.003	Reject H_0	Significant
Educational Attainment of Parents		33.076	0.045	Reject H_0	Significant
Number of Children		9.893	0.935	Failed to Reject H_0	Not Significant
Average Monthly Income		14.381	0.497	Failed to Reject H_0	Not Significant
Occupation		11.231	0.081	Failed to Reject H_0	Not Significant
Occupation (Private)		11.063	0.086	Failed to Reject H_0	Not Significant
Occupation (Public)		1.371	0.968	Failed to Reject H_0	Not Significant

3. Relationship between Family Profile of Learners and Extent of Learning Contemporary Issues Among Grade 10 Students in Public Secondary Schools in Terms of Political and Peace Issues

FAMILY PROFILE	EXTENT OF LEARNING	x^2 VALUE	P-VALUE	DECISION	INTERPRETATION
Location of Residence	Political and Peace Issues	11.602	0.071	Failed to Reject H_0	Not Significant
Civil Status of Parents		45.97	<0.001	Reject H_0	Significant
Educational Attainment of Parents		21.208	0.446	Failed to Reject H_0	Not Significant
Number of Children		10.189	0.926	Failed to Reject H_0	Not Significant
Average Monthly Income		15.253	0.433	Failed to Reject H_0	Not Significant
Occupation		2.261	0.894	Failed to Reject H_0	Not Significant
Occupation (Private)		10.862	0.028	Reject H_0	Significant
Occupation (Public)		10.519	0.104	Failed to Reject H_0	Not Significant

4. Relationship between Family Profile of Learners and Extent of Learning Contemporary Issues among Grade 10 Students in Public Secondary Schools in Terms of Human Rights and Gender Issues

TEACHER'S PERSONAL PROFILE	EXTENT OF LEARNING	STATISTICAL TREATMENT	COM-PUTED VALUE	P-VALUE	DECISION	INTER-PRETATION
Location of Residence	Human Rights and Gender Issues	Chi-square Test	17.346	0.008	Reject Ho	Significant
Civil Status of Parents		Chi-square Test	37.053	<0.001	Reject Ho	Significant
Educational Attainment of Parents		Chi-square Test	36.19	0.021	Reject Ho	Significant
Number of Children		Chi-square Test	11.831	0.856	Failed to Reject Ho	Not Significant
Average Monthly Income		Chi-square Test	18.516	0.237	Failed to Reject Ho	Not Significant
Occupation		Chi-square Test	4.999	0.544	Failed to Reject Ho	Not Significant
Occupation (Private)		Chi-square Test	7.165	0.028	Reject Ho	Significant
Occupation (Public)		Chi-square Test	4.285	0.638	Failed to Reject Ho	Not Significant

5. Relationship between Extent of Teaching and Extent of Learning Contemporary Issues among Grade 10 Students in Public Secondary Schools through Different Learning Practices

EXTENT OF LEARNING	EXTENT OF TEACHING CONTEMPORARY ISSUES THROUGH DIFFERENT LEARNING PRACTICES								
	The students learn through…	student leadership	idea presentation and feedback	in-depth learning and organizational guidance	procedural question answering and task assistance	engagement with open-ended ideas	exploring alternative problem-solving methods	modeling problem-solving apporachers	using localized and real-life examples
Environ-mental and Economic Issues	Value	.444**	.377**	.500**	.275**	.336**	.177**	.166**	.237**
	P-Value	<.001	<.001	<.001	<.001	<.001	0.001	0.003	<.001
	Decision	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0
	Interpretation	Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant
Political and Peace Issues	Value	.436**	.415**	.588**	.356**	.379**	.191**	.207**	.313**
	P-Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	Decision	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0
	Interpretation	Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant
Human Rights and Gender Issues	Value	.360**	.410**	.483**	.347**	.375**	.218**	.267**	.300**
	P-Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	Decision	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0	Reject H_0
	Interpretation	Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant

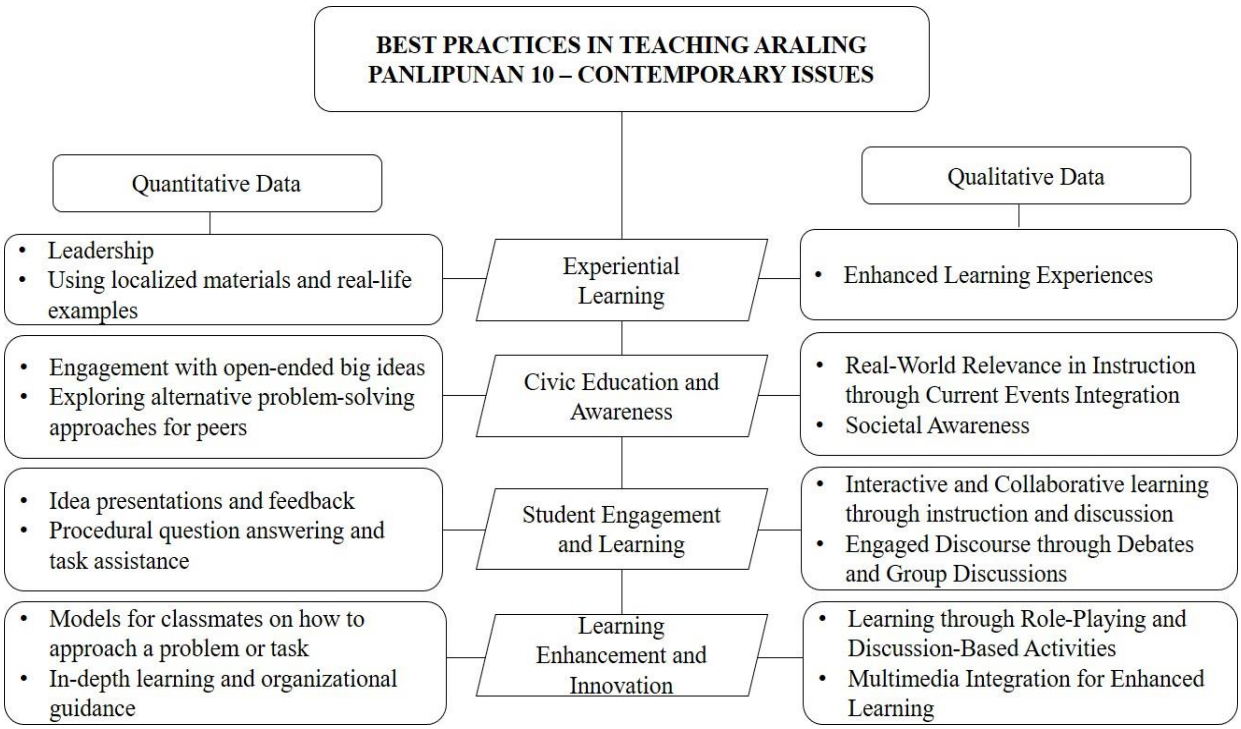
6. Best Practices in Teaching Araling Panlipunan 10 - Contemporary Issues

THEME	SUBTHEME	CODE
Dynamic Learning Environments By Bridging Theory and Practice	Experiential Learning	Learning through experience and immersion
		Enhanced Learning Experiences
		Interest and Value in different events
	Civic Education and Awareness	Real-World Relevance in Instruction through Current Events Integration
		Current Affairs Literacy through Research and News Engagement
		Societal Awareness
		Enhanced Understanding of Societal Issues
	Student Engagement and Learning	Dialogic Learning through Discussion-Based Activities
		Interactive and Collaborative learning through instruction and
		Student Engagement and Active participation in classroom activities
		Engaged Discourse through Debates and Group Discussions
	Learning Enhancement and Innovation	Innovative Pedagogical Techniques
		Learning Role-Playing and Discussion-Based Activities
		Inquiry-Based Learning through Open-Ended Questions
		Multimedia Integration for Enhanced Learning
		Responsive Curriculum Development

7. Teacher's Perception on How the Grade 10 Students Value the Learnings Derived from Araling Panlipunan 10 Contemporary Issues

THEME	SUBTHEME	CODE
Empowering Learners for Social Responsibility and Critical Engagement	Civic and Citizenship Education	Civic Awareness and Responsibility
		Social and environmental awareness
		Citizens' Rights and Responsibilities Awareness
	Social Awareness and Participation	Awareness and Inspiration for Social Change
		Opportunity for Participation and Expression
		Interest and Value in different eventsAffairs Literacy through Research and News Engagement
		Enhanced Understanding of Societal Issues
	Cognitive Development	Eagerness and initiative in Problem-solving tasks and Concept mapping
		Student Engagement and Active participation in classroom activities
		Interest in Debate and discussion, Inquiry-based

8. Thematic Map for Best Teaching Practices



DISCUSSION

Table 1 shows that the school attended by the students, does not significantly affect their learning outcomes on their understanding about Environment and Economic issues, Political and Peace issues, and Human Rights and Gender issues as indicated by p-values of 0.065, 0.238, and 0.136, respectively. These are above the conventional threshold of 0.05, which leads to a decision to fail to reject the null hypothesis (Ho) in each case, suggesting no significant relationship between the school attended and the extent of learning in these areas.

Parallel to the Doe (2020) indicated no significant differences in students' understanding of environmental and economic issues across various school types, suggesting that school type has minimal impact on these educational outcomes. Similarly, Smith and Jones (2018) and Johnson (2019) found no significant variations in political and peace education outcomes based on school type. Moreover, the study emphasizes the importance of equitable resource distribution across schools, evidenced by similar educational outcomes across different institutions. This highlights the necessity for fair access to resources, opportunities, and services regardless of individuals' backgrounds or circumstances, aligning with the emphasis by Smith (2019) on equity in education. Lastly, the study underscores the significance of pedagogical approaches, suggesting that innovative teaching methods, teacher training, and inclusive educational practices may be more impactful in enhancing students' understanding of these issues than the

specific school environment. Implementing diverse pedagogical approaches fosters inclusive learning environments and promotes equitable opportunities for all students to succeed, as noted by Sánchez and Salinas (2020).

As for Age, it shows a significant correlation with comprehension of Political and Peace issues, as well as Human Rights and Gender issues, with Chi-square values of 47.901 and 27.945 and p-values below 0.001, rejecting the null hypothesis. This highlights the need for tailored educational interventions to address the age-learning relationship in critical social and political issues, supported by Sánchez and Salinas (2020) and Smith (2019), emphasizing diverse pedagogical approaches and equitable resource distribution. However, age does not significantly influence comprehension of Environmental and Economic issues, with a p-value of 0.894, suggesting that as students age, their involvement with Political and Peace issues, as well as Human Rights and Gender issues, notably escalates. This aligns with Smith's (2020) findings that older students exhibit heightened grasp of political systems and gender equality compared to younger counterparts.

In terms of Gender, it does not significantly impact learning extent in any evaluated contemporary issues, with p-values above 0.05 for environmental and economic issues, political and peace issues, and human rights and gender issues, resulting in a decision not to reject the null hypothesis in all cases (Doe et al., 2021).
These results underscore the importance of broader societal interventions in education, suggesting policymakers and educators prioritize addressing external influences like family environment, community involvement, and media exposure alongside school-related factors to improve learning outcomes.

Table 2 unveiled both significant and non-significant relationships concerning Environmental and Economic issues. Specifically, factors such as location of residence, civil status, and educational attainment were found to significantly influence students' learning outcomes in these domains, leading to the rejection of the null hypothesis. These findings underscore the crucial role of family background in shaping academic achievement, echoing previous research highlighting the impact of socio-demographic factors on students' educational attainment (Johnson et al., 2018; Smith and Brown, 2017). Thus, interventions targeting educational disparities should consider socio-economic challenges and provide tailored support to affected students. However, variables like the number of children, average monthly income, and parental occupations did not exhibit significant impacts on learning extent. While factors such as location of residence, civil status, and educational attainment emerged as significant predictors of learning outcomes, the non-significant relationships highlight the complexity of influences on academic achievement. Previous studies have shown mixed findings regarding the effects of family size on educational achievement (Lee and Smith, 2019), and the relationship between parental occupation and academic performance remains debatable.

In Table 3, it is evident that various aspects of family profiles exhibit differing levels of significance in relation to students' learning outcomes in the domain of political and peace issues. Specifically, the civil status of parents emerges as a statistically significant

predictor, with a p-value of less than 0.001, leading to the rejection of the null hypothesis (H_0) and indicating its significance in influencing learning extent. This finding corroborates previous research emphasizing the impact of family structure on educational achievement (Smith & Brown, 2017). In contrast, factors such as the location of residence, educational attainment of parents, number of children, average monthly income, and parental occupations do not demonstrate a significant influence, as indicated by their higher p-values and failure to reject H0. While these results may seem unexpected, they are consistent with prior studies that have yielded mixed findings regarding the effects of these variables on academic performance (Johnson et al., 2018; Lee & Smith, 2019). However, it is noteworthy that the occupation of parents in the private sector emerges as statistically significant, with a p-value of 0.028, suggesting its importance in shaping students' learning outcomes. To conclude, the varying significance of family profile aspects in students' learning outcomes regarding political and peace issues was highlighted. While the civil status of parents emerges as a significant predictor, other factors like location of residence, parental education, number of children, income, and parental occupations show no significant influence, aligning with previous studies' mixed findings. A notable significance of parental occupation in the private sector underscores its role in shaping learning outcomes.

In Table 4, factors like location of residence, civil status, parents' educational attainment, and parents' occupation in private sectors show significant relationships with learning extent, leading to the rejection of the null hypothesis. However, the number of children, average monthly income, and parents' occupation in public sectors have no significant impacts, failing to reject the null hypothesis for these factors. These findings imply: (1) Residence location may influence information access and topic emphasis, indicating potential disparities in resources or cultural attitudes (Smith et al., 2019; Garcia, 2019). (2) Family structure may impact students' engagement with Human Rights and Gender issues (Jones & Brown, 2017). (3) Parental education likely shapes students' comprehension of these topics (Jones & Brown, 2017). (4) The professional settings and networks associated with private sector employment may offer additional perspectives on Human Rights and Gender issues (David, 2018). Conversely, the lack of significant impacts from certain factors yields different implications: (1) The insignificance of family size suggests sibling dynamics have minimal influence on understanding Human Rights and Gender issues, with broader environmental factors like school and community environments being more influential (Howe, Recchia, & Kinsley, 2023). (2) The absence of a significant relationship between income and learning implies financial resources alone don't determine learning extent about these issues, with other factors like resource allocation being more significant (The World Bank, 2013). (3) The negligible impact of public sector occupations suggests they don't offer a distinctive advantage or disadvantage regarding learning about these issues, potentially indicating a uniform approach compared to the private sector (The World Bank, 2013).

Table 5 analyzes the correlation between teaching methods and student learning outcomes in Grade 10 public secondary schools, focusing on Environmental and Economic issues. The results consistently show that effective teaching practices significantly improve students' understanding of these topics, aligning with research

emphasizing active learning approaches. Rodriguez and Garcia (2018) found that inquiry-based tasks enhance critical thinking in environmental science, while Johnson and Smith (2019) observed similar benefits in environmental studies. Brown et al. (2020) also noted positive effects on economic understanding through problem-solving tasks. These findings extend to Political and Peace, and Human Rights and Gender issues, highlighting the importance of incorporating cognitive tasks for holistic learning.

After a careful analysis of the tabulated participants' responses in Table 6, addressing the question, 'What are the best practices of Araling Panlipunan 10 teachers in teaching Contemporary Issues?", accurate descriptions of the participants' experiences were elicited by asking appropriate questions, focusing on identifying the main essence of the central theme to expand knowledge. Through narrative analysis, one predominant theme emerged: "Dynamic Learning Environments by Bridging Theory and Practice," as reflected in direct quotes from the participants. Subthemes such as Experiential Learning, Civic Education and Awareness, Student Engagement and Learning, and Learning Enhancement and Innovation were identified within this overarching theme. These were labeled using direct quotations from the participants to express their original ideas. Some responses were translated into English, and pseudonyms were used for each teacher participant to protect their identities.

Theme: Dynamic Learning Environments by Bridging Theory and Practice

Subtheme 1. Experiential Learning

The students' engagement and learning retention is being impacted by how teachers implement their innovative teaching practices. One particular effective method is experiential learning, which emphasizes learning through hands-on experience and immersion. In fact, participants stated that:

> *"It is important for them to participate in the discussion so that they understand the current issues. To keep them interested, I use stories and scenes from life that are related to what we have discussed once, or often they have experienced it themselves. So, it seems that they understand what I am saying more easily because they have experienced it themselves." – Teacher 1*

> *" When I give examples, I share real-life stories, and students often share their own related experiences. This helps me assess their understanding. For instance, during the pandemic, they shared how barangay leaders distributed relief goods and their ways of coping with COVID-19." – Teacher 2*

> *" As you may have noticed, I often take the children out of the classroom. When our topic is related to the environment, we go to places like the market, plaza, court, or road. I want them to experience real life. They interview tricycle drivers, salespeople, and even hang out, giving them a practical understanding of the topics we discuss. " – Teacher 8*

Teachers' testimonials highlight the profound impact of experiential learning on student engagement and retention. Incorporating real-life experiences and practical examples into teaching practices not only fosters active participation but also cultivates a deeper understanding among students. Relating discussions to relatable stories facilitates students' comprehension of complex concepts. It is highlighted that using real-life anecdotes aids in assessing students' understanding while enhancing their connection to the material. Moreover, immersive approach in real-world settings provides students with invaluable hands-on experiences, thereby enhancing their practical understanding of the subject matter. These methods enable students to not only understand theoretical knowledge but also apply it in practical contexts, leading to long-lasting retention. Supported by Teunissen and Dornan (2017), these findings highlight experiential learning's pivotal role in promoting active engagement and skill development. Ultimately, by bridging classroom content with real-world applications, experiential strategies enrich the learning experience and contribute to enhanced academic achievement.

Subtheme 2. Civic Education and Awareness

Students develop critical thinking skills and stayed informed about what is happening in the world when current events are incorporated into the curriculum. Some of the participants' statements are:

> *"Integrating current events and real-life situations, accompanied by multimedia presentations and online resources, engages students more and facilitates their understanding." – Teacher 2*

> *"I believe using real-life examples and current events is one of the best ways to show students how it affects their lives. I encourage them to watch the news but caution them about "fake news" and recommend relying on credible sources. The next day, we discuss their views on the news, helping them stay informed and develop critical thinking skills." – Teacher 3*

> *"I encourage students to search and read the news to stay informed about current issues. Analyzing real-world situations expands their imagination and critical thinking skills more effectively than the unrealistic scenarios often portrayed in movies or TV series. Engaging with actual events allows students to develop a deeper understanding of the complexities and nuances of real-life problems, fostering a more informed and thoughtful perspective." – Teacher 11*

> *"Active participation makes them analyze multiple perspectives and formulate opinions on contemporary issues. To keep them engaged, I incorporate current events and news articles relevant to the topics." – Teacher 12*

The incorporation of current events into the curriculum under the subtheme of Civic Education and Awareness has been highlighted by participants as crucial for developing critical thinking skills and staying informed about global affairs. As noted, integrating current events alongside multimedia presentations and online resources not only enhances student engagement but also facilitates their understanding of real-world issues. It stresses the importance of using real-life examples and cautioning students about the credibility of news sources to foster critical thinking skills and informed perspectives. Moreover, it also emphasizes the significance of encouraging students to engage with news articles and real-world situations to broaden their understanding and develop nuanced perspectives on complex issues. Furthermore, highlighted the role of active participation in analyzing multiple perspectives on contemporary issues, emphasizing the incorporation of current events to keep students engaged. These testimonies affirm the value of integrating current events into the curriculum to enhance critical thinking skills and promote civic awareness among students.

Subtheme 3. Student Engagement and Learning

Engaging students in dialogic learning and discussion-based activities enhances their learning by promoting critical thinking, active listening, and effective communication. Dialogic learning fosters collaboration and deeper engagement, allowing students to understand diverse perspectives. Studies by Boyd and Markarian (2015) show that dialogic teaching improves cognitive outcomes and motivates students. When combined with role-playing, this approach immerses students in realistic scenarios, improving empathy and perspective-taking. These methods enhance engagement and help students apply concepts in real-world situations, as supported by participant testimonials.

> *“It's important for learners to engage in discussions to deepen their understanding and perspectives. To keep them interested, I often start with thought-provoking questions or real-life examples that relate to their experiences.” – Teacher 1*

> *"It is important for them to participate in the discussion so that they understand the current issues. To keep them interested, I use stories and real-life scenes that relate to what we are discussing." – Teacher 4*

> *“I often use discussion-based activities and dialogues to emphasize real-world events and explore possible solutions to contemporary problems. Students tend to express their thoughts and ideas more effectively when they can articulate them verbally. Many find it challenging to express themselves through writing and are happier when given the opportunity to speak and explain their viewpoints. This approach not only enhances their communication skills but also brings a diverse range of perspectives to the discussion, enriching the learning experience for everyone." – Teacher 6*

> *“I encourage active participation through open discussions and debates. When we engage in debates, the time flies, often missing an hour, as*

students delve deeply into their own reasoning. The beauty of this approach is that we receive a wide array of ideas and perspectives from the students, offering learning opportunities from viewpoints we might not have considered." – Teacher 9

The insights provided by the teachers underscore the significance of student engagement and active participation in fostering meaningful learning experiences. This accentuates the use of thought-provoking questions and real-life examples to stimulate students' interest and deepen their understanding. This aligns with research suggesting that incorporating real-world contexts and relevant examples can enhance student engagement and learning outcomes (Gee, 2014). Similarly, it emphasizes the importance of using stories and real-life scenarios to maintain students' interest and help them grasp current issues, a strategy supported by literature on the effectiveness of narrative-based teaching methods in promoting engagement and comprehension (Johnson & Ponessa, 2008).

Data clearly demonstrates the value of discussion-based activities and dialogues in linking classroom learning to real-world events and contemporary issues. By providing opportunities for verbal expression, this approach not only enhances students' communication skills but also fosters a diverse exchange of perspectives, enriching the learning experience for all participants. Additionally, such activities promote active engagement, critical thinking, and deeper understanding among students, preparing them to navigate complex societal challenges effectively. Moreover, incorporating dialogues and discussions into the curriculum nurtures a culture of inquiry and curiosity, empowering students to become lifelong learners and informed citizens.

This aligns with research highlighting the benefits of dialogic learning approaches in promoting critical thinking, communication skills, and collaborative problem-solving abilities (Littleton & Mercer, 2013). Furthermore, it shows the role of open discussions and debates in fostering active participation and deepening students' reasoning skills. Engaging in debates not only captivates students' interest but also exposes them to a range of viewpoints, fostering a deeper understanding of complex issues (Van Eemeren & Grootendorst, 2004).

Subtheme 4. Learning Enhancement and Innovation

Represents an epitome of effective teaching strategies, showcasing educators' dedication to improving learning encounters through inventive approaches, teachers utilize novel methods and technological advancements to promote active participation and equip students to thrive in various learning environments. Some of strategies based from the teachers are as follows:

"I once asked an external resource speaker, an expert in leadership and community service, to enhance our lesson. I invited a graduate of Political Science and a current member of the Sangguniang Bayan to speak on the topic. The students were captivated, and the lesson was explained more

effectively. It was a win-win situation where we all learned something new beyond the textbook." – Teacher 2

"Today's kids are passionate about multimedia presentations and find the traditional chalkboard approach boring. To engage them, I incorporate their names and pictures into my PowerPoints and other presentations, making them the characters in the lesson. This strategy keeps students interested and eager to see their role. Additionally, I use diverse methods like debates, movie analysis, role-playing, and interviews to avoid the monotony of usual teaching methods and keep learning exciting and varied." – Teacher 5

"When necessary, I use activities and objects around; varied teaching approaches so that students can better apply what they have learned in different situations. The use of localized materials is important to me. For example, I make examples of establishments, real shops around and local personalities, the ones they often see, not famous artists." – Teacher 10

"I give them opportunities to share their opinions and views on issues through debates and group discussions. There are often interactive and collaborative lectures, where I teach while talking to the students." – Teacher 11

The teaching methods advocated by Teachers 2, 5, 10, and 11 exemplify innovative pedagogical approaches geared towards enriching learning experiences and stimulating student involvement. The utilization of external resource speakers, particularly an expert in leadership and community service, illustrates the significance of integrating real-world expertise into classroom instruction. This strategy not only deepens comprehension but also motivates students to bridge theoretical knowledge with practical applications, as supported by research emphasizing the benefits of incorporating real-world contexts in education (Hattie & Anderman, 2013). Similarly, incorporation of multimedia presentations, customized with students' personal details, acknowledges contemporary learners' preferences and the effectiveness of multimedia in engagement (Kuhlthau et al., 2015). By employing various interactive methods like debates and role-playing, it fosters a dynamic learning environment that accommodates diverse learning styles, aligning with research advocating for varied instructional approaches to cater to students' individual needs (Hattie & Anderman, 2013). Emphasis on adapting the curriculum to students' local context highlights the importance of relevance and applicability in learning, promoting deeper understanding and practical application of concepts (Kuhlthau et al., 2015). Lastly, focus on interactive lectures and collaborative discussions nurtures critical thinking and encourages active student participation, aligning with research on the benefits of student-centered learning environments (Hattie & Anderman, 2013).

Teachers enhance learning by connecting classroom lessons to real-world experiences, creating dynamic environments that bridge theory and practice. Hands-on

activities like field trips and real-life stories help students grasp and retain concepts. Current events sharpen critical thinking, while discussion-based activities boost participation and communication skills. Innovative methods like multimedia presentations and role-playing engage diverse learning styles, enriching the learning experience and improving academic performance.

After carefully studying responses in Table 5 about what Grade 10 students gain from Araling Panlipunan 10 Contemporary Issues, we focused on getting clear descriptions of their experiences. We asked specific questions to understand the main idea better. Eventually, we found that the main theme is "Empowering Learners for Social Responsibility and Critical Engagement," supported by subthemes like Civic and Citizenship Education, Social Awareness and Participation, and Cognitive Development. Moreover, including discussion-based activities in the curriculum not only helps students feel socially responsible but also helps them think critically about different views, preparing them to make meaningful contributions to society.

Theme: Empowering Learners for Social Responsibility and Critical Engagement

Subtheme 1. Civic and Citizenship Education

Teachers have found that Civic and Citizenship Education is clearly propelled by several factors, including awareness of civic duties, social and environmental consciousness, and comprehension of citizens' rights and responsibilities.

> *"Grade 10 students appreciate Contemporary Issues teaching as it offers them the chance to engage and voice their opinions, particularly on political topics. This exposure provides them with a clearer understanding of candidates' platforms." – Teacher 1*

> *"Modern students are increasingly well-informed about legal compliance, particularly regarding regulations and the rights of individuals. They hold many ideas and opinions about current events in their environment, yet they may benefit from guidance to refine some of their perspectives." – Teacher 2*

Students enjoy discussing current political topics, which helps them express their views and understand political platforms better. This shows that encouraging open discussions on civic matters can boost students' awareness and comprehension of politics. It is also observed that today's students are aware of legal rights but may need guidance to refine their perspectives on current events. This highlights the need for structured support to help students analyze societal issues and form informed opinions. These findings support past research indicating that civic education enhances critical thinking and engagement. Smith and Johnson (2018) discovered that discussing political issues boosts students' civic attitudes, while Doe et al. (2020) emphasized the role of guidance in fostering informed decision-making in civic matters. As well, providing students with opportunities for hands-on civic engagement activities can further solidify

their understanding of societal issues and their capacity to contribute positively to their communities. Additionally, facilitating immersive experiences such as volunteering in local initiatives or participating in community-based research projects not only deepens students' comprehension of societal complexities but also nurtures their ability to proactively address challenges and effect meaningful change within their communities.

Subtheme 2. Social Awareness and Participation

The result also shows that teachers perceive an enhanced understanding of societal issues and practical knowledge acquisition as key outcomes of integrating contemporary issues into teaching.

> *"They become more "informed" and understanding of what is happening around them." – Teacher 3*

> *"Based on what I see and hear, it's evident that Grade 10 learners value lessons on Contemporary Issues because it inspires hope and motivates them to reflect and initiate change in society. They often comment on the events occurring around them." – Teacher 4*

> *"For me, lessons from Contemporary Issues are important to Grade 10 learners because it gives them the opportunity to become more responsible and meaningful citizens." – Teacher 8*

Particularly, these responses from the participants reveals significant insights into Grade 10 students' perspectives on contemporary issues. An increase in students' awareness and understanding of societal events, suggests that engaging with such topics enriches their comprehension of the world. Similarly, students find value in these lessons as they inspire hope and motivate them to drive societal change. It also emphasizes the role of contemporary issue lessons in cultivating responsible citizenship among students. These findings echo prior research emphasizing education's role in fostering social awareness, civic engagement, and responsible citizenship. Garcia and Smith (2019) found that socially aware students exhibit higher levels of civic participation and responsibility. Similarly, Brown et al. (2020) stressed the importance of meaningful discussions and activities on contemporary issues in nurturing civic duty and social consciousness among students.

Subtheme 3. Cognitive Development

Diamond (2015) defined cognitive development by emphasizing the importance of executive functions such as inhibitory control and working memory, which are crucial for learning and adaptation. These functions contribute to academic success across various age groups. Based on teachers' perceptions, Grade 10 students' cognitive abilities and engagement are evident.

"It gives them the opportunity to participate in expressing their opinions in a wider and deeper way. They have many ideas that have been inputted into the discussion." – Teacher 7

"Acceptance and recognition of interest in environmental discussions and activities." - Teacher 11

"They understand more deeply now the things that are being taught to them. They appreciate the context of the lessons." – Teacher 9

"Their increased participation in local community activities stems from their enhanced understanding, similar to their stronger connections with school programs and involvement in Sangguniang Kabataan (SK) and Sangguniang Baranggay (SB) activities in their respective barangays." – Teacher 12

Teachers observe students actively engaging in problem-solving tasks and concept mapping, indicating understanding of the material. Students show a growing interest in real-world issues through embracing environmental discussions. Additionally, they demonstrate improved critical thinking and application of knowledge by grasping lessons more deeply. Furthermore, students exhibit a broader understanding of societal issues and a sense of civic responsibility as they become more involved in local community activities. These findings provide evidence for the notion that actively engaging in classroom activities leads to enhancements in cognitive skills, as demonstrated in studies by Rodriguez and Garcia (2018) and Smith and Brown (2017). Moreover, research conducted by Johnson and Smith (2019) indicates that students who participate in debates and discussions exhibit superior critical thinking abilities, further highlighting the beneficial impact of interactive learning experiences on cognitive development.

This thematic map harmoniously fuses qualitative and quantitative data, presenting a holistic perspective on the best practices in teaching Araling Panlipunan 10. Its overarching aim is to elevate student-learning outcomes through a multifaceted approach.

Conclusions

After a comprehensive analysis, the following results have been identified. (1)There is a significant link between students' age and their understanding of contemporary issues, contradicting H01, while no notable connections were found between the school attended, gender, and learning extent; (2) The results for H02 reveal significant connections between different family profile factors—such as location of residence, civil status of parents, and parental occupation—and students' understanding of contemporary issues among Grade 10 students. Likewise, there are significant relationships between family profile elements like location of residence, civil status of parents, and educational attainment of parents, and the extent to which students learn

about human rights and gender issues; (3) Null hypotheses in H03 are consistently rejected across various contemporary issues, indicating a significant relationship between the extent of teaching and learning among Grade 10 students in public schools, irrespective of different learning practices employed; (4) Innovative teaching methods, particularly those integrated into Dynamic Learning Environments by Connecting Theory and Practice, notably enhance student involvement and academic achievements in Araling Panlipunan 10. These approaches prepare students with essential practical skills, critical thinking capabilities, and a sense of social responsibility vital for their future pursuits; and (5) Teachers view student engagement and interest in learning Araling Panlipunan 10 Contemporary Issues as highly advantageous. They stress innovative, student-centered methods to deepen engagement and ready students for social responsibility and critical thinking, empowering them for social responsibility and critical engagement.

Recommendations

Since teachers are the facilitators of learning and the agent and means of best classroom experiences, more training will enhance their capabilities to help broaden the knowledge of students and support ideas that will bridge the gap between theoretical knowledge and practical application.

Learners are observed to be of great value and are profound advocates of civic engagements. Their awareness should be brought to light through different channels with the help of the LGUs and other NGOs. This act will not just strengthen the teaching and learning process but also broaden the knowledge and skills of the youth.

Compliance with Ethical Standards

The author declare her commitment to ethical standards in this study. Informed consent was obtained from all respondents and participants, ensuring they were fully aware of the study's purpose and their rights. Respondents were given the freedom to withdraw from the study at any point without consequence. Anonymity was rigorously maintained to safeguard the privacy and confidentiality of the respondents. Measures were taken to ensure the well-being of the participants throughout the research process. The author affirm that no conflict of interest influenced the conduct of the study, and plagiarism was diligently avoided. Furthermore, the interpretation of findings was unbiased, and the results were solely utilized for research purposes, upholding the integrity and credibility of the study.

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TEACHERS' DIGITAL LITERACY AND PEDAGOGICAL INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TEACHING: BASIS FOR A TRAINING PROGRAM

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ABSTRACT

This study aimed to determine the relationship between teachers' digital literacy and pedagogical integration of Information Communication and Technology in teaching that could lead to an outcome of a training enhancement program in the North Bondoc Peninsula, Quezon Province. Based on the findings, the level of teachers' pedagogical integration of ICT was generally high. The level of pedagogical integration of Information and Communication Technology in terms of Lesson Planning, Preparation of Instructional Materials, Delivery of Instruction, and Assessment of Learning were all often integrated by the teachers. There is a significant relationship between digital literacy and information and communication technology in lesson planning and online-based conferences and assessment of learning to productivity of software tools. The problems met in information and communication technology in teaching were claimed to be sometimes encountered. The coping mechanisms of teachers to address challenges in pedagogical integration of information and communication technology in their teaching were claimed to be sometimes. A training program is designed for the enhancement of ICT Pedagogical Integration in teaching.

Keywords: *Digital Literacy, Integration, Information Communication and Technology and Teaching*

INTRODUCTION

Information and Communication Technology in education allows for new education for both teachers and students. Online or e-learning is increasingly growing in popularity with various unprecedented events taking place in our lives. It not only chances for schools to ensure that learners have access to instructional resources in the classroom, but it also enables them to ensure pupils in settings other than the classroom, like homes.

Information may be received in numerous formats, including text, video, sound, and images, so in considering that there is technology available that generates these kinds of data and when any of these are combined, it refers to technology that is mobile. For instance, cellphones, digital cameras, and video cameras. The need to enhance the digital literacy of teachers, especially in the Province of Quezon, North Bondoc Peninsula, may be considered as the top priority of DepEd as many technological advancements are already available such as training and seminars for ICT Pedagogical Integration are already in place for the betterment of digital literacy.

When ICT is integrated into lessons, teachers and learners become more engaged in their work. It is because technology provides different opportunities to make it more fun to teach the same things in many ways. In this increased engagement, learners retain knowledge more effectively and efficiently. One of the skills for the 21st century includes evaluating, planning, monitoring, and reflecting. Effective use of ICT in education requires the ability to justify and explain how ICT is used to solve problems. Students must debate, take tests, and think about the different strategies they might employ. Education aims to prepare a labor force that will meet the demands of the society.

In education, information and communication technology has received enough attention. ICT has been integrated into the development plans of the United Nations and other international education partners. Teachers must be prepared with new pedagogical competencies and new approaches to teacher education in order to effectively use technology in the classroom. Instructors ought to learn about the objectives of policy and be able to recognize the different facets of education reform that are connected to these goals.

In the Schools Division of Quezon, Evardome et al. (2019) stated that most of the teachers in DepEd Quezon have basic competence in demonstrating continual growth in technology knowledge and stay abreast of current and emerging technologies who can select and use the correct terminology to describe functions of current and emerging hardware, software, and network-related resources used for classroom settings. Either old or new have insufficient time whenever they prepare technology-based lessons. It could be attributed to a lack of technological and pedagogical content knowledge in technology-integrated lessons. Lack of proper equipment may also be the reason since only a few teachers have personal laptops.

As DepEd Order No. 31, s. 2012 Grades 1 to 10 of the K to 12 Basic Education Curriculum and DepEd Order No. 021 s. 2019 Policy Guidelines on the K to 12 Basic Education Program, which mandate and core objectives include incorporating a

comprehensive and strategic digital literacy plan in Philippine education match with the K-12 curriculum. Further, this research study would establish a better outlook on ICT Pedagogical integration as digital literacy is already a need. ICT will continue to be a significant part of our future as it connects to more and more parts of our lives. It will continually evolve and change because consumers like a choice.

The Theory of Connectivism by Siemens G. (2005) acknowledged that technology is a major factor in the educational process and that being always linked offers possibilities for selecting the source of the teachers who will do its role. Also, it promotes participation in group activities and conversation, allowing for a variety of viewpoints and points of view when it comes to making decisions, resolving issues, and comprehending information. Connectivism encourages learning that takes place external to an individual,, specifically through social media, online networks, blogs, or information databases. It relies heavily on technology, introducing more opportunities for digital learning to the learners.

The theory of Task Technology Fit by Goodhue D. & Thompson R. (1995) discussed a holistic understanding of how the user, particularly the teacher, chooses the information technology that affects its performance, assesses usage impacts, and matches the task to the technology characteristics. The appropriateness of task technology and task characteristics can be affected, which determines user performance and usage, behavioral intention to use, and actual media use, specifically in practicing the integration of ICT during teaching and learning. It relates that if the technology fits the user's tasks and workflow, the user will use technology during these tasks and vice versa. If the technology interrupts the user's workflow and tasks, the user will not use it or try to avoid it.

It discussed how the user and the teacher choose the information technology that affects performance, evaluates usage effects, and matches the task to the technological characteristics. The appropriateness of task technology and task characteristics can be affected, which determines user performance and usage, behavioral intention to use, and actual media use, specifically in practicing the integration of ICT during teaching and learning.

In assumption, the teacher must be technologically informed to improve digital literacy abilities of learners. They are expected to provide students with relevant and current experiences that will enable them to engage effectively with digital technology and prepare them for 21st-century skilled life after school. As a result, to meet the current demands of 21st-century learners and have an enhanced teaching-learning process, teachers must be digitally upgraded.

Every digitally literate teacher helps to provide the learner with the abilities and technically innovative skills needed to achieve K-12 standards. In connection with this, the researcher however observed that the lack of study on the level of digital literacy of teachers and the level of integration of information and communication technology (ICT) and its relation, particularly in the Province of Quezon, North Bondoc Peninsula, despite the increasing technological innovations and rapid advancement in education as thru

integrating information and communication technology in teaching barrier have seen challenging in the teacher's role in education. The researcher is prompted to conduct this study on the Teachers' Digital Literacy and Pedagogical Integration of Information and Communication Technology in Teaching: Basis for a Training Program.

Research Questions

This study aimed to determine the relationship between Teachers' Digital Literacy and Pedagogical Integration of Information and Communication Technology in Teaching that could lead to an outcome of a Training Program in the North Bondoc Peninsula.

Specifically, this study looks for the answer to the following questions:

1. What is the level of teachers' digital literacy in terms of:
    1.1 Productivity Software Tools,
    1.2 Website Browsing,
    1.3 Social Media Platforms,
    1.4 Learning Resource Management System,
    1.5. Online-Based Conference Platforms?

2. What is the level of pedagogical integration of Information and Communication Technology in terms of:
    2.1 Lesson Planning,
    2.2 Preparation of Instructional Materials,
    2.3 Delivery of Instruction,
    2.4 Assessment of Learning?

3. Is there a significant relationship between digital literacy and pedagogical integration of information and communication technology integration in teaching?

4. What are the problems met by the teachers in pedagogical integration of information and communication technology in teaching?

5. What are the coping mechanisms of the teachers to address the problems met in the pedagogical integration of information and communication technology in their teaching tasks?

6. What training program could be proposed for the enhancement of pedagogical integration of ICT in teaching?

METHODOLOGY

Research Locale

The study was conducted at the North Bondoc Peninsula, located in the Quezon Province, Philippines, encompassing 102 schools, 82 elementary and 20 secondary schools. These schools are distributed in six districts, Padre Burgos, Agdangan, Unisan,

Pitogo, Macalelon, and General Luna, situated in the Quezon Province. The researcher selected the North Bondoc Peninsula as the research locale to benefit more from the output in this paper. This study was inclusive of those districts as they are all in the Quezon Province.

Teachers in public schools were the study's target population in the North Bondoc Peninsula. Information and communication technology is taught to learners, so teachers are more interactive and innovative in their teaching approach. The result of their teaching was correlated with the school heads as respondents. The study used simple random sampling conducted in the North Bondoc Peninsula.

Since the entire population represents the data set with an equal probability of being chosen, the respondents chose samples through the wheel of names or the random name picker. It would provide a fair representation of a group. Deperso G. (2024) stated that simple random sampling culls a smaller size from a larger population and uses it to research and generalize the group. All respondents answered the self-made questionnaire and ensured its confidentiality.

Table 1

Respondents of the Study

North Bondoc Peninsula Municipalities	No. of School Heads		No. of Teachers	
	Population	Sample Size	Population	Sample Size
Padre Burgos	17	14	203	49
Agdangan	8	7	116	28
Unisan	19	15	226	54
Pitogo	19	15	219	53
Macalelon	20	17	228	55
General Luna	19	15	219	53
Total	**102**	**83**	**1211**	**292**

Table 1 shows the Population and Sample of the respondents. The researcher used Slovin's Formula to determine the sample size derived from the population. Ellen S. (2020) stated that it allows for the sampling of the population by a researcher with a desired degree of accuracy and provides guidance on the required sample size to guarantee a respectable level of result accuracy.

Research Instrument

The researcher used a self-made survey questionnaire to gather data from the respondents consisting of two Parts.

Part I of the research instrument consists of the item that gathers the data for a statement of the problem number 1 level of teachers' digital literacy in Productivity Software Tools, Website Browsing, Social Media Platforms, Learning Resource Management Systems, and Online-Based Conference Platforms. Statement of problem number 4 was the problems met in information and communication technology in teaching. Statement of problem number 5 was the coping mechanisms of the teachers integrating information and communication technology in their teaching tasks.

This questionnaire contained the Likert scale to measure the level of teachers' digital literacy challenges met in information and communication technology in teaching and coping mechanisms of the teachers integrating information and communication technology in their teaching tasks. The respondents of Instrument number 1 are the teachers through the following descriptive scale:

Table 2
Descriptive Scale for Digital Literacy

Point Scale	Verbal Interpretation	Qualitative Description
5	Very High (VH)	The teacher has a very high level of literacy ranging from 76% to 100%.
4	High (H)	The teacher has a high extent of literacy ranging from 51% to 75%.
3	Moderately (M)	The teacher has a moderate extent of literacy ranging 26% to 50%.
2	Low (L)	The teacher has a low extent of literacy ranging 1% to 25%.
1	None (N)	The teacher has no literacy.

This study used a descriptive scale for the teachers' digital literacy. A point scale of 5 is interpreted as Very High with the qualitative description of teacher has a very high extent of literacy ranging from 76% to 100%, scale of 4 is interpreted as High with the qualitative description of teacher has a high extent of literacy ranging from 51% to 75%, point scale of 3 are interpreted as Moderately with the qualitative description of teacher has a moderate extent of teacher has a literacy ranging 26% to 50%, teacher has a low extent of literacy ranging 1% to 25%, and point scale of 1 are interpreted as None with the qualitative description of teacher has no literacy to 0%.

Table 3
Descriptive Scale for Problems Met

Point Scale	Verbal Interpretation	Qualitative Description
5	Always (A)	The teacher frequently encountered problems to an extent equivalent to 5 to 7 days a week.
4	Often (O)	The teacher frequently encountered problems to an extent equivalent to 4 days a week.
3	Sometimes (S)	The teacher frequently encountered problems to an extent equivalent to 3 days a week.
2	Rarely (R)	The teacher frequently encountered problems to an extent equivalent 1 to 2 days a week.
1	Never (N)	The teacher does not encounter problems at all.

This study used a descriptive scale for the Problems Met. A point scale of 5 is interpreted as Always Encountered with the description of a teacher is frequently encountered problems to always extent equivalent to 5 to 7 days in a week, scale of 4 is interpreted as Often Encountered with the description of teacher is frequently encountered problems to often extent equivalent to 4 days in a week, point scale of 3 are interpreted as Sometimes Encountered with the description of the teacher is frequently encountered problems to sometimes extent equivalent to 3 days in a week, point scale of 2 are interpreted as Rarely Encountered with the description of the teacher is frequently encountered problems to sometimes extent equivalent 1 to 2 days in a week, and point scale of 1 are interpreted as Never Encountered with the description of The teacher do not encountered problems at all.

Table 4
Descriptive Scale for Coping Mechanism

Point Scale	Verbal Interpretation	Qualitative Description
5	Always (A)	The teacher frequently copes with the problems using the mechanism 20 or more times a month.
4	Often (O)	The teacher frequently copes with the problems using the mechanism 15 to 19 times a month.
3	Sometimes (S)	The teacher frequently copes with the problems using the mechanism 10 to 14 times a month.

2	Rarely (R)	The teacher frequently copes with the problems using the mechanism 5 to 10 times a month.
1	Never (N)	The teacher does not use the copes mechanism.

Descriptive scale for coping mechanisms of the teachers to address the problems met in the pedagogical integration of information and communication technology in their teaching tasks. The point scale of 5 is interpreted as Always with the qualitative description of teachers frequently copes with the problems using the mechanism 20 or more times a month. Point scale of 4 is interpreted as often meant copes the problems using the mechanism 15 to 19 times a month. Point scale of 3 is interpreted as sometimes copes with the problems using the mechanism 10 to 14 times in a month. Point scale of 2 is interpreted as rarely coping with the problems using the mechanism 5 to 9 times a month, and point scale of 1 is interpreted as Never, which meant teachers do not use the coping mechanism.

Part II of the research instrument consists of the items that gathers the level of integration of information and communication technology in teaching in terms of Lesson Planning, Preparation of Instructional Materials, Delivery of Instruction, and Assessment of Learning.

This questionnaire used the Likert scale to measure the level of teachers' digital literacy, problems met by the teachers in the integration of information and communication technology in teaching, and coping mechanisms of the teachers to address the problems met in the pedagogical integration of information and communication technology in their teaching tasks. The respondents of Instrument number 2 were the School Heads through the following descriptive scale:

Table 5
Descriptive Scale for Level of Integration of ICT

Point Scale	Verbal Interpretation	Qualitative Description
5	Always (A)	The teacher frequently integrates ICT to constant extent equivalent to 5 to 7 days in a week.
4	Often (O)	The teacher frequently integrates ICT to often extent equivalent to 4 days in a week.
3	Sometimes (S)	The teacher frequently integrates ICT to sometimes extent equivalent to 3 days in a week.
2	Rarely (R)	The teacher frequently integrates ICT to rarely extent equivalent 1 to 2 days in a week.
1	Never (N)	The teacher do not integrate ICT at all.

The descriptive scale for information and communication technology in teaching in Lesson Planning, Preparation of Instructional Materials, Delivery of Instruction, and Assessment of Learning:

The point scale of 5 is interpreted as Always with the qualitative description of frequently integrates ICT to a constant extent equivalent to 5 to 7 days in a week, point scale of 4 is interpreted as Often with the qualitative description of frequently integrates ICT to often extent equivalent to 4 days in a week, point scale of 3 is interpreted as sometimes with the description of frequently integrates ICT to sometimes extent equivalent to 3 days in a week, point scale of 2 is interpreted as rarely with the qualitative description of frequently integrate ICT to rarely extent equivalent to 1 to 2 days in a week, and point scale of 1 is interpreted as never with the qualitative description of frequently integrates ICT to never extent equivalent to do not integrate ICT at all.

- In terms of validation purposes, the researcher identified three experts from different fields and professions to test the validity of the research instrument. For Research Instrument 1, the validators were composed of experts, mainly an ICT coordinator, a School Principal, and a Master Teacher. For Research Instrument 2, the validators were composed of a School Principal and a Master Teacher.

Data Gathering Procedure

In this study, the researcher asked permission to conduct study through sending letter to the Office of Schools Division Superintendent, after the approval, the researcher communicated with Public Schools District Supervisors in the North Bondoc Peninsula of Third Congressional District of Province of Quezon for their consent to conduct surveys and administer the questionnaire to the respondents. The researcher used a self-made survey questionnaire as an instrument to collect the data with a 5-point Likert Scale. For Part 1, the respondents are teachers and master teachers, and the data collected are the level of digital literacy in terms of productivity software tools, website browsing, social media platforms, learning resource management system, and online-based conference platforms, frequently of problems met by the teachers and coping mechanisms of the teachers. For Part 2, the respondents are the school heads, and the data collected are the Level of ICT Pedagogical Integration in terms of Lesson Planning, Preparation of Instructional Materials, Delivery of Instruction, and Assessment of Learning.

Upon approval of the request, the researcher gave a written orientation to the respondents in the 6 districts, with the supervision of the Public Schools District Supervisors, Google Form and Survey Form was disseminated and used to collect the data. After retrieving the raw data, the researcher tabulated using spreadsheet. Afterwards, it was forwarded to statistician to analyzed and interpreted.

The result of this study is a Training Program designed based on the analysis of the results. The output entitled Training Program for Enhancement of ICT Integration will be provided to the Master Teachers and Teachers.

Statistical Treatment of Data

The researcher used statistical measures to treat the collected data. Data were tallied and encoded into a master list of the data collection sheet using Microsoft Excel.

The researcher used means to describe the level of teachers' digital literacy in terms of Productivity Software Tools, Website Browsing, Social Media Platforms, Learning Resource Management Systems, and Online-Based Conference Platforms, Likewise, level of integration of information and communication technology in teaching in terms of Lesson Planning, Preparation of Instructional materials, Delivery of Instruction, Assessment of Learning was used to describe the mean. Meanwhile, Spearman Rho was used to determine the relationship between the level of teachers' digital literacy and pedagogical integration of ICT, the mean scores were interpreted using the scale in Table 6.

For Statement of Problems 4 and 5, mean scores were used to determine problems met by the teachers in the integration of information and communication technology in teaching and coping mechanisms of the teachers to address the problems met in the pedagogical integration of information and communication technology in their teaching tasks it was verbally interpreted using the 5-point Likert scale.

RESULTS

Part 1. Level of Teachers' Digital Literacy

Table 7
Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of using Word Processing Tools.

Indicators	Mean	Verbal Interpretation
Teacher…		
can type using capitals and lowercase text.	4.87	Very High
can delete both ways using the backspace and delete keys	4.80	Very High
can use undo and redo	4.84	Very High
can change font type, size of the font & color of the font and know when to use these	4.90	Very High
can align text left, right, center, and justify and know when these are used	4.85	Very High
can move a word or section of text within the document by cutting and pasting	4.80	Very High
can check spelling and grammar	4.78	Very High
can orient the page view and page size and print on different sizes of paper	4.82	Very High
can insert a picture, word art or clipart	4.86	Very High

can save a copy of the document as a pdf file	4.76	Very High
General Mean	**4.83**	**Very High**

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 8

Indicators	Mean	Verbal Interpretation
Teacher…		
can identify a cell reference	4.39	High
can enter, edit, or delete data into a cell	4.61	Very High
can select a cell or a range of cells	4.46	High
can modify column width and row height	4.57	Very High
can format data: font, size, color, and style	4.55	Very High
can merge and center data	4.62	Very High
can apply number formats to data	4.43	High
can alter the number of decimal places	4.38	High
can calculate the total number using the auto-sum	4.28	High
can cut, copy and paste a selection of cells	4.54	Very High
General Mean	**4.48**	**High**

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 9

Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of using Presentation Tools.

Indicators	Mean	Verbal Interpretation
Teacher…		
can open and create a presentation	4.73	Very High
can insert and format slides	4.75	Very High
can configure a presentation for print	4.70	Very High
can insert and format shapes and text boxes	4.68	Very High
can insert and format images	4.74	Very High
can insert and format tables	4.71	Very High
can insert and format charts	4.59	Very High
can apply slide transitions	4.68	Very High
can set the timing for transitions and animations	4.58	Very High
can finalize presentations	4.62	Very High

General Mean	4.68	Very High

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 10

Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of Website Browsing

Indicators	Mean	Verbal Interpretation
Teacher…		
can access the internet	4.78	Very High
can use navigational buttons: back, home, go, refresh, history	4.64	Very High
can enter URL by typing or pasting	4.65	Very High
can perform basic internet search	4.76	Very High
can know email address and password	4.66	Very High
can compose, send, open, read, reply to, and forward messages	4.66	Very High
can store and retrieve email messages	4.58	Very High
can add, use, and manage bookmarks/favorites	4.40	High
can access and use blogs, wikis, discussion boards, and similar interactive sites	4.29	High
can download and save files from the internet including image, audio and video	4.58	Very High
General Mean	**4.60**	**Very High**

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 11
Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of Social Media Platforms

Indicators	Mean	Verbal Interpretation
Teacher…		
can use social media to communicate information to students.	4.55	Very High
can use social media to do research work.	4.42	High
can use social media for content delivery in teaching.	4.54	Very High
can use social media for online academic group discussions.	4.34	High
can use social networking sites to seek information.	4.39	High
can use social media as a platform for engaging with your learners for educational purposes.	4.36	High
can integrates the use of social media in lessons if needed.	4.46	High
can encourage interaction with students through social media platforms.	4.31	High
can encourage collaboration among students through social media platforms.	4.36	High
can use social media to share learning resource materials among students.	4.43	High
General Mean	**4.42**	**High**

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 12
Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of Learning Resource Management System

Indicators	Mean	Verbal Interpretation
Teacher…		
can use DepEd learning resource system.	4.26	High
can access DepEd learning resource portal.	4.16	High
can navigate interface features in learning resource website.	3.97	High
can upload and organize learning resources into website.	3.98	High

can create illustrations and other materials useful for developing a localized material using learning resource.	4.07	High
can download materials teaching resource in the portal.	4.29	High
can publish teaching materials that are appropriate for the learners.	3.93	High
can create teaching materials and learning resource using embedded tools.	3.93	High
can integrates the use of learning resource management system in lesson if needed.	4.10	High
can search appropriate materials to provide the learner's needs.	4.26	High
General Mean	**4.09**	**High**

Legend: *"Very High (4.51 - 5.00)", "High (3.51 - 4.50)", "Moderate (2.51 - 3.50)", "Low (1.51 - 2.50)", "None (1.00 -1.50)"*

Table 13

Respondents' Ratings on the Level of Teachers' Digital Literacy in terms of Online-Based Conference Platforms

Indicators	Mean	Verbal Interpretation
Teacher…		
can utilize different online-based conference platforms	4.02	High
can easily navigate the different online-based conference platforms	4.03	High
can use many applications and as an instructional aid during video conferencing	3.98	High
can schedule and launch video lectures	3.86	High
can share files and slide shows, exchange messages in chat, or share their screens with students.	4.07	High
can host webinars that significantly help in attracting more students to engage	3.78	High
can guide learners in need using online-based conference platforms.	3.93	High
can choose appropriate online-based conference platforms that will use to deliver instruction.	3.84	High
can online-based conference platforms in assessing the learners.	3.81	High
can provide feedback to learners using online-based conference platforms.	3.93	High
General Mean	**3.93**	**High**

Legend: *"Very High (4.51 – 5.00)", "High (3.51 – 4.50)", "Moderate (2.51 – 3.50)", "Low (1.51 – 2.50)", "None (1.00 – 1.50)"*

Part 2. Level of Pedagogical Integration of Information and Communication Technology

Table 14

Respondents' Ratings on the Level of Pedagogical Integration of Information and Communication Technology in terms of Lesson Planning

Indicators	Mean	Verbal Interpretation
Teacher…		
integrates the word processing in lesson planning	4.16	Often
integrates desktop publishers in lesson planning	3.75	Often
integrates web search engines for references	3.95	Often
integrates download resources from the internet	4.25	Often
integrates ICT in drills in lesson planning	4.24	Often
integrates ICT in the review of the lesson in lesson planning	4.11	Often
integrates ICT in motivation in lesson planning	4.06	Often
integrates ICT in a presentation in lesson planning	4.11	Often
integrates ICT in application in lesson planning	4.05	Often
integrates ICT in evaluation in lesson planning	4.00	Often
General Mean	**4.07**	**Often**

Legend: *"Very High (4.51 – 5.00)", "High (3.51 – 4.50)", "Moderate (2.51 – 3.50)", "Low (1.51 – 2.50)", "None (1.00 – 1.50)"*

Table 15

Respondents' Ratings on the Level of Pedagogical Integration of Information and Communication Technology in terms of Preparation of Instructional Materials

Indicators	Mean	Verbal Interpretation
Teachers…		
integrates Word processors (Word etc.)	4.12	Often
integrates Spreadsheets (Excel etc.)	3.93	Often
integrates Presentation Software (PowerPoint, Canva etc.)	3.95	Often
integrates Databases (Access etc.)	3.71	Often
integrates Web Browsers (Google etc.)	4.14	Often
integrates Search Engines (Chrome, Firefox etc.)	3.99	Often
integrates Electronic Mail (e-mail)	4.00	Often
integrates Learning Resource Management System (LMDS)/ Learning Portals	3.87	Often
integrates video editing software (e.g. Adobe Premiere Pro, Kinemaster, Capcut etc.)	3.86	Often
integrates graphics editing software (e.g. Adobe Illustrator, Photoshop)	3.72	Often
General Mean	**3.93**	**Often**

Legend: *"Very High (4.51 – 5.00)", "High (3.51 – 4.50)", "Moderate (2.51 – 3.50)", "Low (1.51 – 2.50)", "None (1.00 – 1.50)"*

Table 16

Respondents' Ratings on the Level of Pedagogical Integration of Information and Communication Technology in terms of Delivery of Instruction

Indicators	Mean	Verbal Interpretation
Teacher…		
integrates presentation tools for the delivery of lesson (Powerpoint etc.)	4.23	Often
integrates live stream videos/images in presentation of lesson	4.02	Often
integrates downloaded videos/images in presentation of lesson	4.04	Often
integrates E-books/articles in presentation of lesson	3.53	Often
integrates online video conferencing in lesson	3.40	Sometimes
integrates online group discussion for his/her lesson	3.53	Often
integrates offline interactive games during class session	3.82	Often
integrates online interactive games during class session	3.82	Often
integrates audio-based instruction during the delivery of lesson	3.88	Often
integrates infographic during the delivery of lesson	3.66	Often
General Mean	**3.79**	**Often**

Legend: *"Very High (4.51 – 5.00)", "High (3.51 – 4.50)", "Moderate (2.51 – 3.50)", "Low (1.51 – 2.50)", "None (1.00 – 1.50)"*

Table 17

Respondents' Ratings on the Level of Pedagogical Integration of Information and Communication Technology in terms of Assessment of Learning

Indicators	Mean	Verbal Interpretation
Teacher…		
integrates Word Processing tool in assessment (Microsoft Word etc.)	3.95	Often
integrates Presentation tool in assessment (Powerpoint etc.)	3.87	Often
integrates Spreadsheet tool in assessment (Google sheet, excel, etc.)	3.90	Often
integrates Online based quiz game in assessment (Kahoot, Quizzer, Mentimeter, etc.)	3.54	Often
integrates google classroom in assessment	3.42	Sometimes
integrates online survey forms in assessment (Google Forms, Microsoft Forms)	3.58	Often
integrates cloud drive (e.g. Google Drive, Dropbox) for submission of outputs	3.69	Often
integrates interactive Name picker (The Hat, Duck Race, Wheels of Names etc.)	3.43	Sometimes

integrates Automated QR Code to evaluate the learners performance	3.41	Sometimes
integrates data derived from the result assessment integrated by ICT Tools	3.64	Often
General Mean	**3.64**	**Often**

Legend: *"Very High (4.51 – 5.00)", "High (3.51 – 4.50)", "Moderate (2.51 – 3.50)", "Low (1.51 – 2.50)", "None (1.00 – 1.50)"*

Part 3. Test for Significant Relationship Between Digital Literacy and Integration of Information and Communication Technology in Teaching

Table 18

Spearman Rank Significant Relationship Between Digital Literacy and Pedagogical Integration of ICT in Teaching in terms of Lesson Planning

Lesson Planning					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Productivity Software Tools	-0.144	Weak Negative Correlation	0.195	Failed to Reject Ho	Not Significant
Website Browsing	-0.188	Weak Negative Correlation	0.090	Failed to Reject Ho	Not Significant
Social Media Platforms	0.075	Weak Positive Correlation	0.502	Failed to Reject Ho	Not Significant
Learning Resource Management System	0.009	Weak Positive Correlation	0.936	Failed to Reject Ho	Not Significant
Online-Based Conference Platforms	-0.279	Weak Negative Correlation	0.011	Reject Ho	Significant

Note: *"If the p-value is less than or equal to the level of significance (0.05), reject Ho; otherwise, fail to reject Ho."*

Table 19

Spearman Rank Significant Relationship Between Digital Literacy and Pedagogical Integration of ICT in Teaching in terms of Preparation of Instructional Materials

Preparation of Instructional Materials					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Productivity Software Tools	0.141	Weak Positive Correlation	0.202	Failed to Reject Ho	Not Significant
Website Browsing	0.095	Weak Positive Correlation	0.394	Failed to Reject Ho	Not Significant
Social Media Platforms	0.126	Weak Positive Correlation	0.256	Failed to Reject Ho	Not Significant
Learning Resource Management System	0.161	Weak Positive Correlation	0.147	Failed to Reject Ho	Not Significant
Online-Based Conference Platforms	-0.179	Weak Negative Correlation	0.106	Failed to Reject Ho	Not Significant

Note: *"If the p-value is less than or equal to the level of significance (0.05), reject Ho; otherwise, fail to reject Ho**."***

Table 20

Spearman Rank Significant Relationship Between Digital Literacy and Pedagogical Integration of ICT in Teaching in terms of Delivery of Instruction

Delivery of Instruction					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Productivity Software Tools	0.068	Weak Positive Correlation	0.540	Failed to Reject Ho	Not Significant
Website Browsing	-0.062	Weak Negative Correlation	0.580	Failed to Reject Ho	Not Significant
Social Media Platforms	0.096	Weak Positive Correlation	0.389	Failed to Reject Ho	Not Significant
Learning Resource Management System	0.073	Weak Positive Correlation	0.512	Failed to Reject Ho	Not Significant

Online-Based Conference Platforms	-0.109	Weak Negative Correlation	0.325	Failed to Reject Ho	Not Significant

Note: *"If p-value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."*

Table 21

Spearman Rank Significant Relationship Between Digital Literacy and Pedagogical Integration of ICT in Teaching in terms of Assessment of Learning

Assessment of Learning					
Indicators	**Correlation Coefficient**	**Interpretation**	**p-value**	**Decision**	**Remarks**
Productivity Software Tools	0.251	Weak Positive Correlation	0.022	Reject Ho	Significant
Website Browsing	0.072	Weak Positive Correlation	0.519	Failed to Reject Ho	Not Significant
Socia Media Platforms	0.074	Weak Positive Correlation	0.507	Failed to Reject Ho	Not Significant
Learning Resource Management System	0.193	Weak Positive Correlation	0.080	Failed to Reject Ho	Not Significant
Online-Based Conference Platforms	-0.066	Weak Negative Correlation	0.553	Failed to Reject Ho	Not Significant

Note: *"If the p value is less than or equal to the level of significance (0.05), reject Ho; otherwise, fail to reject Ho."*

Part 4. Problems Met in the Integration of Information and Communication Technology in Teaching

Table 22

Respondents' Ratings on the Problems Met in the Integration of Information and Communication Technology in Teaching

Indicators	Mean	Verbal Interpretation
Teacher…		
lacks expertise in integrating ICTs	2.91	Sometimes
lacks technical support	2.96	Sometimes
lacks genuine/licensed ICT Software tools	3.17	Sometimes

lacks a stable internet connection	3.22	Sometimes
lacks internet connection	3.25	Sometimes
lacks time to integrate ICT into classroom teaching	3.10	Sometimes
lacks confidence in using ICT in classroom teaching	2.84	Sometimes
lacks training in using ICT in classroom teaching	2.98	Sometimes
lacks interest in using ICT in the classroom	2.70	Sometimes
lacks availability of access to computer hardware	2.83	Sometimes
General Mean	**2.99**	**Sometimes**

Legend: *"Never Encountered (1.00 – 1.50)", "Rarely Encountered (1.51 – 2.50)", "Sometimes Encountered (2.51 – 3.50)", "Often Encountered (3.51 – 4.50)", "Always Encountered (4.51 – 5.00)"*

Part 5. Coping Mechanisms of the Teachers' Integration of Information and Communication Technology in their Teaching Task

Table 23

Respondents' Ratings on the Coping Mechanisms of the Teacher's Integrating Information and Communication Technology in their Teaching Task

Indicators	Indicators	Mean	Verbal Interpretation
Teacher….	Teacher….		
lacks expertise in integrating ICTs.	learns independently	3.71	Often
lacks technical support	seeks technical support to software used in teaching	3.42	Sometimes
lacks genuine/ licensed ICT Software tools.	purchase genuine/licensed ICT Software tools.	3.19	Sometimes
lacks a stable internet connection	seeks technical support from internet providers	3.36	Sometimes
lacks internet connection	seeks administration support from internet connectivity	3.16	Sometimes
lacks time to integrate ICT into classroom teaching	seeks allotted time for preparation for integrating ICT in classroom teaching	3.37	Sometimes
lacks confidence in using ICT in classroom teaching.	seeks motivation to peers in using ICT in the classroom teaching	3.49	Sometimes
lacks training of using ICT in the classroom teaching.	seeks training of using ICT in the classroom teaching.	3.54	Often

lacks interest using ICT in the classroom.	seeks goals in using ICT in the classroom.	3.62	Often
lacks access to computer hardware	requests administration support for computer hardware	3.54	Often
	General Mean	**3.44**	**Sometimes**

Legend: *"Never (1.00 – 1.50)", "Rarely (1.51 – 2.50)", "Sometimes (2.51 – 3.50)", "Often (3.51 – 4.50)", "Always (4.51 – 5.00)"*

DISCUSSION

Table 7 presents the teacher's ratings on their Level of Digital Literacy regarding Productivity Software Tools, specifically in word processing. Generally, teachers claim that their literacy in word processing tools is very high, with a general mean of 4.83. In all the indicators, they reported that they are very highly literate. This implies that teachers always use word processing tools in their daily tasks in school, although sometimes, they encounter challenges.

Additionally, they have been trained in using these tools since college, and DepEd also provides related training. Another reason is the continued integrating and training given by the school and ICT coordinators to ensure teachers can cope with the 21st-century teacher's need for digitalization.

In terms of mastery in using Microsoft Word, the study by Bayucca (2020) they were revealed that teachers displayed a proficient extent of knowledge in basic computer commands and word processors. However, some of the skills enumerated in each group have a low mean and were close to the adjacent group scale of the lower level of knowledge, such as Google Apps and other advanced computer applications, which are also necessary for the constructing of instructional materials. While the teachers' self-assessment showed they are proficient in the basic skills enumerated under Microsoft Word, there is still a further need for training.

Table 8 reveals the data showing teachers' ratings on the Level of Teachers' Digital Literacy regarding Spreadsheet tools. They claimed that they are highly proficient in this kind of productivity tool.

Analyzing the results, teachers' literacy ranges from high to very high. This affected the frequency of their use of the spread tools, which is only during the preparation of grades.

It can noted that the lowest rating calculated with a mean rating of 4.28. It may show that teachers have difficulties using formulas in the spreadsheet. These results agree with the findings of the study by Obenita et al. (2019) that teachers MS Excel adopt

different commands, especially when computing or consolidating the grades of students. The teachers described it as accurate with less time and effort.

The teachers were also perceived as effective and helpful in their use of spreadsheets; however, there are still factors to be considered to increase their efficacy, especially in terms of their expertise with the Excel program. There are still some points that they need plausible assistance to strengthen their expertise on the use of the program. Table 9 presents the surveyed responses of teachers about the Level of Teachers' Digital Literacy in terms of the Presentation tool. As teachers claimed, they have very high literacy in all indicators, with a general mean of 4.68.

This may conclude that teachers are competent in creating and presenting using presentation tools due to their frequent use of the teaching task. It is noted that teachers constantly undergo different training and LAC sessions relating to the utilization of tools.

Along with the teachers' skills in creating presentation tools, teachers integrate highly int creating different presentation tools. It was aligned with the study of Boonmoh et al. (2022), which also revealed that teachers feel free and easy to use to create learning content. Further, most of the teachers knew of technological tools and had integrated technologies into their classes. Meanwhile, certain types of tools were already used by all the teachers while Networked educational technology tools were only being integrated in some classrooms. It may be concluded that why the teachers, creating presentation tools, mainly were very highly literate.

Table 10 presents the Teacher's Ratings on the Level of Teachers Digital Literacy in terms of Website Browsing. The survey claimed that browsing websites demonstrate a very high level of literacy, with a general weighted mean of 4.60.

It is due to their frequent use of websites in their daily work, creating, preparing, and utilizing different strategies and techniques in teaching involving browsing websites. Moreover, teachers who are highly literate in accessing and using blogs, wikis, discussion boards, and similar interactive sites and adding, using, and managing bookmarks and favorites have less frequent use than the other indicators.

Parallel to the result of the study of Kurebay et al. (2023), they revealed in the study that primary school teachers essentially utilize the Internet for information access, academic information sharing (homework, projects, and others.), and professional and personal development. Academic, research, and educational sites, web browsers (Google, Yandex, etc.), dictionary sites, social networking sites (Facebook, MySpace, Friendfeed, Google Plus, etc.)," "wikis," and "video and photo sharing sites" were among the resources that Kazakh teachers utilized most frequently. Another study finding indicated that while primary school teachers' perceptions of their efficacy in using the Internet were at a medium level, their perceptions of their teaching efficacy were at a high level.

Table 11 reveals the level of teachers' digital literacy in terms of social media platforms. The above presents the tabulated data illustrating generally Highly Literate as claimed by the teachers with a 4.42 mean.

Teachers have social media applications on their mobile phones and laptops. It is also a part of their daily activity to connect and communicate through social media. Aguilar et al. (2021) study supported the study's result of how teachers nowadays use social media platforms in teaching. They revealed in their study that teachers' social media was personal, despite the uptake of social media platforms and their purposes. Additionally, teachers' use of social media changed noticeably after the pandemic began; multilevel models showed that teachers were more likely to connect and share on social media.

Table 12 presents data that revealed teachers' responses on the Level of Teachers' Digital Literacy in the Learning Resource Management System. They claimed that they are highly literate, based on the results of the general weighted mean score of 4.09.

In conclusion, it demonstrates that teachers are digitally literate based on learning resource management. Teachers value access to the learning resource portal.

The data above show that, despite teachers' extensive use of the Learning Resource Management System, they do not use it to its full potential. The study of Endozo et al. (2020) was parallel with the general results of the study in terms of the use of Learning Resource Management. Their study revealed that in terms of learning Resource Management System, teachers do not maximize the use of it.

Based on the study results, they encourage teachers to maximize the use of technology since they found significant results, and information was obtained for administrators, instructors, and students on how to improve usage of the system for teaching and learning.

Table 13 presents the tabulated data illustrating the teachers' ratings on the level of digital literacy in terms of online-based conference platforms, as claimed by the teachers, with a general mean of 3.93.

Due to the pandemic, teachers are now literate in the different online platforms used for conferencing. Teachers and school principals are especially interested in webinars and MS Teams for conferences at most meetings and focus group discussions.

Parallel to the study of Ramos and Soliven (2020), which revealed how teachers highly practice of online platforms for teachers. He even emphasized that experience, which showed a significant development, particularly in the use of video conferences. The findings revealed that webinar platforms helped respondents grow academically and personally. Furthermore, the researchers found that speakers' interactions with participants via visual and audiovisual presentations are valuable tools for teaching and learning.

Table 14 shows the survey responses regarding the level of pedagogical integration of information and communication technology in lesson planning. The data

show that teachers frequently incorporate ICT into lesson planning. That applies to all indicators of ICT Pedagogical Integration in lesson planning.

DO. 42, s. 2016 emphasizes that the daily lesson planning process can speed up using computers. Lesson plans can be written by hand or by computer. Schools use ICTs to store lesson plans prepared by their instructors. They can organize excellent lesson plans into a database or databank, post them on the school's website, or upload them to the LRMDS portal. Subsequently, teachers can utilize the portal as a tool to prepare their daily lessons. By having a library of lesson plans at their disposal to use when getting ready for their daily classes, teachers can help one another in this way.

To conclude, the Level of Pedagogical Integration of Information and Communication Technology of the teachers in lesson planning is often integrated. Teachers are aware that creating lesson plans is affected by the use of technology. These findings form the basis for a more intensive exploration of the strategies employed by school heads in the delivery of technical assistance to teachers in creating lesson plans.

The study of Konig et al. (2021) is connected with the result of the study on the importance of ICT in creating lesson plans. As revealed by Konig et al. in their study, they highlight the use of ICT Pedagogical Integration in lesson plans as a situation-specific skill of teachers, being predicted by teacher knowledge and beliefs, and predicting observable teacher performance in class. Moreover, ICT Pedagogical Integration in lesson plans is affected by learning opportunities both in initial teacher education and in teacher professional development.

Table 15 reveals the data illustrating the level of pedagogical integration of information and communication technology regarding the preparation of instructional materials. Teachers frequently incorporate ICT into their instructional materials. Teachers demonstrate integration in the development of instructional materials by using digital tools. It may not seem surprising given that teachers have participated in numerous IM-related trainings and courses in undergraduate courses.

Overall, the data highlights the importance of technology and digital tools for teachers. These findings aid in understanding the significance of such integration in providing quality technical assistance and provide a basis for research and recommendations for future improvement of the teachers' skills.

Table 16 reveals that the teachers' pedagogical integration of information and communication technology in terms of the delivery of instruction is often 3.79.

Since the teachers are encouraged by the school heads to integrate ICT into the delivery of the lessons, it sheds light on the teachers' use of ICT in the delivery of instructions. The importance of instructional leadership, ongoing reinforcement, collaboration, monitoring, and evaluation in providing effective technical assistance when implementing ICT in the classroom.

In his study, Gragg R. (2021) emphasized the vital of use ICT in instruction delivery. His study revealed that using ICT in education contributes to the teaching and learning process by making learning more efficient or by giving it a previously unattainable dimension. ICT can encourage students to participate in collaborative learning and may be a significant motivating factor in their education. ICT is unquestionably the way for organizations to grow directly aligned with technology, and the field of education is no exception.

Table 17 presents the data illustrating the pedagogical integration of information and communication technology in terms of assessment of learning and finds that teachers often integrate with a 3.64 mean. Analyses of the data highlight teachers' agreement on essential topics, exemplifying the value placed on the importance of these in the assessment of learning. Teachers often use ICT in assessment because it provides prompt feedback, and information to guide education, teacher-made evaluation and differentiation based on the requirements of students.

The statement that the teacher used an automated QR code to evaluate the learner's performance (3.41) was notably the lowest integration level recorded. These findings may have affected on the frequent use of the teacher's strategy involving automated QR code the assessment.

The study by Kumar A. (2020), which mainly studied the effectiveness of ICT in the assessment of learning, revealed how teachers often use ICT as a tool in assessing learning. The study by Kumar likewise revealed the optimistic impact of integrating ICT in assessing learning. The optimistic view he mentioned in the conclusion of his study revealed that the teachers who successfully implement ICT will lead change, which is more about influencing and empowering teachers and supporting them in their engagement with students in learning. It may also help them with a better assessment of learning.

Table 18 shows between teachers' digital literacy on online conference platforms and pedagogical integration in lesson planning. However, the relationship is a weak negative correlation. It implies that even though there is a high level of literacy an online-based conference platform has nothing to do with or does not have a connection with ICT Pedagogical Integration in lesson planning.

Productivity Software Tools and Lesson Planning have a Weak Negative Correlation, it implies that even if teachers are highly literate in productivity software tools it has less Pedagogical Integration in Lesson Planning. Website Browsing to Lesson Planning was also found to be a weak positive correlation, it implies that even teachers can navigate and utilize Website browsing, it was only sometimes used in pedagogical integration of ICT.

Social Media and Learning Resource Management Systems to Pedagogical Integration in Lesson Planning were found Weak Positive Correlation, It means that teachers are highly literate in Social Media and Learning Resource Management Systems the frequent Pedagogical Integration of ICT in terms of Lesson Planning.

The results of the relationship between lesson planning and online-based conferences using platforms are similar to the results of the study by Edi et al. (2021), in which they studied lesson planning. They revealed in the study that using online-based conference platforms is significantly related to lesson planning based on their conclusion from their research that, to address the demands of designing learning programs in the modern age, online-based lesson plans can occur as a development.

Teachers can use multimedia devices remotely to have a balanced ratio of classroom and online-based face-to-face classes. With school funding, new learning resources, Teachers abilities to operate digital platforms, and student needs, online-based lesson plans will occur. The primary elements of online-based learning programs are the capability and ability of teachers to create a plan that would greatly benefit learning.

Table 19 shows that the level of digital literacy in terms of productivity software tools, website browsing, social media platforms, learning resource management, and online-based conference platforms has a weak relationship to the integration of ICT in the preparation of instructional materials.

Instructional materials are important tools for the growth and advancement of learning. The use of ICT in its preparation may not require extensive ICT literacy. However, based on the results, there is still a weak positive correlation that may somehow affect, although it may not directly impact, ICT in the preparation of instructional materials.

Based on the study of Aziz et al. (2019), some points of integration of ICT in teaching content, such as the preparation of instructional materials, will enable the teachers to offer a learner-centered learning environment, depending on the learners' interests and needs. The use of ICT for differentiating instruction allows teachers to provide more appropriate, authentic, and personalized learning activities that are most relevant to the learner's learning style. This may explain why using software tools, web browsing, learning resource management, and social media platforms has little correlation with the preparing of instructional materials.

Table 20 presents the correlation between digital literacy and the integration of ICT in teaching in terms of the delivery of instruction. This shows that a weak positive correlation has little impact, but it could not be enough to claim that it is correlated with the delivery of instruction.

However, It implies that teachers are digitally literate in Productivity Software Tools, Social Media, and Learning Resource Management System and frequently integrate ICT in the Delivery of Instructions.

On the other hand, there is a weak negative correlation between website browsing and online-based conference platforms and the delivery of instruction, It suggest that even teachers are highly literate, the Pedagogical Integration of ICT decreases. However, in the study of Kagyera et al. (2024), there is a strong interdependence linking ICT tools and lecturers' teaching practices, which portrays the essence of integrating ICT tools in

teaching. The implication is that adopting ICT for teacher education improves lecturers' teaching methodology and, eventually, their learners' attitudes towards teaching.

Table 21 presents the Level of Digital Literacy in terms Productivity Software Tools have significant relation to Pedagogical Integration in terms of Assessment of Learning but does have weak positive correlation. This may imply that teachers consistently use software tools for fast learning assessment. Teachers often use Excel and other tools to make assessing more efficient.

On the other hand, website browsing, social media platforms, learning resource management systems, and online-based conference platforms were all found to be not significantly correlated. This implies that they are not enough to claim that they have a significant relationship. It implies that even teachers are digitally literate the less frequency on pedagogical integration in ICT.

Majid (2020) presented the results of his study, and everybody agrees that assessment is an essential part of the teaching and learning process. ICT plays a significant part in simplifying the assessment process for educators. With the growing use of ICT, assessments are conducted in novel and creative ways. Is also how the recording and grading made it easy. Not only this, the students are being empowered to use online or web-based assessments, which helps the students.

Table 22 depicts the various challenges that teachers face when integrating information and communication technology into their instruction. According to teachers, the above statements were all encountered at least once, with a mean of 2.99.

Nonetheless, teachers faced obstacles in integrating ICT. Teachers must take advantage of available ICT resources because they may face the issues on occasion.

Teachers face a significant challenge in integrating information and communication technology (ICT) into their teaching. This barrier can manifest in various ways, each leading to a lack of pedagogical integration. By addressing these challenges, teachers, with the help of school heads, can develop the steps needed to effectively integrate ICT into teaching, resulting in increased student engagement.

Lack of teacher expertise or technical support for integrating ICT needs a multi-approach that includes funding for professional development, access to top-notch training programs, the supply of continuing resources and support, and the promotion of an innovative and collaborative culture within educational communities. Giving teachers the tools, resources, and encouragement, they require to incorporate ICT into the teaching task successfully.

Unavailability of genuine/licensed ICT Software tools hinders the integration into the teaching task. It will lead to performance issues, functionality limitations, and compatibility problems that hinder their ability to integrate technology into teaching effectively.

The unstable internet connectivity can challenge teachers when administering online assessments, quizzes, or exams. Technical glitches, network disruptions, or slow loading times may compromise the integrity and fairness of assessments, leading to inaccuracies in grading and assessment results. Moreover, delayed or inconsistent internet connectivity can hinder teachers' ability to provide timely feedback to students and affect their teaching tasks.

Absence of internet connection affects Interactive online activities, collaborative projects, and virtual discussions. However, unstable internet connectivity can hinder students' ability to participation in these activities, leading to disengagement, frustration, and reduced learning outcomes. Students may experience difficulties submitting assignments or participating in online discussions, which can negatively impacting their academic performance and motivation.

Teachers frequently have a limited amount of time available for each lesson or instructional period, and they must cover a wide range of curriculum content and learning goals. As a result, integrating ICT into teaching may be perceived as an additional task that competes with other instructional priorities. Teachers may struggle to find sufficient time to plan, prepare, and implement ICT-enhanced lessons while ensuring that meet curriculum requirements.

When teachers lack confidence in using ICT, they may be hesitate to incorporate technology into their teaching tasks. It may lead to opportunities to improve lessons with multimedia content, interactive activities, and online resources. As a result, students may not benefit from the full range of learning experiences that ICT can provide.

Without adequate training, teachers may lack the knowledge to integrate ICT into their teaching task effectively. It can result in underutilization of technology in the classroom, with teachers sticking to traditional teaching methods instead of exploring the potential benefits of ICT for enhancing learning experiences.

When teachers are uninterested in using ICT, they may be less likely to investigate and integrate technology tools and resources into their teaching task. This can lead to reluctance to incorporate technology into lessons, resulting in missed opportunities to enhance learning experiences and engage students with interactive and multimedia-rich content.

Access to computer hardware is essential for effectively integrating technology into classroom teaching. Without access to computers, teachers may struggle with digital tools, software applications, and online resources to enhance teaching and learning experiences. It can result in a reliance on traditional teaching methods and missed opportunities to engage students through interactive and multimedia-rich content.

Table 23 revealed the teachers’ coping mechanisms for integrating pedagogical information and communication technology into their teaching tasks. Teachers claimed that in terms of coping mechanisms they use to overcome such challenges.

However, teachers claimed that they use coping mechanisms sometimes. It may imply that those challenges were experienced sometimes as well. Teachers, despite experiencing different challenges continuously, overcome the challenges.

When integrating information and communication technologies (ICTs), it enhances the teaching experience and benefits the learners. However, many teachers face challenges due to a lack of knowledge in effectively integrating ICTs. Without the opportunity to attend the trainings and workshops, an individual is results in independent learning.

Teachers who struggle to incorporate information and communication technologies (ICT) into their lessons due to a lack of technical support turn to their peers, institutional leaders, and specialists for assistance in troubleshooting technical issues.

Addressing the lack of genuine or licensed ICT software tools is crucial for ensuring the optimal data performance that teachers need when integrating ICT. Pirated software may lack the reliability, stability, and performance of genuine or licensed versions. Teachers may encounter bugs, glitches, and compatibility issues that hinder productivity and disrupt workflows. To cope with this, institutional heads and teachers determine the specific ICT software tools that are essential for their teaching tasks and then purchase genuine or licensed ICT software tools to effectively maximize the benefits of the software.

Teachers who are having difficulty incorporating information and communication technologies (ICT) into their lessons due to a lack of technical support seek assistance in troubleshooting technical issues from their peers, institutional leaders, and specialists. To cope with this problem, seek technical support from internet providers and address connectivity issues that result in minimizing disruptions to teaching caused by unstable internet connections.

Without internet access, teachers are unable to access online resources such as educational websites, digital libraries, and multimedia content. It limits access to information, interactive learning materials, and supplementary resources that can enrich the learning experience. To cope with this problem, teachers seek administrative support for internet connectivity, which prioritizing reliable internet infrastructure and technology within the school.

Effective ICT Pedagogical Integration requires a mindful analysis of pedagogical strategies that use technology to improve instruction. A lack of time could result in unreliable technological integration. Rather than just using technology for its own sake, teachers take time to think about integrating it in ways that improve teaching and learning. To fill this gap, teachers seek allotted time for preparation for integrating ICT in classroom teaching; this leads to more effective pedagogical approaches, instructional strategies, and assessment procedures.

When utilizing ICT in the classroom, teachers could be afraid of making mistakes or running into technical difficulties, which could make them doubt their abilities. One of

the biggest challenges to trying out and innovating with technology-enhanced teaching methods is the fear of failure. To manage, teachers seek motivation from peers to use ICT in classroom teaching, which helps build confidence and the knowledge needed to integrate ICT into their teaching.

When teachers face a lack of training in using information and communication technologies (ICT) in classroom teaching, it can create barriers to effective technology integration. In order to cope, teachers seek professional development opportunities focused on ICT Pedagogical Integration. They request workshops, LAC sessions, or training from school administrators or seek external training resources themselves.

Some teachers may believe that their preferred teaching methods or pedagogical approaches are incompatible with ICT Pedagogical Integration. To cope with this problem, teachers seek goals in using ICT in the classroom where flexible and adaptable ICT tools are shown that can be incorporating into teaching styles and instructional strategies.

Without access to computer hardware, teachers may struggle to prepare digital materials, lesson plans, and instructional resources that incorporating technology. By implementing solutions such as requesting administration support for computer hardware, schools can help address the challenge of limited access to computer hardware for teachers, enabling them to maximize the use of technology more effectively in classroom teaching and enriching learning experiences for all students.

Conclusions

1. Even though teachers sometimes run into difficulties, they always use word processing software for their everyday teaching tasks in the classroom. They frequently use spreadsheet tools, which are more often used in the preparation of grades. Teachers are digitally literate at creating and presenting using presentation tools due to their regular use for their teaching task. Integrating different strategies and techniques in teaching involves browsing websites with high frequency.

It also concludes that the frequent use of social media for teaching-related tasks has a high literacy rate in its utilization. Teachers should have access to the learning resource portal. It shows how digitally literate teachers are by frequently accessing the learning resource portal. It also comes to the conclusion that teachers are now literate with the different video conferencing online platforms.

In most cases of meetings and even focus group discussions, teachers and school heads are particularly familiar with the use of webinars and MS Teams for conferences. Furthermore, it concludes that there is a high and very high literacy rate as a result of continued utilization and training provided by the school and ICT coordinators to ensure

teachers can cope with the digitalization needs of the twenty-first century. The use of digital literacy in teaching tasks can increase with frequent use.

2. Based on the analysis, the level of teachers' pedagogical integration of ICT was high. The level of pedagogical integration of information and communication technology in terms of lesson planning, preparation of instructional materials, delivery of instruction, and assessment of learning were all often used by the teachers.

3. Furthermore, it concludes that there is a significant relationship between digital literacy and information and communication technology in lesson planning, as teachers integrate ICT in the planning of lessons and frequently use it in the teaching task. This concludes that teachers are more likely to successfully integrate ICT tools and resources into their lesson plans if they have high levels of digital literacy.

Moreover, it concludes that online-based conferences and assessments of learning to productivity of software tools have also significant relationship. Online conferences provide dynamic platforms for teachers to gather and share knowledge, experiences, and insights through the use of productivity software tools. Assessment of learning enables teachers to assess students' proficiency and understanding using productivity software tools.

4. The problems met in information and communication technology in teaching claimed sometimes encountered. Teachers continued to face obstacles when integrating ICT. However, they make use of the available ICT resources. Digital literacy among teachers can lead to the successful integration of ICT into teaching and learning activities.

5. Furthermore, it concludes that the coping mechanisms of the teachers' integrating information and communication technology into their teaching tasks were sometimes integrated. While it helps teachers navigate challenges in integrating ICT into their teaching tasks, it is essential to recognize that individual circumstances may vary. Providing ongoing support, resources, and professional development opportunities tailored to teachers' needs can facilitate successful ICT Pedagogical Integration and enhance teaching effectiveness. Based on the outcomes, the training program might be suggested to enhance ICT Pedagogical Integration in the classroom.

Recommendations

Based on the conclusion drawn, the following are recommended:

1. Since most respondents are found to be digitally high and highly literate, teachers are recommended to continue innovation and updates on current trends in productivity software tools, website browsing, social media platforms, learning resource management systems, and online-based conference platforms, as technology is constantly evolving. This can be achieved through a training program focusing on the latest technological advancements and best practices. Ensuring teachers remain at the forefront of

educational technology and can effectively leverage these tools to enhance student learning outcomes.

2. According to the findings of the study, most respondents claimed they often integrate ICT. Teachers may continuously improve and enhance their skills through different trainings. Continuous support and capacity building for professional development for teachers are essential to attain Technologically Advanced Classroom Instruction. Additionally, commitment to continuous improvement and professional development will lead to more effective and engaging instruction, that better prepares students for the demands of the digital age.

3. Based on the results of the study, no significant relationship or weak correlation between Digital literacy and Pedagogical Integration, it was found that given the generally high level of teachers' digital literacy and often to sometimes frequent integration of ICT in the teaching task, it is suggested that teachers may intensify and continue the pedagogical integration of ICT to be able to help the school with the development and improvement of the learners. Systematic monitoring and evaluations are necessary to guarantee the quality of technical assistance. Training programs should be updated continuously to include the latest technological advancements and pedagogical strategies, ensuring that teachers are well-prepared to leverage new tools and methods.

4. In line with the results, problems met by the teachers that are sometimes encountered, school heads may also continue to provide technical assistance and supervision to teachers to improve their integration through different programs to help the teachers and learners. These programs can include ongoing professional development workshops that focus on the latest educational technologies and effective pedagogical strategies using ICT in the classroom. Additionally, schools can establish dedicated technology support teams to assist teachers with troubleshooting and implementing new tools. Creating a resource center with up-to-date materials and guides on ICT integration can also serve as a valuable asset for educators seeking to enhance their technical skills.

5. In connection to the results of the study, the coping mechanism of the teachers in integrating information and communication technology into their teaching tasks were all sometimes, School heads are recommended to provide effective instructional leadership support to Teachers. Strategic resource allocation, management of instructional programs, promotion of positive learning environments, development of leadership skills and knowledge, and provision of technical assistance can significantly affect professional growth and school success in integrating ICT.

6. In line with the findings of the study that ICT integration is often, it is suggested that educational practitioners, policymakers, and researchers understand the need to enrich instructional leadership and improve the delivery of technical assistance to help teachers cope with their challenges in integrating ICT. This enhancement involves providing school leaders with the necessary training and resources to guide and support their staff effectively. Instructional leaders should be well-versed in the latest educational

technologies and pedagogical strategies to mentor teachers in their ICT integration efforts.

7. Relevant to the findings of the study, it is suggested that Teachers may apply the training program to enhance the integration of ICT into their pedagogical practices. By leveraging the training, educators can develop more interactive and engaging teaching methods that utilize digital tools and resources effectively. This integration can lead to improved student outcomes, as technology can provide diverse and innovative ways to present information, facilitate collaboration, and assess learning. This continuous enhancement of pedagogical skills through ICT integration will not only enrich the learning experience but also prepare students for a digitally driven world.

8. Since digitalization and technology are continuously developing and emerging, the research may not seem applicable in the next ten years. However, it is recommended to design a parallel or comparative study to ascertain the degree of digital literacy among teachers in integrating ICT into the classroom and other relevant tasks. This future-oriented research should involve regular intervals of data collection to track changes and trends over time.

Compliance with Ethical Standards

In this study, the researcher first secured consent from all participants, including school heads, master teachers, and teachers, prior to their participation. Respondents were given clear information about the research's purpose, procedures, potential risks, and benefits, and they were free to withdraw from the study at any time without consequence.

Confidentiality and anonymity were also maintained to protect participants' privacy, ensuring that their responses and personal information were secure and not disclosed without their express consent. Furthermore, the research was carried out with integrity, honesty, and transparency, without any form of deception or manipulation.

The researchers followed the ethical guidelines and standards established by relevant institutions and regulatory bodies, such as the university and DepEd, including seeking approval from ethics committees or review boards.

Finally, the study's findings was reported accurately and objectively, without bias or distortion and promote the welfare of the participants without causing harm, while also ensuring that the respondents are safe and secure throughout the study.

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TEACHERS' EXPERIENCES IN USING ONLINE EDUCATIONAL RESOURCES (OER) IN THE SCHOOLS DIVISION OF QUEZON: BASIS FOR THE DEVELOPMENT OF SAMPLE ONLINE EDUCATIONAL RESOURCES INSTRUCTIONAL MATERIALS

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ABSTRACT

This study develops the perception of the teachers in relation to the benefits of using online resources in their educational activities, the impact of the Online Educational Resources (OER) in Schools Division of Quezon in the teaching and learning process. This was longitudinal research and it included teachers of various subjects. The key research instrument tends to address the teachers' insight for the benefits of using online resources. Taking into research that the nature of this study is of the evaluative character of teachers has been implemented by using questionnaires. The results show that teachers have a positive attitude towards usage of the online platform in their teaching, which also influences for their lessons to become more efficient and attractive for the learners and also for the teachers. As far as the usage of online resources for the learners' learning concerns, the findings of this research study indicate a positive attitude of the respondents in Schools Division of Quezon for the affirmative impact that the usage of online educational resources has for the learners' learning. This research study also indicated that there are still technical problems present which in many cases hindered present which the utilization of the online resources.

Keywords: *Teaching, Learning, Platforms, Online Resources*

INTRODUCTION

As a teacher working in an elementary or a secondary school, you likely need to face a crucial reality - having limited time to deal with all kinds of school duties, including developing lesson plans, creating teaching materials, and documenting student learning progress, etc. This reality in K-12 educational settings could be particularly overwhelming if you are a beginning teacher. Luckily, with the advent of technology and the emergence of K-12 Open Educational Resources (OER) more free and quality resources become available for K-12 teachers. OER allow teachers to save the time creating teaching materials from scratch, yet still have access to materials that support student learning engagement. OER have created an extra ordinary opportunity for educators to customize teaching and learning as well as sharing knowledge in various forms across communities, states, and even countries.

The DepEd Open Educational Resources (OER) is an innovative pathway to connect the disconnected schools with its prime role to support the requirements of the K-12 Curriculum. It focuses on the ICT Assisted Teaching and ICT Assisted Learning whereas the customization of localized materials is made possible to deliver quality, accessible, relevant and liberating education for all even for schools without strong internet facilities. The OERs are designed in such a way to cater the needs for interactivity, digitization and delivery of 21st Century Skills to make learners future ready. This is the beginning of revolutionizing education in the Philippines to teach minds, touch hearts and transform lives of learners. Welcome to the new era of learning. This is Digital Rise.

Embracing the use of OER will solve the challenges encountered by the public school system, especially the so-called Last Mile Schools or those schools in the far-flung areas in terms of access to learning materials and skills to create or reuse contents.

This scenario is true in the public elementary schools in Macalelon District, Division of Quezon. As a teacher-researcher, this issue is interesting to study to be able to determine the experiences of teachers in transitioning from textbooks to online instructional materials so as to apply in everyday teaching.

Research Questions

For the purpose of this study, data was gathered in order to address each of the following research questions:

1. What is the demographic profile of the respondents in terms of:
    1.1 Age;
    1.2 Sex;
    1.3 Educational Attainment; and
    1.4 Length of Service?

2. What are the teachers' experiences in using open educational resources in terms of following when grouped into demographic profile:
    2.1. Existence of online platforms;
    2.2 Online platforms as Instructional Materials;
    2.3 Advantages of Open Educational Resources; and
    2.4 Disadvantages of Open Educational Resources?
3. Is there a significant difference on the teachers' experiences using open educational resources when grouped into profile?
4. What are the problems encountered by teachers in using Online Instructional Materials?
5. What are the coping strategies of teachers in addressing the challenges?
6. What sample of open educational resources instructional material could be developed by the researcher?

METHODOLOGY

Research Design

The researcher chose will use a survey research design because it is best served to answer the questions and the purposes of the study. The survey research is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. In other words, only a part of the population is studied, and findings from this are expected to be generalized to the entire population (Nworgu 1991:68).

Research Locale

The map into next page illustrated the Division of Quezon which considered as one of the four very large schools divisions in the Philippines. The Division of Quezon is headed by Dr. Merthel M. Evardome, CESO VI. She started her journey as Assistant Schools Division Superintendent in 2013, she assumed SDS post in the Division of Antipolo in January 2014, transferred to the Division of Laguna in July 2015. After six months January 6, 2016, she was appointed back to Schools Division of Quezon as Schools Division Superintendent. During her term, the Schools Division Office of Quezon continues to flourish and excel in many areas of governance. DepEd Quezon was hailed as the second-Best Performing Division in Region IV-A in 2017 and the first Best Performing Division in Region IV-A in 2018. The Division's Brigada Eskwela was also awarded twice as Hall of Fame Award in the National Brigada Eskwela. Lots of awards and recognitions were received by the division in sports, journalism, research and others. Facilities and physical improvements are noticeable and most importantly quality of service of all personnel are gearing towards excellence.

Figure 5 *Map of the Division of Quezon*



Quezon is a province of the Philippines in the CALABARZON Region located in the south of Luzon Island. Its capital is Lucena. Quezon province was named after former President Manuel L. Quezon who was born in Baler, a town which was then part of Tayabas. Quezon is famous for coconut-based cuisines, lambanog, longganisang Lucban, and pansit habhab.

The Quezon province is divided into 39 Municipalities, 1 Independent City, and 1 Component City: Agdangan, Alabat, Atimonan, Buenavista, Burdeos, Calauag, Candelaria, Catanauan, Dolores, General Luna, General Nakar, Guinayangan, Gumaca, Infanta, Jomalig, Lopez, Lucban, Lucena, Macalelon, Mauban, Mulanay, Padre Burgos, Pagbilao, Panukulan, Patnanungan, Perez, Pitogo, Plaridel, Polillo, Quezon, Real, Sampaloc, San Andres, San Antonio, San Francisco, San Narciso, Sariaya, Tagkawayan, Tayabas, Tiaong, Unisan.

DepEd Quezon encompassing of 953 schools; 771 Elementary and 182 Secondary Schools. 166 out of 182 are offering Senior High School Program. These schools are distributed in four congressional districts of Quezon. Quezon Province is composed of 1,543 barangays. The 953 schools are headed by a Schools' Division Superintendent and three Assistant Schools Division Superintendent serving with him in the field are 57 Public Schools District Supervisors, 271 Elementary School Principals, 107 Secondary School Principals, 45 Head Teachers and 310 Teacher-In-Charge.

The Division of Quezon, a winner on Innovations in Leadership, Governance and Management - Institutional Leadership and Direction Setting during the 6th Excellence in Educational Transformation Awards given by Bayan Academy in cooperation with ABS-CBN Foundation, Rex Bookstore, Knowledge Channel and DepEd, Garden Ballroom, Edsa Shangri-La Hotel, Mandaluyong last November 19, 2019.

Research Population and Sample

The respondents of this study were divided into Four (4) Congressional Districts in the Division of Quezon. Simple Random Sampling will be used where every element has an equal chance of getting selected to be part of the sample. The researcher first identified the population. Before a sample is chosen randomly, it is necessary to have a complete list of the population from which to select. After a list of population members has been constructed, the researcher prepared for a draw lots.

Table 1 shows the distribution of respondents for the study. In the 1st Congressional District, 8 teachers will be from the large schools, 4 teachers form the medium schools and 1 from a small school. Meanwhile, from the 2nd Congressional District, there are 7 teachers from large schools, 4 from medium schools and 1 from a small school. From the 3rd Congressional District, there are 5 teachers from large schools, 2 from medium schools and 1 from a small school. From the 4th Congressional District, there are 9 teachers coming from large schools, 8 from medium schools and 2 teachers from small schools.

Table 1

Distribution of Population

Congressional District	School size	Teachers	
		Number	%
First	Large	8	15.38
	Medium	4	7.69
	Small	1	1.92
Second	Large	7	13.46
	Medium	4	7.69
	Small	1	1.92
Third	Large	5	9.62
	Medium	2	3.85
	Small	1	1.92
Fourth	Large	9	17.31
	Medium	8	15.38
	Small	2	3.85
Total		52	100

Research Instrument

A questionnaire designed by the researcher were used in the study. The questionnaire has eight sections: A, B, C, D, E, F, G, and H. Section "A" is about the respondents' profile, section "B", level of experiences; section "C", is there a significant difference on the teachers' experiences using open educational resources; section "D" is on the online platforms used, section "E" contains questions on the advantages with 12 indicators, Section "F" is on the disadvantages of using OER with 8 indicators; Section "G" is on the problems encountered. It has 6 indicators; section "H", on the other hand is on the coping strategies to be used to address the problems on using OER, which has 5 indicators. The instrument was structured in the modified Likert fashion, on a 5 – point scale, ranging from "highly experienced" (HE), "experienced" (E), to "moderately experienced" (ME) to "least experienced" (LE), and "not experienced" (NE). Subjects were then instructed to respond to their degree of agreement with the statements contained in the instrument.

Point Scale	*Mean Interval*		*Verbal Interpretation*	*Qualitative Description*
5	*4.20 5.00*	–	*Highly Experienced (HE)*	*The level of experiences is 81% to 100% in using OER.*
4	*3.40 4.19*	–	*Experienced (E)*	*The level of experiences is 61% to 80% in using OER.*
3	*2.60 3.39*	–	*Moderately Experienced (ME)*	*The level of experiences is 41% to 60% in using OER.*
2	*1.80 2.59*	–	*Least Experienced (LE)*	*The level of experiences is 21% to 40% in using OER.*
1	*1.00 1.79*	–	*Not Experienced (NE)*	*The level of experiences is less than 20% in using OER*

The instruments were validated the following teachers in Macalelon Central Elementary School, Macalelon District. There are (2) two Master Teachers, Mrs. Elaine A. Delos Santos, Master Teacher II -English Coordinator, and Mrs. Maria Concepcion L. Edaugal, Master Teacher I-Mathematics Coordinator, and (1) one Macalelon District ICT Coordinator Mr. Rey E. Mallari. The certification of validation of research instrument were issued on 10th day of February 2023 at Macalelon Central Elementary School, Macalelon District.

Data Gathering Procedure

Questionnaires are the most common way of gathering data from a sample of individuals. Questionnaire is a list of questions each with a range of answers. It is also a format that enables standardized, relatively structured, data to be gathered about each of a large number of cases. Questionnaires are now commonly used at all levels of social research, from small scale students and community projects through to large-scale international surveys. The main common things between those surveys are the formulation of a set of questions sometimes and answers which are going to help the researcher to answer his research question or test his hypothesis

For this study, self-made questionnaire would be designed in the way that all types of questions except multiple choice questions will be used. For instance, open-ended questions will be given to receive the respondents' opinion about the level of experiences and online platforms used. Likert Scale will be used to answer the advantages, disadvantages, problems encountered and coping strategies in using OER questions for the respondents.

Ethical Considerations

The study adhered to the research ethics of anonymity, consent, and beneficence. the research ensured that the data gathered were secured and observed with the utmost consideration of data privacy. no personal information provided by the respondents was divulged in the study. in addition, the teachers who provided the data of learners were given a copy of the consent form to ensure they were aware of their participation. The

researcher explained in full detail the process of data gathering and assured that the data shall be treated with the utmost confidentiality. The teachers were also given the option to withdraw their participation if they felt there was a need for them to do so. Finally, the researcher informed the respondents that no benefits shall be provided to the respondents but the data they will be providing shall be helpful for the realizations and completion of the study.

Statistical Treatment of Data

Various statistical tools such as frequency count, weighted mean, percentage, and rank is used to determine the profile of the respondents.

To determine the significance of agreement, the statistical analysis of the data in assessing the advantages and disadvantages of using OER in the Division of Quezon, Kendall Coefficient of Concordance W is employed (Siegel, 1988).
Where:

$$W = \frac{S}{1/2\ k^2\ (N^3 - N)}$$

S	**=**	the numeration of square
½	=	is constant
R	=	refers to the number of groups
N	=	the number of items

The corresponding x^2 formula will be used to determine the significance of agreement (Siegel, 1988).

$$X^2 = K\ (N\text{-}1)\ W$$

Significance level is set at 0.05.

Scope and Delimitation

The study is confined to the teachers' experiences in using online educational resources in the schools Division of Quezon: basis for the development of sample online educational resources instructional materials; online platforms being used, advantages and disadvantages, problems encountered, and coping strategies would be discussed in this study.

The study was conducted in the Schools Division of Quezon Province during the School Year 2023-2024. Respondents of the study are teachers. In addition, the profile of teachers was also gathered in terms of age, sex, educational attainment and length of service.

The respondents of the study are delimited to public elementary teachers in selected public elementary schools in the Division of Quezon.

RESULTS

Part I. The Demographic Profile of the Respondents in Terms of Age, Sex, Educational Attainment and Length of Service.

Table 1

The Demographic Profile of the Respondents in Terms of Age, Sex, Educational Attainment and Length of Service

Profile	Frequency	Percentage
Age		
26-35 years old	30	33.3
36-45 years old	24	26.7
46-55 years old	26	28.9
56-65 years old	10	11.1
Total	**90**	**100.0**
Sex		
Male	10	11.1
Female	80	88.9
Total	**90**	**100.0**
Educational Attainment		
College Graduate	10	11.1
College Graduate with masters' units	80	88.9
Total	**90**	**100.0**
Length of Service		
1-5 years	12	13.3
6-10 years	21	23.3
11-15 years	12	13.3
16-20 years	22	24.4
21-25 years	10	11.1
26-30 years	13	14.4
Total	**90**	**100.0**

Part II. The Teachers' Experiences in Terms of Existence of Online Platforms; Online Platforms Used as Instructional Materials; Advantages of Open Educational Resources; and Disadvantages of Open Educational Resources

Table 2.1.1

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Age

Indicators	Mean				Total		
	26-35 years old	36-45 years old	46-55 years old	56-65 years old	SD	Mean	VI
1. The Open Educational Resources offers convenience and flexibility for teachers.	4.33	4.21	4.35	4.10	.671	4.28	HE
2. Open Educational Resources meet high quality student-Tutor Interactions.	4.17	4.00	4.27	3.80	.678	4.11	E
3. Retention Rates are higher in Open Educational Resources.	3.97	4.00	4.23	3.90	.669	4.04	E
4. Open Educational Resources can supplement and add value to existing curriculum resources.	4.10	3.96	4.38	4.00	.690	4.13	E
5. Open Educational Resources must be free- both to give, to take and sharing.	4.10	4.00	4.31	4.20	.815	4.14	E
6. Open Educational Resources can reduce the cost of education for your students.	4.13	3.83	4.19	4.10	.716	4.07	E
7. Open Educational Resources can expose students to a wider range of digital learning opportunities in the form of open images, open courseware, and self-assessment tools.	4.27	4.04	4.35	4.20	.700	4.22	E
8. Learners can benefit from OER's enhanced quality and flexibility of resources.	4.30	4.08	4.35	4.20	.659	4.24	HE
9. Open Educational Resources help learners in applying knowledge in a wider context than their course may otherwise allow.	4.13	4.08	4.15	4.10	.668	4.12	E

10. Open Educational Resources help support for learner-centered, self-directed, peer-to-peer and social-informal learning approaches.	4.27	4.04	4.23	4.20	.685	4.19	E
Grand Mean	**4.18**	**4.02**	**4.28**	**4.08**	**.695**	**4.15**	**E**

Table 2.1.2

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Sex

Indicators	Mean			Total	
	Male	Female	SD	Mean	VI
1. The Open Educational Resources offers convenience and flexibility for teachers.	4.40	4.26	.671	4.28	HE
2. Open Educational Resources meet high quality student-Tutor Interactions.	4.00	4.13	.678	4.11	E
3. Retention Rates are higher in Open Educational Resources.	3.90	4.06	.669	4.04	E
4. Open Educational Resources can supplement and add value to existing curriculum resources.	3.80	4.18	.690	4.13	E
5. Open Educational Resources must be free-both to give, to take and sharing.	3.90	4.18	.815	4.14	E
6. Open Educational Resources can reduce the cost of education for your students.	3.90	4.09	.716	4.07	E
7. Open Educational Resources can expose students to a wider range of digital learning opportunities in the form of open images, open courseware, and self-assessment tools.	4.10	4.24	.700	4.22	HE
8. Learners can benefit from OER's enhanced quality and flexibility of resources.	4.00	4.28	.659	4.24	HE
9. Open Educational Resources help learners in applying knowledge in a wider context than their course may otherwise allow.	3.80	4.16	.668	4.12	E
10. Open Educational Resources help support for learner-centered, self-directed, peer-to-peer and social-informal learning approaches.	3.90	4.23	.685	4.19	E
Grand Mean	**3.97**	**4.18**	**.695**	**4.15**	**E**

Table 2.1.2

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Sex

Indicators	Mean			Total	
	Male	Female	SD	Mean	VI
1. The Open Educational Resources offers convenience and flexibility for teachers.	4.40	4.26	.671	4.28	HE
2. Open Educational Resources meet high quality student-Tutor Interactions.	4.00	4.13	.678	4.11	E
3. Retention Rates are higher in Open Educational Resources.	3.90	4.06	.669	4.04	E
4. Open Educational Resources can supplement and add value to existing curriculum resources.	3.80	4.18	.690	4.13	E
5. Open Educational Resources must be free-both to give, to take and sharing.	3.90	4.18	.815	4.14	E
6. Open Educational Resources can reduce the cost of education for your students.	3.90	4.09	.716	4.07	E
7. Open Educational Resources can expose students to a wider range of digital learning opportunities in the form of open images, open courseware, and self-assessment tools.	4.10	4.24	.700	4.22	HE
8. Learners can benefit from OER's enhanced quality and flexibility of resources.	4.00	4.28	.659	4.24	HE
9. Open Educational Resources help learners in applying knowledge in a wider context than their course may otherwise allow.	3.80	4.16	.668	4.12	E
10. Open Educational Resources help support for learner-centered, self-directed, peer-to-peer and social-informal learning approaches.	3.90	4.23	.685	4.19	E
Grand Mean	**3.97**	**4.18**	**.695**	**4.15**	**E**

Table 2.1.3

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Educational Attainment

Indicators	Mean		Total		
	College Graduate	College Graduate with masters' units	**SD**	**Mean**	**VI**
1. The Open Educational Resources offers convenience and flexibility for teachers.	4.40	4.26	.671	4.28	HE
2. Open Educational Resources meet high quality student-Tutor Interactions.	4.00	4.13	.678	4.11	E
3. Retention Rates are higher in Open Educational Resources.	3.90	4.06	.669	4.04	E
4. Open Educational Resources can supplement and add value to existing curriculum resources.	3.80	4.18	.690	4.13	E
5. Open Educational Resources must be free- both to give, to take and sharing.	3.90	4.18	.815	4.14	E
6. Open Educational Resources can reduce the cost of education for your students.	3.90	4.09	.716	4.07	E
7. Open Educational Resources can expose students to a wider range of digital learning opportunities in the form of open images, open courseware, and self-assessment tools.	4.10	4.24	.700	4.22	HE
8. Learners can benefit from OER's enhanced quality and flexibility of resources.	4.00	4.28	.659	4.24	HE
9. Open Educational Resources help learners in applying knowledge in a wider context than their course may otherwise allow.	3.80	4.16	.668	4.12	E
10. Open Educational Resources help support for learner-centered, self-directed, peer-to-peer and social-informal learning approaches.	3.90	4.23	.685	4.19	E
Grand Mean	**3.97**	**4.18**	**.695**	**4.15**	**E**

Table 2.1.4

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Length of Service

Indicators	Mean						Total		
	1-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	SD	Mean	VI
1. The Open Educational Resources offers convenience and flexibility for teachers.	4.33	4.33	4.42	4.09	4.40	4.23	.671	4.28	HE
2. Open Educational Resources meet high quality student-Tutor Interactions.	4.33	4.14	4.25	3.91	4.10	4.08	.678	4.11	E
3. Retention Rates are higher in Open Educational Resources.	4.42	3.86	4.08	3.86	4.20	4.15	.669	4.04	E
4. Open Educational Resources can supplement and add value to existing curriculum resources.	4.50	3.95	4.17	4.05	4.20	4.15	.690	4.13	E
5. Open Educational Resources must be free-both to give, to take and sharing.	4.58	3.86	4.25	3.91	4.30	4.38	.815	4.14	E
6. Open Educational Resources can reduce the cost of education for your students.	4.50	3.90	4.08	3.91	4.00	4.23	.716	4.07	E
7. Open Educational Resources can expose students to a wider range of digital learning opportunities in the form of open images, open courseware, and self-assessment tools.	4.67	4.10	4.17	4.05	4.20	4.38	.700	4.22	HE
8. Learners can benefit from OER's enhanced quality	4.58	4.24	4.17	4.05	4.20	4.38	.659	4.24	HE

and flexibility of resources.									
9. Open Educational Resources help learners in applying knowledge in a wider context than their course may otherwise allow.	4.42	4.05	4.17	3.91	4.20	4.23	.668	4.12	E
10. Open Educational Resources help support for learner-centered, self-directed, peer-to-peer and social-informal learning approaches.	4.50	4.14	4.17	3.95	4.20	4.38	.685	4.19	E
Grand Mean	**4.48**	**4.06**	**4.19**	**3.97**	**4.20**	**4.26**	**.695**	**4.15**	**E**

Table 2.2

Online Platforms Used as Instructional Materials

Online platforms	Frequency	Percentage	Rank
Google meet	29	32.2	4
Skype	3	3.3	9.5
Messenger	56	62.2	1
Google	40	44.4	3
You Tube	53	58.9	2
Google Classroom	25	27.8	5
Twitter	3	3.3	9.5
Instagram	9	10.0	7
Skill share	10	11.1	6
LinkedIn Learning	8	8.9	8

Table 2.3.1
Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Age

Indicators	Mean				Total		
	26-35 years old	36-45 years old	46-55 years old	56-65 years old	SD	Mean	VI
1. It helps me let my pupils know the most up-to-date developments in the subject.	4.27	4.21	4.38	4.30	.503	4.29	HE
2. It helps me provide my pupils with a context for a topic.	4.33	4.25	4.23	4.30	.475	4.28	HE
3. It allows me to integrate primary source material into the course.	4.37	4.17	4.23	4.40	.541	4.28	HE
4. It is cost-saving. Lectures and lesson plans are available online, saving me time, effort, and money, while learning new knowledge.	4.37	4.17	4.27	4.20	.557	4.27	HE
5. It enhances course material. Texts, images, and videos can be used to support different approaches to learning.	4.40	4.25	4.50	4.30	.552	4.38	HE
6. Course materials can be modified and can be narrowed down to topics that are relevant to my topic.	4.40	4.29	4.31	4.20	.557	4.32	HE
7. It helps me get pupils excited about a topic.	4.50	4.25	4.23	4.50	.495	4.41	HE
8. It helps me improve my pupils learning.	4.40	4.17	4.38	4.30	.596	4.32	HE
9. It allows me to do things in the classroom that I could never do otherwise.	4.17	4.25	4.19	4.30	.551	4.21	HE
10. It allows me to stay up-to-date with my colleagues.	4.37	4.21	4.27	4.30	.525	4.29	HE
11. It makes me feel comfortable with new technology.	4.53	4.17	4.35	4.20	.523	4.34	HE
12. It creates more flexible materials.	4.47	4.13	4.23	4.20	.561	4.28	HE
Grand Mean	**4.38**	**4.21**	**4.30**	**4.29**	**.536**	**4.31**	**HE**

Table 2.3.2

Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Sex

Indicators	Mean		SD	Total Mean	VI
	Male	Female			
1. It helps me let my pupils know the most up-to-date developments in the subject.	4.10	4.31	.503	4.29	SA
2. It helps me provide my pupils with a context for a topic.	4.30	4.28	.475	4.28	SA
3. It allows me to integrate primary source material into the course.	4.20	4.29	.541	4.28	SA
4. It is cost-saving. Lectures and lesson plans are available online, saving me time, effort, and money, while learning new knowledge.	4.40	4.25	.557	4.27	SA
5. It enhances course material. Texts, images, and videos can be used to support different approaches to learning.	4.20	4.40	.552	4.38	SA
6. Course materials can be modified and can be narrowed down to topics that are relevant to my topic.	4.10	4.35	.557	4.32	SA
7. It helps me get pupils excited about a topic.	4.20	4.44	.495	4.41	SA
8. It helps me improve my pupils learning.	4.30	4.33	.596	4.32	SA
9. It allows me to do things in the classroom that I could never do otherwise.	4.30	4.20	.551	4.21	SA
10. It allows me to stay up-to-date with my colleagues.	4.20	4.30	.525	4.29	SA
11. It makes me feel comfortable with new technology.	4.40	4.34	.523	4.34	SA
12. It creates more flexible materials.	4.20	4.29	.561	4.28	SA
Grand Mean	**4.24**	**4.32**	**.536**	**4.31**	**SA**

Table 2.3.3

Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Educational Attainment

Indicators	Mean		Total		
	College Graduate	College Graduate with masters' units	**SD**	**Mean**	**VI**
1. It helps me let my pupils know the most up-to-date developments in the subject.	4.10	4.31	.503	4.29	SA
2. It helps me provide my pupils with a context for a topic.	4.30	4.28	.475	4.28	SA
3. It allows me to integrate primary source material into the course.	4.20	4.29	.541	4.28	SA
4. It is cost-saving. Lectures and lesson plans are available online, saving me time, effort, and money, while learning new knowledge.	4.40	4.25	.557	4.27	SA
5. It enhances course material. Texts, images, and videos can be used to support different approaches to learning.	4.20	4.40	.552	4.38	SA
6. Course materials can be modified and can be narrowed down to topics that are relevant to my topic.	4.10	4.35	.557	4.32	SA
7. It helps me get pupils excited about a topic.	4.20	4.44	.495	4.41	SA
8. It helps me improve my pupils learning.	4.30	4.33	.596	4.32	SA
9. It allows me to do things in the classroom that I could never do otherwise.	4.30	4.20	.551	4.21	SA
10. It allows me to stay up-to-date with my colleagues.	4.20	4.30	.525	4.29	SA
11. It makes me feel comfortable with new technology.	4.40	4.34	.523	4.34	SA
12. It creates more flexible materials.	4.20	4.29	.561	4.28	SA
Grand Mean	**4.24**	**4.32**	**.536**	**4.31**	**SA**

Table 2.3.4

Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Length of Service

Indicators	Mean						Total		
	1-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	SD	Mean	VI
1. It helps me let my pupils know the most up-to-date developments in the subject.	4.58	4.14	4.17	4.28	4.30	4.38	.503	4.29	SA
2. It helps me provide my pupils with a context for a topic.	4.42	4.33	4.17	4.23	4.10	4.38	.475	4.28	SA
3. It allows me to integrate primary source material into the course.	4.75	4.19	4.17	4.05	4.30	4.46	.541	4.28	SA
4. It is cost-saving. Lectures and lesson plans are available online, saving me time, effort, and money, while learning new knowledge.	4.67	4.19	4.17	4.09	4.30	4.38	.557	4.27	SA
5. It enhances course material. Texts, images, and videos can be used to support different approaches to learning.	4.67	4.29	4.25	4.28	4.50	4.46	.552	4.38	SA
6. Course materials can be modified and can be narrowed down to topics that are relevant to my topic.	4.83	4.24	4.25	4.18	4.20	4.38	.557	4.32	SA
7. It helps me get pupils excited about a topic.	4.75	4.43	4.17	4.18	4.40	4.69	.495	4.41	SA
8. It helps me improve my pupils learning.	4.83	4.24	4.17	4.09	4.40	4.46	.596	4.32	SA
9. It allows me to do things in the classroom that I could never do otherwise.	4.75	3.90	4.17	4.09	4.20	4.46	.551	4.21	SA

10. It allows me to stay up-to-date with my colleagues.	4.83	4.10	4.25	4.18	4.10	4.46	.525	4.29	SA
11. It makes me feel comfortable with new technology.	4.83	4.33	4.25	4.14	4.30	4.38	.523	4.34	SA
12. It creates more flexible materials.	4.83	4.19	4.17	4.05	4.30	4.38	.561	4.28	SA
Grand Mean	**4.73**	**4.21**	**4.20**	**4.15**	**4.28**	**4.44**	**.536**	**4.31**	**SA**

Table 2.4.1

Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Age

Indicators	Mean				Total		
	26-35 years old	**36-45 years old**	**46-55 years old**	**56-65 years old**	**SD**	**Mean**	**VI**
1. They cannot substitute for the teaching approaches I use	3.70	3.54	3.77	3.20	.990	3.62	A
2. There is no internet connection in our school	2.73	3.17	3.66	3.50	1.153	3.20	N
3. Digital resources are difficult for me to access	2.63	3.04	3.35	3.30	1.027	3.02	N
4. Digital materials can be presented outside their original context	3.23	3.42	3.88	3.20	.939	3.47	A
5. They are irrelevant to my field	2.53	2.79	3.35	2.80	1.030	2.87	N
6. Using them distracts from the core goals of my teaching	2.50	2.75	3.31	2.90	1.111	2.84	N
7. Students don't have the information literacy skills to assess the credibility of digital resources	2.97	3.08	3.58	3.30	1.028	3.21	N
8. I don't want my students to copy or plagiarize material from the Web	3.77	3.58	3.81	3.30	1.058	3.68	A
Grand Mean	**3.01**	**3.17**	**3.59**	**3.19**	**1.042**	**3.24**	**N**

Table 2.4.2
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Sex

Indicators	Mean		Total		
	Male	Female	SD	Mean	VI
1. They cannot substitute for the teaching approaches I use	3.80	3.60	.990	3.62	A
2. There is no internet connection in our school	3.20	3.20	1.153	3.20	N
3. Digital resources are difficult for me to access	2.60	3.08	1.027	3.02	N
4. Digital materials can be presented 5. outside their original context	2.90	3.54	.939	3.47	A
6. They are irrelevant to my field	2.30	2.94	1.030	2.87	N
7. Using them distracts from the core goals of my teaching	2.60	2.88	1.111	2.84	N
8. Students don't have the information literacy skills to assess the credibility of digital resources	2.89	3.25	1.028	3.21	N
Grand Mean	**2.95**	**3.28**	**1.042**	**3.24**	**N**

Table 2.4.3
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Educational Attainment

Indicators	Mean		Total		
	College Graduate	College Graduate with master units	SD	Mean	VI
1. They cannot substitute for the teaching approaches I use	3.80	3.60	.990	3.62	A
2. There is no internet connection in our school	3.20	3.20	1.153	3.20	N
3. Digital resources are difficult for me to access	2.60	3.08	1.027	3.02	N
4. Digital materials can be presented outside their original context	2.90	3.54	.939	3.47	A
5. They are irrelevant to my field	2.30	2.94	1.030	2.87	N
6. Using them distracts from the core goals of my teaching	2.60	2.88	1.111	2.84	N
7. Students don't have the information literacy skills to assess the credibility of digital resources	2.89	3.25	1.028	3.21	N

8. I don't want my students to copy or plagiarize material from the Web	3.30	3.73	1.058	3.68	A
Grand Mean	**2.95**	**3.28**	**1.042**	**3.24**	**N**

Table 2.4.4

Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Length of Service

Part III. The Test of Significant Difference on the Teachers' Experiences Using Open

Indicators	Mean						Total		
	1-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	SD	Mean	VI
1. They cannot substitute for the teaching approaches I use	4.00	3.38	3.92	3.41	4.00	3.46	.990	3.62	A
2. There is no internet connection in our school	3.08	2.57	3.00	3.55	3.70	3.54	1.153	3.20	N
3. Digital resources are difficult for me to access	3.17	2.38	2.92	3.23	3.40	3.38	1.027	3.02	N
4. Digital materials can be presented outside their original context	3.83	3.05	3.25	3.64	3.90	3.38	.939	3.47	A
5. They are irrelevant to my field	2.67	2.57	2.67	2.91	3.60	3.08	1.030	2.87	N
6. Using them distracts from the core goals of my teaching	2.83	2.48	2.58	2.86	3.70	3.00	1.111	2.84	N
7. Students don't have the information literacy skills to assess the credibility of digital resources	3.08	3.00	3.33	3.09	3.60	3.46	1.028	3.21	N
8. I don't want my students to copy or plagiarize material from the Web	4.08	3.43	4.17	3.59	3.50	3.54	1.058	3.68	A
Grand Mean	**3.34**	**2.86**	**3.23**	**3.29**	**3.68**	**3.36**	**1.042**	**3.24**	**N**

Educational Resources When Grouped in Profile Variables

Table 3

The Test of Significant Difference on the Teachers' Experiences Using Open Educational Resources When Grouped in Profile Variables

Grouping Variables	Districts	Mean Rank	p-value	Interpretation	Decision
District	First	43.58	.024	Significant	Reject Ho
	Second	55.10			
	Third	32.10			
	fourth	50.75			
Age	26 – 35 years old	43.58	.179	Not significant	Ho not rejected
	36 – 45 years old	38.46			
	46 – 55 years old	54.37			
	56 – 65 years old	45.10			
School Category	Small	51.25	.131	Not significant	Ho not rejected
	Medium	36.68			
	Large	48.36			
Educational Attainment	College Graduate	33.15	.113	Not significant	Ho not rejected
	College Graduate with master units	47.04			
Sex	Male	33.15	.113	Not significant	Ho not rejected
	Female	47.04			
Length of Service	1 - 5 years	66.67	.003	Significant	Ho rejected
	6 - 10 years	31.86			
	11 - 15 years	42.25			
	16 - 20 years	39.16			
	21 - 25 years	66.67			
	26 - 30 years	31.86			

Part IV. The Problems Encountered by Teachers in Using Online Educational Resources Instructional Materials.

Table 4

The Problems Encountered by Teachers in Using Online Educational Resources Instructional Materials

Indicators	Frequency					SD	Mean	VI
	5	4	3	2	1			
1. Technical difficulties with online teaching tools	10	58	18	3	0	.767	3.80	A
2. Time consuming resources	5	38	28	19	0	.872	3.32	N
3. Lack of Computer literacy	8	37	23	20	2	.992	3.32	N
4. Difficult to motivate pupils	7	26	26	29	1	1.036	3.07	N
5. Lack of pupils' interest	7	19	29	32	3	1.010	2.94	N
6. Lack of technical/software knowledge	10	39	24	16	1	.950	3.46	A
				Grand Mean		**0.938**	**3.32**	**N**

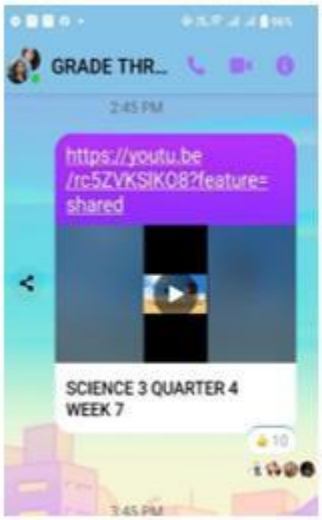
Part V. The Coping Strategies of Teachers in Addressing the Challenges

Table 5

The Coping Strategies of Teachers in Addressing the Challenges

Indicators	Frequency					SD	Mean	VI
	5	4	3	2	1			
1. I keep my pupils engaged.	23	60	6	0	0	.696	4.14	A
2. I let my pupils choose their learning way.	15	63	10	0	0	.800	3.97	A
3. I invite my pupils to contribute to teachings.	18	63	8	0	0	.684	4.07	A
4. I encourage peer evaluation.	23	61	5	0	0	.686	4.16	A
5. I engage myself in ICT trainings	35	46	6	0	0	.982	4.19	A
				Grand Mean		**0.770**	**4.11**	**A**

Part VI. Development of Sample Online Educational Resources Instructional Materials







DISCUSSION

Part I. The Demographic Profile of the Respondents in Terms of Age, Sex, Educational Attainment and Length of Service.

Table 1 shows the profile of the respondents. Most of the respondents fall within the age range of 26-45, accounting for 60% of the total respondents. Specifically, the age group of 26-35 comprises 33.3% of the respondents, followed by the age group of 36-45 with 26.7%. The age groups of 46-55 and 56-65 account for 28.9% and 11.1% of the respondents, respectively.

The respondents are predominantly female, representing 88.9% of the total participants. Male respondents constitute a relatively smaller percentage, making up 11.1% of the total respondents. For educational Attainment, majority of the participants have a "Masters with units" educational background, representing 88.9% of the respondents. A smaller percentage, 11.1%, are college graduates. The length of service distribution among the respondents are around 13.3% have 1-5 years of service, 23.3% have 6-10 years, another 13.3% have 11-15 years, approximately 24.4% have 16-20 years, around 11.1% have 21-25 years, and finally, about 14.4% have 26-30 years.

Relating these demographic insights to existing literature reveals their relevance across various educational contexts and research domains. In studies investigating the adoption of Open Educational Resources (OERs), such as those by Villanueva & Dolom (2018), understanding demographic factors like educators' age and educational background can

illuminate potential influences on OER adoption rates. Similarly, in examinations of technology integration in education, as Alenezi (2020) explored, demographic variables like age and length of service among educators may shape attitudes and behaviors towards electronic learning platforms. This underscores the multifaceted impact of demographic factors on educational practices and underscores the importance of considering them in research design and analysis.

Part II. The Teachers' Experiences in Terms of Existence of Online Platforms; Online Platforms Used as Instructional Materials; Advantages of Open Educational Resources; and Disadvantages of Open Educational Resources

Table 2.1.1 data represents the mean scores for different statements related to teachers experienced of online platforms, categorized by different age groups (26-35, 36-45, 46-55, and 56-65). The computed means are 4.18, 4.02, 4.28, and 4.08, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

Teachers across different age groups generally have a positive perception of Open Educational Resources (OER) in terms of convenience, flexibility, and the ability to supplement existing curriculum resources. The mean scores for statements related to convenience and flexibility range from 4.10 to 4.35, indicating a generally positive perception. Similarly, teachers perceive OER to varying degrees as meeting high-quality student-Tutor interactions, with mean scores ranging from 3.80 to 4.27. There is also a positive perception of OER's potential in improving retention rates, as indicated by mean scores ranging from 3.90 to 4.23.

The preference for free access and sharing of OER is evident, with mean scores ranging from 4.00 to 4.31. Additionally, there is recognition of OER's potential in reducing the cost of education for students, as indicated by mean scores ranging from 3.83 to 4.19. Teachers also perceive OER as a means to expose students to a wider range of digital learning opportunities, with mean scores ranging from 4.04 to 4.35. Regarding learner benefits, teachers acknowledge the enhanced quality and flexibility of OER resources, with mean scores ranging from 4.08 to 4.35. Furthermore, there is a positive perception of OER's impact on knowledge application and support for learner-centered, self-directed, peer-to-peer, and social-informal learning approaches, as indicated by mean scores ranging from 4.04 to 4.27.

This suggests that teachers, regardless of age, have a positive perception of OER in terms of convenience, flexibility, quality interactions, supplementing curriculum resources, cost reduction, diverse learning opportunities, and learner benefits. the positive perception of OER among teachers suggests potential benefits such as increased adoption, flexibility, enhanced quality, cost reduction, diverse learning opportunities, and learner-centered approaches.

These implications have the potential to transform teaching and learning practices, promoting innovation, accessibility, and student engagement in education. The result of the study is relevant to the statement of Liao et.al. (2018) where OER provides teachers with the flexibility to customize the content according to their teaching and students' learning needs, allowing for differentiation and addressing diverse language proficiencies. Teachers, like Mrs. Harrison, can easily modify and remix OER resources, creating personalized learning materials and adapting them over time to meet the specific requirements and preferences of their students.

Table 2.1.2

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Sex

The data represents the mean scores for different statements related to teachers' experiences of online platforms, categorized by different sex groups (male and female). The computed means are 3.97 and 4.18, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

The Open Educational Resources offer convenience and flexibility for teachers: Both males (4.40) and females (4.26) perceive OER as providing convenience and flexibility. OER meets high-quality student-Tutor interactions: Females (4.13) have a higher mean score compared to males (4.00). Retention rates are higher in Open Educational Resources: Both males (3.90) and females (4.06). OER can supplement and add value to existing curriculum resources: Females (4.18) have a higher mean score compared to males (3.80). OER must be free: Both males (3.90) and females (4.18). OER can reduce the cost of education for students: Females (4.09) have a slightly higher mean score compared to males (3.90). OER can expose students to a wider range of digital learning opportunities: Females (4.24) have a higher mean score compared to males (4.10), Learner can benefit from OER's enhanced quality and flexibility of resources: Females (4.28) have a higher mean score compared to males (4.00), OER helps learners apply knowledge in a wider context: Females (4.16) have a higher mean score compared to males (3.80). OER supports learner-centered, self-directed, peer-to-peer, and social-informal learning approaches: Females (4.23) have a higher mean score compared to males (3.90).

Overall, females tend to have slightly higher mean scores than males in their perception of OER, suggesting that they may have a slightly more positive experiences of online platforms in terms of the provided statements. The findings indicate that females generally have a slightly more positive perception of Open Educational Resources (OER) compared to males in terms of convenience, high-quality interactions, supplementing curriculum resources, cost reduction, and supporting various learning approaches. These results highlight the importance of considering gender differences when promoting and implementing OER initiatives to ensure equitable access and engagement for all learners.

This finding is relative to the findings of n a study by Cooney (2016), students were assigned an Open Educational Resource (OER) developed by their instructor as part of a library-funded pilot initiative. Through surveys and interviews, students provided feedback on the OER's organization, accessibility, benefits, challenges, and comparison to traditional textbooks. They showed that most students found the OER easily accessible, preferred it over traditional textbooks, and expressed willingness to enroll in future courses utilizing similar resources.

Table 2.1.3

The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Educational Attainment

The data signifies the mean scores for different statements related to teachers experienced of online platforms in terms of educational attainment. The computed for college is 3.97 and for respondents with master is 4.18. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

The mean ratings for all the statements range from 3.80 to 4.40, suggesting that teachers generally perceive OER to be beneficial. The highest-rated statement is the convenience and flexibility offered by OER, with a mean of 4.40 among college graduates and 4.28 among master's degree holders. This indicates that teachers recognize the advantages of OER in terms of flexibility and adaptability to different learning needs. Furthermore, teachers believe that OER can enhance student-tutor interactions (mean of 4.11) and contribute to higher retention rates (mean of 4.04). This implies that educators acknowledge the potential of OER to improve engagement and learning outcomes for students. They also see OER as a valuable supplement to existing curriculum resources (mean of 4.13) and emphasize the importance of free access and sharing of OER materials (mean of 4.14). Teachers perceive OER as a means to reduce the cost of education for students (mean of 4.07) and expose them to a wider range of digital learning opportunities (mean of 4.22). This highlights the recognition of OER's potential in creating more affordable and inclusive educational experiences. Moreover, teachers believe that OER can enhance the quality and flexibility of resources (mean of 4.24) and enable learners to apply knowledge in broader contexts (mean of 4.12). They also recognize the supportive role of OER in learner-centered, self-directed, peer-to-peer, and social-informal learning approaches (mean of 4.19).

This suggest that teachers demonstrate a positive experienced and perception of OER's existence and its potential impact on educational attainment. They recognize the convenience, flexibility, and quality benefits of OER, as well as its capacity to enhance student-tutor interactions, retention rates, and learner-centered approaches. These findings suggest that teachers are receptive to incorporating online platforms such as OER into their teaching practices to support effective and engaging learning experiences. The findings of the study are relevant to the results of Villanueva and Dolom (2018) that conducted a study on rural public high school teachers in the Philippines, finding that teachers generally had a positive perception of Open Educational Resources (OER)

adoption, influenced by their attitude and perceived behavioral control, including self-efficacy and learning autonomy. The study's recommendations aim to assist scholars and practitioners in ensuring that secondary education institutions in the Philippines can effectively utilize the benefits offered by OER.

Table 2.1.4
The Teachers' Experiences on the Existence of Online Platforms When Grouped in Terms of Length of Service

The table 2.1.4 shows the mean scores for different statements about teachers experienced of online platforms in terms of length in service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 4.48, 4.06, 4.19, 3.97, 4.20 and 4.26, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

The mean ratings for all the statements range from 3.97 to 4.48, indicating a generally positive perception of OER among teachers with different lengths of service. Notably, the highest-rated statement is the convenience and flexibility offered by OER, with a mean rating ranging from 4.09 to 4.42 across different length-of-service groups. This suggests that teachers, regardless of their experience, value the convenience and flexibility provided by OER in their teaching practices.

Additionally, teachers with varying lengths of service perceive OER as a means to supplement and add value to existing curriculum resources (mean rating of 4.13) and acknowledge the importance of free access and sharing of OER materials (mean rating of 4.14). This indicates a recognition of the potential of OER to enhance teaching and learning experiences. Furthermore, teachers believe that OER can expose students to a wider range of digital learning opportunities (mean rating of 4.22) and that learners can benefit from the enhanced quality and flexibility of OER resources (mean rating of 4.24). These findings highlight the experienced among teachers, regardless of their length of service, regarding the potential of OER to provide enriched learning experiences for students.

In conclusion, the data suggest that teachers across different lengths of service demonstrate a positive experienced of online platforms, particularly Open Educational Resources. Teacher’s value OER's convenience, flexibility, and supplementary nature, recognizing its potential to enhance teaching and learning experiences. These findings indicate a promising outlook for integrating and adopting online platforms in education, benefiting teachers and students, irrespective of their years of service.

Table 2.2
Online Platforms Used as Instructional Materials

The data provided showcases the usage of various online platforms as instructional materials. Among the listed platforms, Messenger is the most frequently used, with a significant percentage of 62.2%, making it the top-ranked platform. YouTube follows closely behind with 58.9%, securing the second position. Google stands at the third rank

with 44.4% usage. Other platforms utilized include Google Meet (32.2%), Google Classroom (27.8%), Instagram (10.0%), Skill share (11.1%), LinkedIn Learning (8.9%), Skype (3.3%), and Twitter (3.3%), all with relatively lower frequencies and percentages.

The findings indicate that Messenger, YouTube, and Google are the preferred online platforms for instructional purposes. This suggests that teachers and educators are leveraging these platforms for various educational activities, such as communication, video content, and general online resources. Google Meet and Google Classroom also contribute significantly to the instructional materials landscape, albeit with slightly lower usage percentages. The lower usage percentages for platforms like Skype, Twitter, Instagram, Skill share, and LinkedIn Learning suggest that they are less commonly employed as instructional materials. However, it's worth noting that these platforms may still play specific roles in certain educational contexts or subjects.

The result implies that the diverse range of online platforms is utilized as instructional materials, with Messenger, YouTube, and Google being the most prominent choices. These platforms likely offer features and resources that align well with educators' needs and enhance students' learning experiences. The result is relevant to the study conducted by Alshahrani, Ahmed, and Ward (2019) found that students' academic self-confidence and self-reliance have improved due to the internet as an information provider, with high levels of agreement ranging from 83% to 90%. Students have become more independent in searching for information online, with levels of agreement ranging from 66% to 79%. Additionally, the World Wide Web (WWW) has facilitated improved student-lecturer connectedness, allowing for easier communication without the need for face-to-face contact.

Table 2.3.1

Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Age

The table 2.3.1 shows the mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of age (26-35, 36-45, 46-55 and 56-65). The computed means are 4.38, 4.21, 4.30 and 4.29, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as highly experienced. The mean ratings for all the statements range from 4.21 to 4.38, indicating a consistent positive perception of OER advantages among teachers across different age groups. The highest-rated statement is "It helps me get pupils excited about a topic" with a mean rating of 4.41, suggesting that teachers, regardless of their age, recognize the ability of OER to engage students and generate enthusiasm for learning. Other statements that received high ratings include "It enhances course material" (mean rating of 4.38) and "It helps me improve my pupils' learning" (mean rating of 4.32). These results highlight the perceived benefits of using OER in terms of enriching course materials and enhancing student learning outcomes.

Additionally, teachers of different age groups appreciate the convenience and cost-saving aspect of OER, as indicated by high ratings for statements such as "It is cost-saving"

(mean rating of 4.27) and "Course materials can be modified and narrowed down to topics that are relevant to my topic" (mean rating of 4.32). Furthermore, the data suggests that OER enables teachers to stay up-to-date with their colleagues (mean rating of 4.29) and feel comfortable with new technology (mean rating of 4.34). This indicates that OER contributes to professional growth and technological competence among teachers of various age groups.

This suggest that teachers across different age groups have positive experienced with the advantages of Open Educational Resources. They appreciate the ability of OER to engage students, enhance course materials, improve learning outcomes, and provide cost-saving benefits. Moreover, OER fosters collaboration among teachers and promotes technological proficiency.

These findings highlight the overall acceptance and appreciation of OER as a valuable resource among teachers, irrespective of their age. The result is relative to the study conducted by A. Alenezi (2020) on the role of e-learning materials in enhancing teaching and learning behaviors, it was found that many students in the Saudi academic environment face challenges in adapting to e-learning strategies due to the complexities and lack of strict regulations regarding learning durations. The study highlights the need for proper preparation and commitment to effectively utilize IT as a learning tool to overcome these challenges.

Table 2.3.2
Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Sex

The table 2.3.2 shows the mean scores for different statements about teachers' experiences on the advantages of Open Educational Resources in terms of sex (male and female). The computed means are 4.24 and 4.32, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as strongly agree.

The mean ratings for all the statements range from 4.20 to 4.44, with the grand mean being 4.31. These ratings suggest that both male and female teachers highly value the advantages offered by OER in terms of enhancing teaching and learning experiences. Notably, the highest-rated statement among both male and female teachers is "It helps me get pupils excited about a topic" with mean ratings of 4.20 and 4.44 respectively. This indicates that OER is seen as a valuable tool for engaging students, regardless of gender. Other statements that received high ratings include "It enhances course material" (mean rating of 4.38), "It helps me improve my pupils' learning" (mean rating of 4.32), and "It makes me feel comfortable with new technology" (mean rating of 4.34). These findings demonstrate the shared perception of OER's ability to enrich course content, enhance student learning outcomes, and promote technological proficiency among both male and female teachers. Additionally, both male and female teachers recognize the cost-saving aspect of OER, as indicated by high ratings for the statement "It is cost-saving" (mean rating of 4.27). This suggests that both genders appreciate the benefits of OER in terms of saving time, effort, and money in accessing learning resources.

This suggest that both male and female teachers have positive experiences with the advantages of Open Educational Resources. They recognize the value of OER in terms of engaging students, improving teaching and learning practices, promoting technological competence, and providing cost-saving benefits. These findings emphasize the universal acceptance and appreciation of OER among teachers, regardless of gender.

Table 2.3.3
Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Educational Attainment

The table shows 2.3.3 the mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of educational attainment (college and master). The computed means are 4.24 and 4.32, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as strongly agree. The mean ratings for all the statements range from 4.10 to 4.44, with the grand mean being 4.31. These ratings suggest that both college graduates and individuals with master's units highly value OER's advantages in enhancing teaching and learning experiences.

Among the highest-rated statements for both groups are "It helps me get pupils excited about a topic" and "It enhances course material," indicating that both college graduates and individuals with master's units recognize the potential of OER in engaging students and enriching course content. Additionally, both groups of teachers acknowledge the cost-saving aspect of OER, as indicated by high ratings for the statement "It is cost-saving." This suggests that both college graduates and individuals with master's units appreciate the benefits of OER in terms of saving time, effort, and resources. Furthermore, both groups of teachers recognize the value of OER in integrating primary source material into their courses, providing context for topics, improving student learning, and staying up-to-date with colleagues. These findings demonstrate that the advantages of OER are perceived similarly by teachers across different educational attainment levels.

The result implies that college graduates and individuals with master's units have positive experiences with the advantages of Open Educational Resources. They recognize OER's value in engaging students, enhancing course material, providing cost-saving benefits, and improving teaching and learning practices. These findings emphasize the universal acceptance and appreciation of OER among teachers, regardless of their educational background.

The findings underscore the unanimous recognition among educators, regardless of their educational attainment, of the manifold advantages offered by Open Educational Resources (OER) (Villanueva & Dolom, 2018). High mean ratings across statements such as engaging students, enriching course material, and cost-saving benefits reveal a widespread acknowledgment of OER's potential to enhance teaching and learning experiences. This aligns seamlessly with existing literature discussing the transformative impact of OER on pedagogical practices, emphasizing its role in fostering student engagement and enriching curriculum content.

Furthermore, the study's revelation that educators with varying levels of educational background perceive similar benefits of OER echoes prior research, suggesting that attitudes towards OER adoption remain consistent across diverse demographics (Villanueva & Dolom, 2018). This consistency underlines the universal acceptance of OER among educators and reinforces the notion that its advantages transcend educational qualifications. As such, these findings serve to validate the ongoing discourse surrounding the pivotal role of OER in modern education, emphasizing its capacity to democratize access to quality educational resources and empower educators to innovate in their teaching practices.

Table 2.3.4
Teachers' Experiences on the Advantages of Open Educational Resources When Grouped in Terms of Length of Service

The table 2.3.4 shows the mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of length of service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 4.73, 4.21, 4.20, 4.15, 4.28, and 4.44, respectively. The overall standard deviation is 0.536 with a total mean of 4.31, which is verbally interpreted as strongly agree. The mean ratings for all the statements range from 4.05 to 4.83, with the grand mean being 4.31. These high ratings indicate that teachers with varying service lengths perceive OER's advantages positively, regardless of their experience in the field.

Among the highest-rated statements for all groups are "It helps me let my pupils know the most up-to-date developments in the subject" and "It enhances course material." These findings suggest that OER is perceived as a valuable tool for keeping students informed about the latest developments and enriching their courses' content. Furthermore, teachers with different lengths of service recognize the cost-saving aspect of OER, as indicated by high ratings for the statement "It is cost-saving." This indicates that teachers perceive the benefits of OER in terms of saving time, effort, and financial resources, while still gaining new knowledge. Additionally, the data reveals that teachers across different lengths of service appreciate the flexibility offered by OER, as indicated by high ratings for the statement "Course materials can be modified and narrowed down to topics that are relevant to my topic." This suggests that OER allows teachers to adapt and tailor the resources to meet the specific needs of their teaching.

The findings suggest that teachers with varying lengths of service have positive experiences and perceptions of the advantages of Open Educational Resources. They value the ability of OER to provide up-to-date information, enhance course materials, save costs, and offer flexibility in instructional design. These results highlight the widespread acceptance and recognition of OER as a valuable resource for teachers at different stages of their careers. Agree
The findings revealed that teachers with diverse lengths of service hold positive perceptions regarding the advantages of Open Educational Resources (OER) (Villanueva & Dolom, 2018). With mean ratings ranging from 4.05 to 4.83, teachers across different service lengths demonstrated a high level of agreement in recognizing the benefits of

OER, as indicated by the overall mean score of 4.31, which falls under the category of "strongly agree." Particularly noteworthy is the consistent recognition among teachers of OER's role in facilitating access to the latest developments in the subject matter and enriching course content, regardless of their tenure in the field.

Moreover, the data highlighted teachers' collective acknowledgment of the cost-saving benefits associated with OER, indicating a widespread appreciation for the resource's potential to streamline teaching efforts and optimize resource allocation (Bliss & Hilton, 2019). Additionally, the findings underscored teachers' recognition of the flexibility afforded by OER, allowing them to tailor course materials to meet the specific needs of their teaching contexts. Overall, these results underscore the universal acceptance of OER as a valuable resource among teachers at different career stages, emphasizing its role in supporting effective teaching practices and enhancing student learning experiences.

Table 2.4.1
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Age

The table 2.4.1 shows the mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of age (26-35, 36-45, 46-55 and 56-65). The computed means are 3.01, 3.17, 3.59 and 3.19, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree. The mean ratings for the statements range from 2.50 to 3.77, with a grand mean of 3.24. These ratings suggest that teachers express mixed opinions when it comes to perceiving the disadvantages of OER, influenced by their age group.

One prominent concern expressed by teachers across all age groups is the belief that OER cannot fully substitute for their preferred teaching approaches. This statement received relatively high mean ratings, indicating that many teachers, regardless of age, see limitations in the ability of OER to replace their established instructional methods. The availability of internet connection in schools is another area of concern raised by teachers. The statement "There is no internet connection in our school" received moderate mean ratings across all age groups. This suggests that the lack of internet connectivity negatively affects the utilization of OER as an educational resource. The difficulty in accessing digital resources is another concern highlighted by teachers. The statement "Digital resources are difficult for me to access" received moderate mean ratings across all age groups, indicating that teachers face challenges in accessing the necessary digital materials for their teaching.

The age groups of 46-55 and 56-65 show higher mean ratings for statements related to digital materials being presented outside their original context and the concern of students lacking information literacy skills to assess the credibility of digital resources. These findings suggest that older teachers may have more reservations about the contextual integrity of digital materials and students' ability to evaluate online information critically.

On the other hand, statements such as "They are irrelevant to my field" and "Using them distracts from the core goals of my teaching" received relatively lower mean ratings across all age groups. The results indicate that regardless of age, teachers do not perceive OER as significantly irrelevant or distracting from their teaching objectives.

The findings imply that age plays a role in shaping teachers' perceptions of the disadvantages of OER. While concerns about substituting teaching approaches are prevalent across all age groups, specific problems such as internet connectivity, difficulty accessing digital resources, and student information literacy skills vary based on age. These results highlight the need to address infrastructure issues, provide better access to digital resources, and support teachers in adapting their teaching methods to incorporate OER effectively.

The study's findings regarding teachers' perceptions of Open Educational Resources (OER) disadvantages underscore the multifaceted nature of their concerns, influenced by age dynamics. While all age groups express worries about OER's potential inability to fully substitute their preferred teaching approaches, specific challenges such as internet connectivity and access to digital resources resonate universally. These concerns mirror the literature's discussion on the technological shortcomings and accessibility issues associated with OER adoption. Moreover, the study reveals that older teachers, particularly those aged 46-55 and 56-65, exhibit heightened apprehensions regarding the contextual integrity of digital materials and students' information literacy skills. This aligns with prior research highlighting age as a factor shaping teachers' perceptions and underscores the importance of tailored support mechanisms to address varying needs across different age cohorts (Alenezi, 2020).

Table 2.4.2
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Sex

The table 2.4.2 shows the mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of sex (male and female). The computed means are 2.95 and 3.28, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

One common concern among both male and female teachers is the belief that OER cannot fully substitute for their preferred teaching approaches. This statement received relatively high mean ratings for both genders, suggesting that many teachers perceive limitations in the ability of OER to replace their established instructional methods. Regarding the issue of limited internet connection in schools, both male and female teachers expressed similar mean ratings, indicating that this problem affects both genders equally. The statement "There is no internet connection in our school" received a moderate mean rating for both males and females, highlighting the impact of limited internet access on the effective use of OER as an educational resource. Female teachers

reported slightly higher mean ratings for the statement "Digital resources are difficult for me to access" compared to their male counterparts. This suggests that female teachers may perceive accessing digital resources as relatively more challenging, indicating a potential gender difference in technology access and proficiency. Regarding the statement, "Digital materials can be presented outside their original context," female teachers gave higher mean ratings than male teachers. This indicates that female teachers may have stronger concerns about maintaining the contextual integrity of digital materials when utilizing them in their teaching. Additionally, female teachers expressed higher mean ratings for the statement "I don't want my students to copy or plagiarize material from the Web," indicating a greater concern about potential plagiarism when using online resources. This highlights their emphasis on promoting academic integrity among their students.

The findings suggest that while male and female teachers share some common concerns about the disadvantages of OER, there are subtle differences in their perceptions. Female teachers show slightly greater concerns about accessing digital resources, maintaining contextual integrity, and preventing plagiarism. These insights underscore the importance of addressing gender-specific concerns and providing appropriate support and training to help teachers effectively integrate OER into their teaching practices.

The findings are related to existing literature and studies that explore teachers' experiences and perceptions of Open Educational Resources (OER), particularly concerning gender differences in technology access and proficiency. The observation that female teachers reported slightly higher mean ratings for the statement "Digital resources are difficult for me to access" resonates with prior research highlighting gender discrepancies in technology literacy and access. This aligns with studies emphasizing the need for targeted support to address such disparities (Alenezi, 2020). Additionally, the higher mean ratings among female teachers for concerns related to maintaining contextual integrity and preventing plagiarism reflect their emphasis on academic integrity and ethical considerations in teaching practices, which echoes findings from studies emphasizing the importance of promoting ethical behavior and integrity in online learning environments (Bliss & Hilton, et.al., 2012). Therefore, these findings underscore the importance of tailored interventions and training programs that address gender-specific concerns and promote equitable access to resources and support for male and female teachers

The findings regarding teachers' experiences with Open Educational Resources (OER) in terms of educational attainment align with existing literature and studies on teachers' perceptions and challenges in utilizing digital resources. The observation that individuals with master's degrees express slightly higher concerns about accessing digital resources resonates with prior research emphasizing the importance of addressing technological proficiency and familiarity among educators, particularly those with higher levels of educational attainment (Alenezi, 2020). Similarly, the higher mean ratings among individuals with master's degrees for concerns related to maintaining contextual integrity and preventing plagiarism echo findings from studies emphasizing the importance of promoting academic integrity and ethical behavior in online learning environments (Bliss & Hilton, et.al., 2012).

Table 2.4.3
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Educational Attainment

The table 2.4.3 shows the mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of educational attainment (male and female). The computed means are 2.95 and 3.28, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

Both groups of teachers expressed agreement with the statement "They cannot substitute for the teaching approaches I use." This suggests that both college graduates and individuals with master's degrees perceive limitations in the ability of OER to fully replace their preferred teaching methods. The mean ratings for this statement were relatively high for both groups, indicating a shared concern. Regarding the issue of limited internet connection in schools, both groups of teachers provided similar mean ratings, indicating that this challenge affects both college graduates and individuals with master's degrees equally. The statement "There is no internet connection in our school" received a moderate mean rating for both groups, highlighting the impact of limited internet access on the effective use of OER. When it comes to accessing digital resources, individuals with master's degrees (with units) gave slightly higher mean ratings compared to college graduates.

This suggests that those with higher educational attainment may perceive accessing digital resources as relatively more challenging, indicating a potential difference in their familiarity and comfort with technology. In terms of the statement "Digital materials can be presented outside their original context," individuals with master's degrees (with units) provided higher mean ratings compared to college graduates. This indicates that individuals with higher educational attainment may have stronger concerns about maintaining the contextual integrity of digital materials when utilizing them in their teaching. Additionally, individuals with master's degrees (with units) expressed higher mean ratings for the statement "I don't want my students to copy or plagiarize material from the Web," indicating a greater concern about potential plagiarism when using online resources. This highlights their emphasis on promoting academic integrity among their students.

The findings suggest that while both college graduates and individuals with master's degrees share some common concerns about the disadvantages of OER, there are slight differences in their perceptions. Individuals with higher educational attainment demonstrate slightly higher concerns about accessing digital resources, maintaining contextual integrity, and preventing plagiarism. These insights underscore the importance of providing appropriate support and training to help teachers at different educational levels effectively integrate OER into their teaching practices.

The findings regarding teachers' experiences with Open Educational Resources (OER) in terms of their educational attainment resonate with existing literature on OER adoption

and teacher perceptions (Villanueva & Dolom, 2018). Both college graduates and individuals with master's degrees express concerns about the limitations of OER in fully substituting their preferred teaching methods, echoing previous studies emphasizing the importance of OER customization and flexibility to accommodate diverse instructional approaches (Bliss & Hilton, 2012). Moreover, the similar mean ratings provided by both groups regarding challenges such as limited internet access in schools underscore the critical role of addressing infrastructure issues to ensure equitable access to digital resources, as highlighted in prior research on OER implementation barriers (Alshahrani, Ahmed, & Ward, 2017).

However, differences emerge in perceptions regarding accessing digital resources and concerns about contextual integrity and plagiarism. Individuals with higher educational attainment demonstrate slightly higher concerns about accessing digital resources and maintaining contextual integrity, suggesting the need for targeted support and training to address varying levels of technological proficiency among educators (Arinto, 2016). Additionally, their heightened concern about preventing plagiarism underscores the importance of promoting digital literacy skills and ethical use of online resources among both teachers and students, aligning with literature on intellectual property concerns and academic integrity in the context of OER adoption (Cooney, 2016).

Table 2.4.4
Teachers' Experiences on the Disadvantages of Open Educational Resources When Grouped in Terms of Length of Service

The table 2.4.4 shows the mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of length of service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 3.34, 2.86, 3.23, 3.29, 3.68 and 3.36, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

Teachers with 1-5 years of service provided the highest mean rating for the statement "I don't want my students to copy or plagiarize material from the Web." This suggests that teachers in the early years of their career place a significant emphasis on preventing plagiarism when using OER in their teaching. On the other hand, teachers with 6-10 years of service gave the lowest mean rating for the same statement, indicating a relatively lower concern about plagiarism compared to their less-experienced counterparts. The report "They cannot substitute for the teaching approaches I use" received relatively high mean ratings across all groups, indicating a shared concern among teachers about the limitations of OER in entirely replacing their preferred teaching methods. However, teachers with 1-5 years and 16-20 years of service provided the highest mean ratings for this statement, suggesting that teachers in these groups feel particular strongly about the challenges of substituting their teaching approaches with OER. Regarding the availability of internet connection in schools, teachers with 21-25 years of service provided the highest mean rating, indicating a greater concern about limited internet access affecting

the use of OER. This group of teachers may have witnessed the evolution of digital resources and the importance of internet connectivity in educational settings.

The findings imply that teachers' length of service plays a role in shaping their perceptions of the disadvantages of OER. Teachers in the early years of their careers demonstrate a strong emphasis on preventing plagiarism and may be more cautious about using OER. In contrast, teachers with more years of service may have experienced the evolution of digital resources and have a heightened awareness of the challenges related to limited internet connectivity. The findings regarding teachers' experiences with Open Educational Resources (OER) in relation to their length of service align with existing literature on teacher perceptions and OER adoption (Villanueva & Dolom, 2019). The emphasis placed by teachers with 1-5 years of service on preventing plagiarism when using OER reflects a common concern among early-career educators about academic integrity and ethical use of online resources (Cooney, 2016). Conversely, the relatively lower concern about plagiarism among teachers with 6-10 years of service may indicate a shift in priorities or a growing familiarity with digital pedagogy over time, echoing studies on the evolving perceptions of technology integration among educators (Alshahrani, Ahmed, & Ward, 2017).

Moreover, the shared concern among teachers across all groups about the limitations of OER in fully substituting their preferred teaching methods resonates with literature emphasizing the need for customizable and adaptable OER to accommodate diverse instructional approaches (Bliss & Hilton, 2012). The heightened concern among teachers with 21-25 years of service regarding limited internet access underscores the significance of addressing infrastructure issues to facilitate effective OER use, consistent with prior research highlighting barriers related to technological accessibility in educational settings (Arinto, 2016). Overall, these findings emphasize the dynamic nature of teacher perceptions regarding OER adoption and highlight the importance of tailored professional development initiatives to support educators at different career stages in effectively integrating OER into their teaching practices.

Part III. The Test of Significant Difference on the Teachers' Experiences Using Open Educational Resources When Grouped in Profile Variables

Table 3

The Test of Significant Difference on the Teachers' Experiences Using Open Educational Resources When Grouped in Profile Variables

The table 3 indicates that there is a statistically significant difference in teachers' experiences in using Open Educational Resources (OER) when the respondents are grouped by district and length of service. Specifically, the p-value of .024 for districts suggests a significant variation, implying that teachers' experiences with OER differ considerably depending on their geographical location. For instance, teachers in District

2, with a mean rank of 55.10, might have better access to OER training or resources compared to those in District 3, which has a mean rank of 32.10.

Similarly, the length of service also shows a significant difference, with a p-value of .003. This indicates that teachers' perceptions and utilization of OER vary with their years of experience. Teachers with 1-5 years and 21-25 years of service, both having a mean rank of 66.67, significantly differ in their experiences compared to those with 6-10 years, who have a mean rank of 31.86. This disparity might be due to newer teachers being more adaptable to technological changes and seasoned teachers having more exposure to various teaching methods, including OER.

Conversely, there is no statistically significant difference in teachers' experiences with OER when grouped by age, school category, educational attainment, and sex. The p-values for these variables (.179, .131, .113, and .113, respectively) suggest that these factors do not critically influence how teachers perceive and use OER. This indicates that regardless of their age, whether they teach in small, medium, or large schools, their level of educational attainment, or their gender, teachers have similar experiences with OER.

These findings align with previous studies that highlight the influence of contextual factors such as location and experience on the adoption and use of OER. For instance, Villanueva & Dolom (2019) emphasized the importance of contextual and individual factors in the adoption of OER. Additionally, Alenezi (2020) pointed out the varying readiness and capacity of different regions in adopting e-learning technologies, which can be extrapolated to OER. The significant impact of length of service on teachers' experiences with OER also correlates with Cooney's (2016) observation of varying engagement levels based on familiarity and comfort with technology. Therefore, while demographic factors may not significantly influence OER experiences, contextual variables like district and length of service are crucial, highlighting the need for tailored interventions and support systems to optimize OER adoption and use.

Part IV. The Problems Encountered by Teachers in Using Online Educational Resources Instructional Materials.

Table 4
The Problems Encountered by Teachers in Using Online Educational Resources Instructional Materials

The table 4 provided presents the problems encountered by teachers in using online educational resources instructional materials. The standard deviation is 0.938 with a mean rating of 3.32which is verbally interpreted as neither agree or disagree.

Among the listed problems, "Technical difficulties with online teaching tools" received the highest mean rating of 3.80, falling under the interpretation of "Agree" (A). This indicates that a significant number of teachers encountered technical issues while using online teaching tools. These challenges may include difficulties with video conferencing platforms, file sharing, or other technical aspects of online instruction. The problem of

"Time consuming resources" received a mean rating of 3.32, also falling under the interpretation of "Neither agree nor disagree" (N). This suggests that teachers perceived online instructional materials as requiring considerable time and effort to use effectively. The time-consuming nature of these resources may include adapting and modifying materials for online delivery, creating engaging multimedia content, or providing additional support to students in virtual environments. "Lack of Computer literacy" and "Lack of technical/software knowledge" both received mean ratings of 3.32 and 3.46, respectively, falling under the interpretation of "Neither agree nor disagree" (N) and "Agree" (A). These ratings indicate that teachers faced challenges related to their own computer literacy and technical/software knowledge when using online instructional materials. These difficulties may involve navigating digital platforms, troubleshooting software issues, or effectively integrating technology into their teaching practice. The problems of "Difficult to motivate pupils" and "Lack of pupils' interest" received mean ratings of 3.07 and 2.94, respectively, falling under the interpretation of "Neither agree nor disagree" (N). This suggests that while some teachers encountered challenges in motivating students and generating interest in online instruction, the overall perception was more neutral. These challenges may stem from the limitations of online environments in fostering student engagement and interaction.

The findings imply that teachers faced several challenges when using online instructional materials. Technical difficulties, the time-consuming nature of resources, and lack of computer literacy and technical/software knowledge were identified as prominent issues. However, difficulties in motivating pupils and capturing their interest were perceived to be slightly less problematic. These findings highlight the importance of providing support, training, and resources to help teachers overcome the challenges associated with online instruction and optimize the use of online instructional materials.

The findings regarding the challenges encountered by teachers in using online instructional materials align with existing literature on technology integration in education and teacher perceptions of digital tools (Alenezi, 2020). The high mean rating for "Technical difficulties with online teaching tools" reflects a common concern among educators about the reliability and usability of digital platforms, consistent with previous research highlighting technical challenges as barriers to effective online instruction (Richardson et al., 2019). Similarly, the perceived time-consuming nature of online instructional materials resonates with literature emphasizing the importance of adequate time and resources for educators to develop and implement technology-enhanced teaching strategies (Cooney, 2016).

Moreover, the challenges related to teachers' computer literacy and technical/software knowledge are consistent with studies highlighting the need for ongoing professional development to support educators in building digital competencies and navigating technology-rich learning environments (Arinto, 2016). The findings also underscore the importance of addressing student motivation and engagement in online instruction, echoing research on the impact of technology on student motivation and learning outcomes (Hilton et al., 2012). Overall, these findings emphasize the multifaceted nature of challenges associated with online instruction and highlight the importance of

comprehensive support mechanisms to empower teachers in effectively leveraging digital tools for teaching and learning.

Part V. The Coping Strategies of Teachers in Addressing the Challenges

Table 5
The Coping Strategies of Teachers in Addressing the Challenges

The table 5 provided presents the coping strategies of teachers in addressing the challenges. The standard deviation is 0.770 with a mean rating of 4.11 verbally interpreted as agree.

"I keep my pupils engaged" received the highest mean rating of 4.14, falling under the interpretation of "Strongly Agree" (SA). This indicates that a significant number of teachers actively focus on keeping their students engaged in the learning process. By employing various instructional techniques, such as interactive activities, multimedia resources, and collaborative projects, teachers strive to enhance student engagement and participation in online instruction. “I let my pupils choose their learning way" also received a high mean rating of 3.97, falling under the interpretation of "Agree" (A). This suggests that teachers recognize the importance of providing students with autonomy in their learning. By allowing students to choose their learning paths and customize their learning experiences, teachers aim to foster a sense of ownership and motivation among students in the online environment.

"I invite my pupils to contribute to teachings" received a mean rating of 4.07, falling under the interpretation of "Agree" (A). This indicates that teachers actively encourage student contributions and participation in the instructional process. By involving students in discussions, collaborative projects, and decision-making, teachers create opportunities for active student engagement and promote a student-centered approach to online instruction. "I encourage peer evaluation" received a high mean rating of 4.16, falling under the interpretation of "Strongly Agree" (SA). This suggests that teachers emphasize the importance of peer evaluation as a valuable learning strategy. By incorporating peer assessment and feedback, teachers promote student collaboration, self-reflection, and the development of critical evaluation skills within the online learning environment. "I engage myself in ICT training" received the highest mean rating of 4.19, falling under the interpretation of "Strongly Agree" (SA). The result indicates that teachers actively participate in ICT (Information and Communication Technology) training to enhance their digital skills and pedagogical practices. Teachers strive to improve their instructional delivery and effectively integrate online instructional materials by continuously updating their knowledge and skills in utilizing educational technology tools.

The findings imply that teachers employ various coping strategies to address the challenges associated with online instructional materials. Strategies such as keeping students engaged, allowing student choice, inviting student contributions, encouraging peer evaluation, and engaging in ICT trainings are widely adopted by teachers. These strategies reflect a proactive approach to enhancing student engagement, promoting

student-centered learning, and improving the teachers' digital competencies within the online learning environment.

Moreover, the coping strategies that teachers employ to overcome challenges associated with online instructional materials. The data offers valuable insights into the adaptations made by educators within the context of online education.

The findings reveal several key observations. Firstly, teachers are deeply committed to maintaining high levels of student engagement which underscores their dedication to enhancing student participation and interaction in online learning environments. Secondly, teachers recognize the importance of providing students with autonomy in their learning journeys where in this strategy aims to empower students by granting them a sense of control over their learning experiences. Additionally, the practice of inviting students to actively contribute to teaching is prevalent which emphasizes the shift towards a more student-centered approach in online instruction, fostering greater participation and collaboration.

Furthermore, teachers place a strong emphasis on encouraging peer evaluation which promotes collaborative learning, self-reflection, and the development of critical evaluation skills among students. Lastly, teachers are actively investing in their professional development by participating in ICT (Information and Communication Technology) training where in underscores their commitment to enhancing digital skills and pedagogical practices for effective technology integration in teaching.

The teachers are collectively adopting proactive coping strategies to address the challenges posed by online instructional materials. These findings indicate a strong commitment to delivering high-quality online learning experiences. The proactive measures taken by teachers to navigate the complexities of online education. These strategies prioritize student engagement, autonomy, and participation, while also enhancing teachers' digital competencies. Educators are demonstrating a steadfast dedication to the advancement of online education, ensuring its continued effectiveness and success.

The findings regarding the coping strategies of teachers in addressing the challenges of online instructional materials resonate with existing literature on effective teaching practices in digital learning environments (Alenezi, 2020). The emphasis on keeping students engaged aligns with research highlighting the importance of active student participation and interaction for meaningful learning outcomes in online education. By employing strategies such as interactive activities and multimedia resources, teachers aim to create dynamic learning experiences that enhance student engagement and motivation, consistent with recommendations for effective online teaching.

Moreover, the focus on providing students with autonomy in their learning echoes literature on learner-centered approaches to online instruction, which emphasize the importance of empowering students to take ownership of their learning process. By allowing students to choose their learning paths and contribute to the instructional process, teachers promote a sense of autonomy and self-directed learning, which has

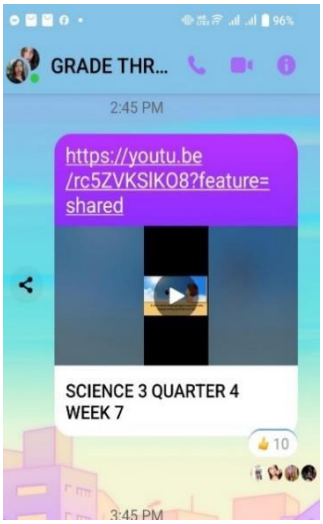
been associated with increased motivation and academic achievement in online settings.

Part VI. Development of Sample Online Educational Resources Instructional Materials

Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others.

Any resource available on the internet in an online educational environment. It might be audio or video lessons, interactive exercises or exams, or documents providing links to other Web sites.

This is the examples of online educational resources instructional materials could be developed by the researcher the subject is about the Science 3 quarter 4 Week 7.







CONCLUSIONS

Summary

This study was aimed to the experiences of teachers in transitioning from textbooks to online instructional materials, basis for Open Education Resources utilization plan in selected public elementary schools in the Division of Quezon, School Year 2022-2023; awareness, online platforms being used, advantages and disadvantages, problems encountered, and coping strategies will be discussed in this study.

The respondents of the study were delimited to public elementary teachers in selected public elementary schools in the Division of Quezon**.**

Summary of Findings

From the thorough analysis of the data gathered and the results obtained in the previous discussion, the following significant findings are hereby summarized.

1. Demographic profile of the respondents in terms of:

1.1 Age

The profile of the respondents. Most of the respondents fall within the age range of 26-45, accounting for 60% of the total respondents. Specifically, the age group of 26-35 comprises 33.3% of the respondents, followed by the age group of 36-45 with 26.7%. The age groups of 46-55 and 56-65 account for 28.9% and 11.1% of the respondents, respectively.

1.2 Sex

The respondents are predominantly female, representing 88.9% of the total participants. Male respondents constitute a relatively smaller percentage, making up 11.1% of the total respondents.

1.3 Educational Attainment

For educational Attainment, majority of the participants have a "College Graduate with masters units" educational background, representing 88.9% of the respondents. A smaller percentage, 11.1%, are college graduates.

1.4 Length of Service

The length of service distribution among the respondents are around 13.3% have 1-5 years of service, 23.3% have 6-10 years, another 13.3% have 11-15 years, approximately 24.4% have 16-20 years, around 11.1% have 21-25 years, and finally, about 14.4% have 26-30 years.

2. The teachers' experiences in using online educational resources (OER) in terms of following when grouped into demographic profile:

2.1.1 Experienced of the Existence of Online platforms based on the gathered data, the mean scores for different statements related to teachers' experiences of online platforms, categorized by different age groups (26-35, 36-45, 46-55, and 56-65). The computed means are 4.18, 4.02, 4.28, and 4.08, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

2.1.2 The mean scores for different statements related to teachers' experiences of online platforms, categorized by different sex groups (male and female). The computed means of male group is 3.97 and for female group is 4.18, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as experienced.

2.1.3 Additionally, the data signifies the mean scores for different statements related to teachers experiences of online platforms in terms of educational attainment. The weighted mean for college graduate is 3.97 and for respondents with master is 4.18. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as agree.

2.1.4 Moreover, the mean scores for different statements about teachers' experiences of online platforms in terms of length in service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 4.48, 4.06, 4.19, 3.97, 4.20 and 4.26, respectively. The overall standard deviation is 0.695 with a total mean of 4.15 which is verbally interpreted as agree.

2.2 The usage of various online platforms as instructional materials. Among the listed platforms, Messenger is the most frequently used, with a significant percentage of 62.2, making it the top-ranked platform. YouTube follows closely behind with 58.9, securing the second position. Google stands at the third rank with 44.4 usage. Other platforms utilized include Google Meet (32.2%), Google Classroom (27.8%), Instagram (10.0%), Skill share (11.1%), LinkedIn Learning (8.9%), Skype (3.3%), and Twitter (3.3%), all with relatively lower frequencies and percentages.

2.3 .1 Advantages of Open Educational Resources;

Based on the gathered data, the mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of age (26-35, 36-45, 46-55 and 56-65). The computed means are 4.38, 4.21, 4.30 and 4.29, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as strongly agree. The mean ratings for all the statements range from 4.21 to 4.38, indicating a consistent positive perception of OER advantages among teachers across different age groups. The highest-rated statement is "It helps me get pupils excited about a topic" with a total mean rating of 4.41, suggesting that teachers, regardless of their age, recognize the ability of OER to engage students and generate enthusiasm for learning. Other statements that received high ratings include "It enhances course material" (mean rating of 4.38) and "It helps me improve my pupils' learning" (mean rating of 4.32). These results highlight the perceived benefits of using OER in terms of enriching course materials and enhancing student learning outcomes.

2.3.2 The mean scores for different statements about teachers' experiences on the advantages of Open Educational Resources in terms of sex (male and female). The computed means are 4.24 and 4.32, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as strongly agree.

2.3.3 The mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of educational attainment (college and master with units). The computed means are 4.24 and 4.32, respectively. The overall standard deviation is 0.536 with a total mean of 4.31 which is verbally interpreted as strongly agree. The mean ratings for all the statements range from 4.10 to 4.44, with the grand mean being 4.31. These ratings suggest that both college graduates and individuals with master's units highly value OER's advantages in enhancing teaching and learning experiences.

2.3.4 The mean scores for different statements about Teachers experiences on the advantages of Open Educational Resources in terms of length of service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 4.73, 4.21, 4.20, 4.15, 4.28, and 4.44, respectively. The overall standard deviation is 0.536 with a total mean of 4.31, which is verbally interpreted as strongly agree. The mean ratings for all the statements range from 4.05 to 4.83, with the grand mean being 4.31. These high ratings indicate that

teachers with varying service lengths perceive OER's advantages positively, regardless of their experience in the field.

2.4.1 The mean scores for different statements about teachers experience on the disadvantages of Open Educational Resources in terms of age (26-35, 36-45, 46-55 and 56-65). The computed means are 3.01, 3.17, 3.59 and 3.19, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree. The mean ratings for the statements range from 2.50 to 3.77, with a grand mean of 3.24. These ratings suggest that teachers express mixed opinions when it comes to perceiving the disadvantages of OER, influenced by their age group.

2.4.2 The mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of sex (male and female). The computed means are 2.95 and 3.28, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

2.4.3 The mean scores for different statements about teachers experiences on the disadvantages of Open Educational Resources in terms of educational attainment (college and female). The computed means are 2.95 and 3.28, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

2.4.4 The mean scores for different statements about teachers experience on the disadvantages of Open Educational Resources in terms of length of service (1-5, 6-10, 11-15, 16-20, 21-25 and 26-30). The computed means are 3.34 , 2.86, 3.23, 3.29, 3.68 and 3.36, respectively. The overall standard deviation is 1.042 with a total mean of 3.24, which is verbally interpreted as neither agree nor disagree.

3. The result of the study about the test of standard deviation of the teachers' experiences using open educational resources when grouped into profile variables revealed that there is a significant difference between teachers' experiences when it comes to their district and length of service. And there is no significant difference between teachers' experiences when grouped into their age, sex, school category, educational attainment and length of service.

4. Based on the gathered data, the problems encountered by teachers in using online instructional materials with the standard deviation is 0.938 and mean rating of 3.32 which is verbally interpreted as neither agree or disagree.

The problems faced by teachers when using online instructional materials. The highest mean rating was for "Technical difficulties with online teaching tools with 3.80, indicating that many teachers encountered issues with the functionality of online tools. "Time consuming resources" received a mean rating of 3.32, suggesting that teachers perceived online materials as requiring significant time and effort. "Lack of Computer literacy with 3.32 and "Lack of technical/software knowledge with 3.46 with mean. Indicates challenges related to teachers' own skills in using technology. "Difficult to motivate pupils" with 3.07 and "Lack of pupils' interest 2.94 highlight challenges in engaging students in online learning, although the perception was more neutral.

5. The coping strategies of teachers in addressing the challenges.

The standard deviation is 0.770 with a mean rating of 4.11 verbally interpreted as agree. The highest mean rating was for "I keep my pupils engaged" (4.14), indicating that teachers make a significant effort to ensure student engagement in the learning process. While the lowest mean is "I let my pupils choose their learning way" received a mean rating of 3.97, suggesting that teachers value student autonomy in online learning. "I invite my pupils to contribute to teachings" (4.07) highlights teachers' encouragement of student participation and contributions. "I encourage peer evaluation" (4.16) indicates that teachers emphasize peer assessment as a valuable learning strategy. Lastly, "I engage myself in ICT training" received the highest mean rating of 4.19, illustrating that teachers actively seek professional development to improve their digital skills and pedagogical practices.

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. The demographic profile of the respondents indicates that the majority of participants are in the age range of 26-45, predominantly female, have a "Masters with units" educational background, and have varying lengths of service.
2. Teachers' experiences regarding online platforms show that they have a generally positive perception and awareness of these platforms, regardless of their age, gender, educational attainment, or length of service.
3. Regarding Open Educational Resources (OER), teachers perceive significant advantages in terms of engaging students, enhancing course materials, and improving learning outcomes. These positive perceptions remain consistent across different age groups, genders, educational backgrounds, and lengths of service. However, when it comes to the disadvantages of OER, teachers express mixed opinions, indicating that their perceptions may be influenced by various factors, including age.
4. Teachers face several challenges in using online instructional materials, including technical difficulties, time-consuming resources, lack of computer literacy, lack of technical/software knowledge, and difficulties in motivating students and generating student interest. These challenges highlight the need for support in terms of technical assistance, training, and strategies to foster student engagement and motivation. Overall, these findings emphasize the need for support in addressing technical issues, saving time, enhancing computer literacy, and promoting student motivation
5. To address these challenges, teachers employ coping strategies such as keeping students engaged, allowing student choice in learning, encouraging student contributions, emphasizing peer evaluation, and actively participating in ICT training. These strategies reflect the commitment of teachers to enhance student engagement, collaboration, and their own professional development in the online learning environment. However, it is equally clear that teachers employ coping strategies and have positive experiences with online platforms in open educational resources.

6. Provide teachers with necessary support, resources, and training to effectively navigate online instruction and maximize student learning outcomes. By addressing the challenges and leveraging the coping strategies employed by teachers, educational institutions can foster a conducive online learning environment and ensure quality education for students. The researcher could develop of sample online educational resources instructional material that the researcher would use during blended modular distant learning caused of heat wave of extremely heat that experienced of the student.

Recommendations

Based on the conclusion drawn from the analysis, the following recommendations can be made to support teachers in addressing the challenges of online instruction and maximizing the benefits of technology in education:

1. The findings revealed that the most of the respondents predominantly have a master with units' educational background and the college graduate have a smaller percentage. Consequently, the school administrators may provide comprehensive and ongoing professional development programs that focus on enhancing teachers' digital skills, pedagogical strategies, and familiarity with online teaching tools. This training should cover areas such as effective use of online platforms, multimedia resources, and student engagement techniques in the virtual classroom.
2. Based on the gathered data teachers' experiences regarding online platforms show that they have a generally positive perception and awareness of these platforms. The school may establish a dedicated technical support system to assist teachers in resolving technical issues and overcoming challenges related to online teaching tools.
3. The significant differences revealed the teachers' experiences using open educational resources that there is a significant difference between teachers' experiences. The school may foster the development and sharing of high-quality online instructional materials, including Open Educational Resources (OER). Encourage teachers to collaborate and create engaging and interactive content that aligns with the curriculum objectives and meets the diverse learning needs of students in the online environment.
4. Based on the gathered data these findings emphasize the need for support in addressing technical issues and promoting student motivation. Recommendation includes the encouragement of teachers to adopt a variety of student engagement strategies, such as interactive activities, collaborative projects, and multimedia resources.
5. Based on the comprehensive analysis of the gathered data that teachers face the coping strategies of teachers in addressing the challenges, the school as a community may create a supportive and inclusive online learning environment that values student contributions and encourages active participation. Establish channels for communication and collaboration among students, teachers, and

parents to promote a sense of belonging and provide opportunities for ongoing support and feedback.

The future researcher promotes peer collaboration and evaluation as valuable learning strategies. Encourage teachers to facilitate peer assessment and feedback to foster student collaboration, critical thinking, and self-reflection.

6. Further study on challenges of online instruction and maximizing the benefits of technology in education, the future researcher could develop of sample online educational resources instructional materials that uses as online educational resources during the modular distant learning caused of extremely heat of climate.

Compliance with Ethical Standards

The study adhered to the research ethics of anonymity, consent, and beneficence. the research ensured that the data gathered were secured and observed with the utmost consideration of data privacy. no personal information provided by the respondents was divulged in the study. in addition, the teachers who provided the data of learners were given a copy of the consent form to ensure they were aware of their participation. The researcher explained in full detail the process of data gathering and assured that the data shall be treated with the utmost confidentiality. The teachers were also given the option to withdraw their participation if they felt there was a need for them to do so. Finally, the researcher informed the respondents that no benefits shall be provided to the respondents but the data they will be providing shall be helpful for the realizations and completion of the study.

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TEACHER'S MONITORING OF LEARNERS ON MODULAR DISTANCE LEARNING AND ITS EFFECT ON ACADEMIC PERFORMANCE OF GRADE THREE PUPILS IN SANTA CRUZ NORTH DISTRICT, DIVISION OF MARINDUQUE

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ABSTRACT

The study focused on monitoring learners and its effects on the academic performance of Grade 3 pupils in the Santa Cruz North District, Division of Marinduque. It aimed to determine the monitoring process, assess academic performance through the General Scholastic Average (GSA), identify problems and challenges in the monitoring process, explore experience-based solutions to these problems, and examine the interplay among various variables. Three groups of respondents were involved in the study: 19 Grade 3 teachers, 17 school heads, and 55 selected parents. A mixed method of research was utilized, incorporating both statistical and thematic analysis of data. Major findings revealed that the frequency of monitoring was at least thrice a week, typically on Mondays, aligned with the schedule of the Weekly Home Learning Plan. Onsite monitoring was the predominant strategy used. The academic performance of the Grade 3 pupils, based on their GSA, was described as fairly satisfactory. The test for significant differences indicated no significant difference in the interplay between academic performance and the monitoring process, thus failing to reject the null hypothesis set in the study. However, several problems were encountered. The primary issues related to technology, the threat of the pandemic, and the content of the learning modules, including the bulk of activities and confusing directions. Experience-based solutions proposed included regular monitoring, differentiated instruction, and open and distance education.

Keywords: *monitoring process, academic performance, problems and challenges*

INTRODUCTION

The outbreak of COVID-19 placed the education system in its extreme transition of delivering learning through Alternative Delivery Modalities to replace the traditional face-to-face set-up. Currently, the Department of Education is implementing Modular Delivery Learning (MDL), either one-way print, which uses Self-Learning Materials (SLMs), or two-way, which uses Self-Learning Materials and other available online platforms, phone calls, and home visitations based on schedule. This model is an offshoot of Learning Delivery Modality Course 1 for School Leaders under the Basic Education Learning Continuity Plan (DepEd Order No. 012, 2020; DepEd Memorandum OSEC-NEAP-OD-2020-0618).

During the pilot implementation of modular delivery learning, different issues and concerns as well as challenges and problems were encountered and were documented in the 2020 Division Kumustahan as follows: lack of interest of children in answering bulk of learning activities, poor development of reading skill of pupils in the primary level that impede them from reading and understanding the content of Self-Learning Materials, lack of comprehensive and illustrative examples to support learning, biased in the assessment, unworthiness of learners' assessment, difficulty in monitoring, and holding limited classes via available online. Several years back, the news about online cheating bombarded DepEd. According to the news report of the Philippine Daily Inquirer, the set-up of blended learning due to the pandemic had resorted the students to online cheating via social media, specifically Facebook groups, where learners shared notes and test answers (Bautista, 2021).

Researchers claimed that one of the challenges in distance learning modality is the complexity of assessment (Manalo & De Villa, 2020). It seemed to be a question of the validity and trustworthiness, whether the learners could answer their learning assessments. In this sense, the performance of the learners is at stake.

Moreover, some researchers asserted that the success and effectiveness of distance learning depend on the learning materials given to the learners (Jayaram & Dorababu, 2020). Consequently, to cater to the needs and abilities of each learner, DepEd has focused on self-study modules that can be combined with other modalities to deliver learning that learners may access. In addition, modules or Self-Learning Materials without a teacher or learning buddy may have affected the learners, and a hard time answering the learning tasks in their modules and the lack or limited academic knowledge of the parents to guide their children will place the learners in a situation. Thus, this remains one of the challenges that emerged in modular distance learning (Dangle & Sumaoang, 2020).

Nevertheless, teachers made a concerted effort to reach out to learners. These were hindered by localized lockdowns and other protocols and orders implemented due to the growing cases of COVID-19 in some towns and their localities. Also, striking a balance in conducting on-site monitoring while staying safe. The scenarios affect the

academic performance of the learners. Specifically, the Grade 3 pupils need explicit teaching and constant monitoring of teachers during modular distance learning.

These scenarios require instructional intervention to effectively sustain the continuous delivery of modular distance learning to address the problems and challenges in monitoring learning progress. It would affect academic performance if unresolved and prompt the researcher to conduct the study.

Research Questions

1. How is the teacher's monitoring process of Grade 3 pupils done in modular distance learning (MDL) in Santa Cruz North District concerning the following aspects:
    1.1 frequency of monitoring;
    1.2 time of monitoring;
    1.3 day of monitoring;
    1.4 mode of monitoring; and
    1.5 strategies of monitoring?
2. What is the Academic performance of the grade three learners on the modular Distance Learning?
3. Is there a significant effect of teacher's monitoring of learners on the Modular Distance Learning to academic performance of Grade three pupils?
4. What are the encountered problems and challenges in monitoring Grade three pupils during modular distance learning
5. What are the suggestions of the respondents to address the problems and challenges?
6. What intervention program can be proposed to improve academic performance through the monitoring process?

METHODOLOGY

The researcher employed a mixed method approach for this study. According to George (2022), mixed methods research integrates elements of both quantitative and qualitative research to address research inquiries comprehensively. Consequently, this research design is well-suited for this study as it delved into the monitoring process in modular distance learning, exploring aspects such as the frequency, timing, mode, and strategies of monitoring. Additionally, it assessed the academic performance of Grade 3 pupils using the General Scholastic Grade (GSA) and examined the challenges encountered in monitoring, drawing insights from observations of three key groups: teachers, school heads, and parents. Furthermore, the study analyzed significant differences among the variables under investigation.

Meanwhile, the qualitative part dealt with the experienced-based suggestions of the three groups of respondents, which would yield to the intervention.

Research Locale

Generally, the study was conducted in Santa Cruz, Marinduque. It is one of the six municipalities in the province of Marinduque. It is the biggest municipality in terms of land area and population. Specifically, it was conducted in the 17 elementary schools, including one (1) primary school in Santa Cruz North District, which is in the 17 barangays in the said municipality.

Figure 2 Presents the locale of the study.

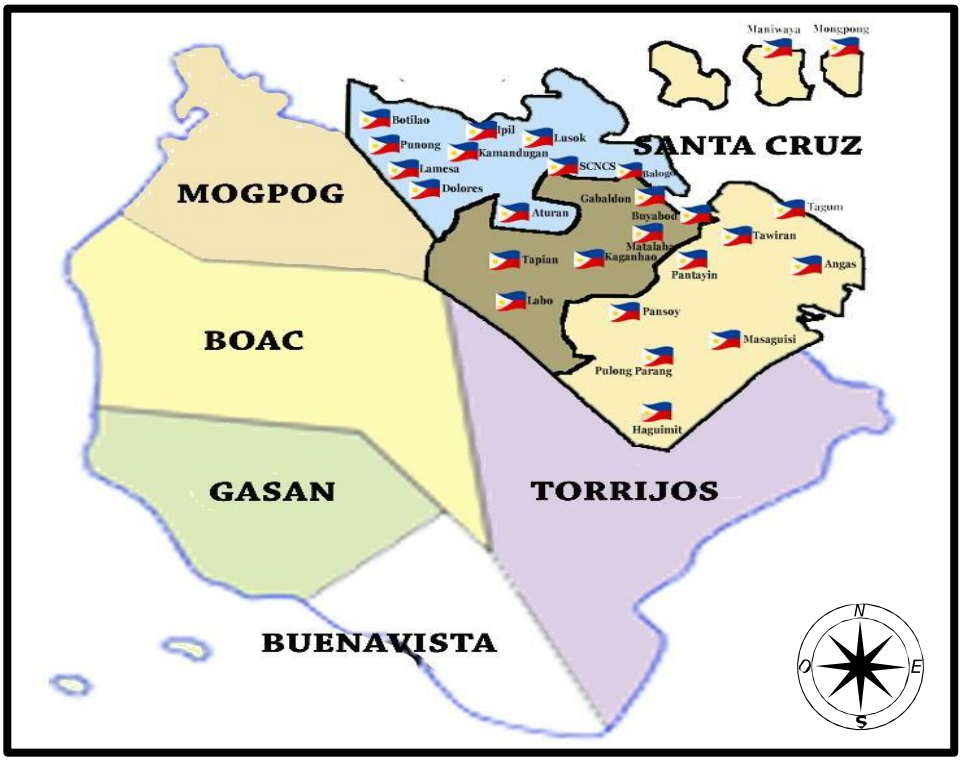


Figure 2. Map of the Research Locale

Figure 2 shows the province of Marinduque, in which Santa Cruz is one of the municipalities. In this municipality, located are the 17 schools in Santa Cruz North District.

Sampling Technique

Total enumeration was used in choosing the teachers and school head respondents. This means, all the 19 Grade 3 teachers and 17 school heads were considered as respondents due to the limited number of teachers in Santa Cruz North District. Meanwhile, random sampling was used in getting 324 respondents from a total of 1584 parents. Below is the distribution of participants.

Table 1 *Distribution of the Respondents.*

No.	Name of Elementary Schools	School Heads	Samples Grade 3 Teachers	Parents	Samples (Parents of the Grade 3 Class)
1	Aturan Elementary School	Principal I	1	102	20
2	Baliis Elementary School	Principal I	1	97	20
3	Balogo Elementary School	Principal I	1	97	10
4	Bangcuangan Primary School	TIC	1	20	5
5	Botilao Elementary School	Principal I	1	136	27
6	Dating Bayan Elementary School	HTIII	1	48	10
7	Dolores Elementary School	Principal II	1	138	20
8	Hupi Elementary School	Principal I	1	75	15
9	Ipil Elementary School	Principal II	2	182	37
10	Kalangkang Elementary School	TIC	1	26	5
11	Kamandugan Elementary School	Principal II	1	89	18
12	Kasily Elementary School	Principal II	1	92	19
13	Lamesa Elementary School	Principal I	1	96	20
14	Lusok Elementary School	HT III	1	95	19
15	Punong Elementary School	HT III	1	77	16
16	San Isidro Elementary School	TIC	1	38	8
17	Santa Cruz North Central School	Principal I	2	176	35
	Total	**17**	**19**	**1584**	**304**

Research Instrument

The research-made questionnaire was the primary tool for gathering data. It has several parts. Part 1 contains the monitoring as to frequency, time, day, mode, and strategies of conducting or holding monitoring. Part 2 determines the General Scholastic Average (GSA) as a determinant of the level of academic performance of the Grade 3 pupils in respective schools. Part 3 contains the problems and challenges in the monitoring as observed by the three groups of respondents, namely teachers, school heads, and parents. It is a multiple-response questionnaire. Part 4 identifies the experienced-based suggestions of the Grade 3 teachers to address the problems and challenges in monitoring Grade 3 pupils. It is an open-ended question.

The questionnaire underwent a test of reliability and validation. The reliability test was administered among elementary teachers in Santa Cruz South District, specifically in the Grade 3 classes these schools: Lipa Elementary School, Gabaldon Elementary School, and Santa Cruz Central School as the pilot schools. Suggestions from the respondents were incorporated in the final draft of the research question. For validation, the final draft of the research instrument was validated by the research experts, namely the education program supervisor, public school district supervisor, principals, and language critic. It ensured that questionnaires were free from inconsistencies and errors.

Ethical Considerations

This study prioritized several considerations to safeguard the privacy and confidentiality of both respondents and subjects, aiming to forestall any potential issues during the research process. Key concerns included obtaining informed consent, ensuring confidentiality, maintaining the anonymity of subjects, and safeguarding data protection. Throughout the research, the researcher meticulously devised indicators for the survey form and questionnaire to mitigate any potential confusion among participants. Adequate time was afforded to respondents to respond to questions, reducing the likelihood of errors or inaccuracies in their responses. Additionally, respondents were provided with a waiver concerning the confidentiality of their identity and any information they preferred not to disclose.

The cooperation of respondents was actively sought, with assurances that all data collected would be handled with the utmost confidentiality. Ultimately, the researcher aimed to cultivate trust between themselves and the respondents through the conduct of the study.

Data Gathering Procedure

Several steps were undertaken to gather data. *First, the researcher sought* permission from the Schools Division Superintendent at the Schools Division Office of Marinduque for her approval to conduct the study. *Second,* upon approval, the researcher handed the endorsement letter to the Public Schools District Supervisor of Santa Cruz North District for her second endorsement. *Third,* upon approval, the researcher hand-carried the endorsement letter to the different School Principals of Santa Cruz North District. *Fourth*, the researcher oriented the respondents to explain the purpose of the research. *Fifth,* the researcher personally sent the research-made questionnaire to the email address of the respondents. Another way was to send the link to the Google form questionnaire and share it with the Group Chats of the teachers in Santa Cruz District. For the parent respondents, the distribution and administration were coordinated with the teachers and school heads of respective schools. Collected data were subject to statistical treatment.

Statistical Treatment of Data

Descriptive statistics such as frequency and percentage were used to statistically analyze the frequency, time of monitoring, mode of monitoring, and strategies of monitoring MDL. Mean and a five-point Likert Scale were used to analyze the level of academic performance of the Grade 3 pupils based on their GSA during the first and second quarters and the frequency of observation of the problems and challenges. Paired Test was used to statistically analyze significant differences in the academic performance of the Grade 3 pupils during the first and second quarters.

Meanwhile, thematic analysis was used to present the experienced-based suggestions of the respondents in addressing the problems and challenges observed in the monitoring process of the Grade 3 pupils during modular distance learning.

RESULTS AND DISCUSSION

This chapter unveils the data meticulously collected, systematically organized, diligently processed, and thoughtfully interpreted to extract insights that address the issues delineated in Chapter 1.

Part I: Teacher's Monitoring process of Grade 3 pupils done in modular distance learning (MDL) in Santa Cruz North District with respect to the following.

Table 2 presents the frequency of monitoring of MDL across schools for Grade 3 pupils. From the responses, 29 out of 91, or 31.86% observed the "Thrice a week" monitoring of the Grade 3 pupils. It was followed by "Once a week" monitoring with 28.57%, then "Everyday" monitoring with 23 or 25.27%. Meanwhile, only 10 had responded to have done "Twice a week monitoring. On the other hand, 3 out of 91 did not indicate their responses on the frequency of monitoring of grade 3 pupils.

Table 2 *Frequency of Monitoring of Modular Distance Learning among Grade 3 Pupils*

Frequency of Monitoring	Frequency	Percentage (%)
Everyday	23	25.27
Once a week	26	28.57
Twice a weak	10	10.98
Thrice a week	29	31.86
Others: No responses	3	3.29
Total	91	100

Data revealed that the frequency of monitoring ranges from every day to weekly. It means there were no specific dates of monitoring during the pandemic time. Consequently, the schedule was based on the issuance of higher officials and relative to the mandates of the Inter-Agency Task Force, which relies heavily on the active cases of

COVID-19 in a particular locality where the school is located and the community is situated. It goes to schools that the pandemic and the monitoring of classes strictly adhered to various offices, not only in the Schools Division Office but the Department of Education in general and the provincial government of Marinduque. The reason was to protect the children from the spread of the COVID-19 virus during that time.

The findings were remarkably good. The Grade 3 teachers could monitor their respective classes despite the remote learning and modular distance learning. The frequency of monitoring ranges from thrice a week to a daily basis, which means that teachers were making ways to reach out to their pupils. In a follow-up interview with the teachers, they were able to monitor classes through phone calls, group chats, and onsite monitoring (See Table 2).

On the other hand, the frequency of monitoring is not constant or not only daily because teachers need to prepare things that require more time, like printing modules, sorting modules, packing modules, and delivering modules. Nevertheless, teachers were able to monitor remote classes despite too much work. Meanwhile, teachers who monitor daily have small class sizes, and preparations do not consume their time and are remarkably good. Hence, the end goal of monitoring is to respond to the difficulties encountered by the pupils during modular distance learning. The teachers need to assess the academic progress of their pupils through monitoring (Young, 2018) because it is the basis of giving intervention. Intervention is essential to improve performance (Molloy & Bound, 2013).

Table 3 indicates the time of monitoring of MDL among Grade 3 pupils in Santa Cruz North District. The monitoring of classes was usually done during the morning from 7:30 to 11:30, as revealed by 65 responses, and sometimes, it was based on the Class Home Program, as disclosed by 24 respondents. Meanwhile, only 2 responses were about an afternoon monitoring of classes from 1:00 to 4:30.

Table 3 *Time of Monitoring of Modular Distance Learning among Grade 3 Pupils*

Time of Monitoring	Frequency	Percentage (%)
Every Morning (7:30-11:30)	65	71.43
Every Afternoon (1:00-4:30)	2	2.20
Based on Class Home Program	24	26.37
Total	91	100

Findings showed that teachers monitored the MDL classes. The schedule of the Class Home Program was the basis of the monitoring of MDL classes and every morning on-site monitoring. In other words, despite the pandemic, the school has monitoring mechanisms to track the activities of the pupils. For instance, parents disclosed that teachers were holding online classes as an alternative mode for MDL. They also made phone calls to help the learners who had difficulty understanding the contents of the modules. These were also the same responses of the teachers during a follow-up interview with them.

Also, in a follow-up interview with the teachers, they said that they usually monitor classes every Monday since it is the start of the class in their Weekly Home Learning Plan. In contrast, no teacher monitored classes on Friday because it was the assessment day. In addition, the teachers said that it is good to start the monitoring during the first day of the classes because they feel and believe that children have fresh minds at the start of the week and also to inspire the pupils to become productive in the days ahead. Likewise, they believed that it has to be at the start of the week so they can do follow-up lessons and provide scaffolding activities for difficult lessons (Cooper-Kahn & Foster, 2013).

Summing up, during MDL, schools have done all the necessary mechanisms to monitor classes at the onset of the pandemic. Teachers used the available channels of communication, such as phone calls, personal messenger, and other online platforms, to monitor the learners, aside from the onsite monitoring, which was usually done in the morning to instruct the pupils on how they were going to answer the learning activities in their modules. The rest of the afternoon was intended for accomplishing and answering the learning activities.

Likewise, the delivery of the modules in the designated areas was also done in the morning. Thus, most of the time, monitoring was done in the morning during the pandemic setup.

Table 4 shows the day of monitoring of MDL among Grade 3 pupils in the Santa Cruz North District. Data indicated that the usual monitoring schedule was MWF or every other day, with 39 out of 91 responses or 42.86%. Others have observed every day or daily monitoring, with 16 out of 91 responses or 17.58. But looking closely at the data, the day of monitoring varies from Monday to Friday and daily to every other day. The variations of monitoring day were associated with the frequency of monitoring, based on the onset schedule from the issuance of the Schools Division Office and mandates of IATF during the onset of the pandemic, the Wednesday and Friday morning response was the observed online monitoring of MDL.

Table 4 *Day of Monitoring of Modular Distance Learning among Grade 3 Pupils*

Day of Monitoring	Frequency	Percentage (%)
Monday	4	4.40
Tuesday	2	2.20
Wednesday	7	7.69
Thursday	12	13.18
Friday	7	7.69
MWF/Every other day	39	42.86
Daily	16	17.58
TTH	4	4.40
Total	91	100

The data presented in Table 4 reflects the monitoring frequency of Grade 3 pupils engaged in modular distance learning. Key observations and interpretations include:
Varied Monitoring Days

The most common monitoring schedule is "MWF/Every other day," account for 42.86% of the total, suggesting a strategy to provide consistent but not daily oversight Daily" monitoring is the second most common at 17.58%, indicating a significant commitment to continuous engagement with students. Weekly Monitoring. Monitoring on specific days like Monday (4.40%), Thursday (13.18%), "TTH" (Tuesday and Thursday), (4.40%), Wednesday (7.69%), and Friday (7.69%) shows a spread across the week, ensuring that students receive support regularly, albeit not daily. The least frequent schedule is (Tuesday), making up only 2.20%.

These monitoring patterns indicate that schools have adapted their monitoring schedules to ensure continued learning despite the challenges posed by the pandemic. The presence of various monitoring frequencies implies flexibility and responsiveness to the diverse needs of students and the realities of remote learning environments. Despite the inconsistency in daily monitoring compared to traditional classroom settings, teachers have implemented mechanisms to reach out to their pupils effectively. The efforts of teachers to use multiple monitoring strategies illustrate their commitment to maintaining educational services and supporting students during the pandemic. The structured monitoring schedules reflect that schools have contingency plans to address the disruptions caused by the pandemic, ensuring that learning continues. The data underscores that learning persisted under adverse conditions, demonstrating the resilience and dedication of the education sector. The diverse monitoring schedules provided by teachers highlight their adaptability and commitment to ensuring that students' educational needs are met during challenging times. These efforts contribute significantly to mitigating the adverse effects of the pandemic on education, ensuring that basic education services remain accessible to all learners.

In summary, the table and corresponding analysis reveal that teachers and schools have employed various strategies to monitor and support Grade 3 pupils' learning in a modular distance learning setup, ensuring the continuity of education during the pandemic.

Table 5 reveals the various modes of monitoring of MDL during the pandemic among Grade 3 pupils. Data enumerated three modes of monitoring name onsite with 50 responses, phone calls with 40 and group chat with only 1 response based on the observations of the three groups of respondents.

Table 5 *Mode of Monitoring of Modular Distance Learning among Grade 3 Pupils*

Modes of Monitoring	**Frequency**	**Percentage (%)**
Onsite	50	54.95
Via Phone Call	40	43.96
Through Group Chat	1	1.09

Total	91	100

Analysis of the findings signifies that onsite monitoring was very evident during the pandemic. Despite being modular in nature, schools have given authority to the teachers to hold onsite monitoring. The COVID-19 pandemic has significantly disrupted traditional educational practices worldwide, necessitating the adoption of alternative methods such as Modular Distance Learning (MDL) to ensure the continuity of education. Various modes of monitoring have emerged to facilitate effective learning outcomes for young students, particularly those in early elementary grades like Grade 3.

Onsite monitoring has been identified as a prevalent method, with 50 responses indicating its use. This approach involves direct, physical interaction between educators and students, albeit within the constraints of health protocols. Research by Kim et al. (2021) suggests that onsite monitoring, even in a limited capacity, provides critical support to students who may struggle with self-directed learning at home. It allows for immediate feedback and personal interaction, which are essential for young learners who require more guidance and reassurance (Kim, 2021).

The second most common method, with 40 responses, is monitoring through phone calls. According to a study by Xiao (2020), phone calls serve as a viable communication channel, especially in areas with limited internet access. They enable teachers to provide personalized support, address student queries, and offer encouragement. The personal nature of phone calls can also help maintain a connection between students and teachers, fostering a sense of continuity and normalcy (Xiao, 2020).

The least utilized method, with only 1 response, is group chats. Despite their lower usage, group chats have been shown to be effective in creating a collaborative learning environment. According to research, group chats on platforms like WhatsApp or Messenger allow for the sharing of resources, peer support, and group discussions, which can enhance learning outcomes. However, the effectiveness of this method can be hindered by factors such as digital literacy, access to devices, and internet connectivity

The disparity in the utilization of these monitoring methods can be attributed to various factors including technological accessibility, socio-economic status, and the preparedness of both educators and families to adapt to new forms of communication and monitoring. Onsite monitoring, while most effective in ensuring direct oversight, is limited by public health guidelines and logistical challenges. Phone calls, while more accessible than internet-based solutions, can be time-consuming for teachers. Group chats, although innovative and collaborative, face significant barriers in terms of digital divide and user familiarity

The data from Table 5 underscores the adaptive strategies employed by educators to monitor MDL during the pandemic. The reliance on diverse modes of monitoring highlights the need for flexible, inclusive approaches to ensure all students receive adequate support. Future efforts should focus on enhancing the effectiveness of these

methods through training, infrastructure development, and continuous evaluation to address the challenges faced during the pandemic and beyond. This literature review situates your data within the broader context of research on MDL monitoring methods during the pandemic, highlighting both the practical and theoretical implications of these findings.

Table 6. *Strategies of Monitoring the Modular Distance Learning among Grade 3 Pupils*

Strategies of Monitoring	**Frequency**	**Percentage (%)**	**Rank**
1. Bringing and using teaching materials during onsite monitoring or home visitation such as laptop, manipulative materials, pentel pen, manila paper, LCD projector, books, activity sheets, and the like.	31	34.07	7
2. Using online resource like Facebook Messenger to monitor learners and their learning progress (e.g. activities which the learners had already answered or finished as well as activities which are not yet answered or finished.	69	75.82	2
3. Using phone calls to monitoring learners and their learning progress (e.g. activities which the learners had already answered or finished as well as activities which are not yet answered or finished.	75	82.42	1
4. Using Facebook Messenger to answer queries of the learners and the parents.	53	58.24	3
5. Using online resource like Google Classroom to supplement lessons/topics in the learning modules.	36	39.56	5
6. Using online resource like Facebook Messenger to supplement lessons/topics in the learning modules.	34	37.36	6
7. Providing worksheets to supplement difficult lessons on specified topics.	41	45.05	4

Table 6 highlights the strategies for monitoring MDL during the pandemic for Grade 3 pupils in Santa Cruz District. The top strategy was Using Phone calls to supplement , with 75 responses, followed by “Using online resource like Facebook Messenger …” with 69, then “Using online resources” like messenger and facebook with responses. Teachers were also using teaching materials, which happened during onsite monitoring.

From the multiple responses , data revealed that teachers monitored classes using various strategies to deliver basic education services based on the contingency

plan of the teachers during the pandemic time. Despite the situation, learning has continued and made possible through the joint efforts of the school and the parents.

Preference for Digital Communication , Phone calls and Facebook Messenger are the top methods, indicating a strong preference for immediate and accessible digital communication. Supportive Tools: Online resources like Google Classroom and providing worksheets are also significant, though not as prevalent as direct communication methods. Traditional Materials Less Used: Physical teaching materials are less frequently employed, reflecting a shift towards digital tools in monitoring and supplementing learning. The data reflects a trend towards leveraging digital communication tools for monitoring and supporting learners, likely driven by the ease of access and the immediacy these tools provide. Traditional methods, while still in use, are less dominant compared to these modern approaches.

Teachers affirmed that they made all these strategies, which depend on the Alert Level, signal, connectivity, and remoteness. But the good and remarkable deed was that teachers can reach out to their pupils. If there is no physical interaction, the teachers make extra effort to reach out to learners even in far-flung areas. It shows that teachers are effective and concerned and understand learning brought by modular distance learning. Teachers disclosed that even. The success and effectiveness of distance learning depend on the learning materials given to the learners (Jayaram & Dorababu, 2020).

Part II: Academic performance of Grade 3 pupils on Modular Distance Learning

Table 7 listed the academic performance of the Grade 3 pupils across subjects and GSA during the first and second quarters of Modular Distance Learning. As indicated in the data, only on Edukasyon sa Pagpapakatao the pupils had a high performance of “Very Satisfactory” with an obtained GSA of 87.22 during the first quarter. Conversely, most subjects received a GSA, which ranged from 82.89 to 84.61, interpreted as “Very Satisfactory” based on the existing guidelines for Report for Assessment of DepEd.

Table 7. *The academic achievement of Grade 3 students in the initial and subsequent quarters across various subjects, as determined by their General Scholastic Average (GSA).*

Subject Areas	First Quarter GSA	Level of Academic Performance	Second Quarter GSA	Level of Academic Performance	Gain
English	83.17	Satisfactory	83.72	Satisfactory	0.55
Filipino	84.56	Satisfactory	85.56	Very Satisfactory	1.00
Mathematics	82.89	Satisfactory	83.94	Satisfactory	1.05
Science	84.44	Satisfactory	85.17	Very Satisfactory	0.73
Araling Panlipunan	83.89	Satisfactory	84.67	Satisfactory	0.78
Mother-Tongue	84.78	Satisfactory	85.94	Very Satisfactory	1.16

Edukasyon Sa Pagpapakatao	87.22	Very Satisfactory	88.06	Very Satisfactory	0.84
MAPEH	84.61	Satisfactory	85.17	Very Satisfactory	0.56
Average	84.44	Satisfactory	85.28	Very Satisfactory	0.84

96-100- Outstanding 90-95 - Very Satisfactory 86-89- Satisfactory
80-85 Fairly Satisfactory 75-79 Poor - 74 and below- Needs Improvement

The satisfactory General Scholastic Average (GSA) of the children during quarter 1 reflects that pupils' performance does not improve much. It depicts that some children encounter difficulties that hinder them from performing better. They struggled because they were adjusting to the new modality of teaching and learning. It was new to them, and it was difficult for them to adjust themselves easily to the remote way of teaching. Besides, children do not all learn the same way, which is essential to provide feedback based on each student's specific needs (McFadzien, 2015).

During the second quarter, there was an increase in the GSA of Grade 3 pupils across subjects. The academic level of performance based on the GSA for the second quarter had moved to a Very Satisfactory level in most subjects except for English and Mathematics, but with little increase in their GSA for the second quarter.

Looking closely at the data, the grade 3 pupils had the highest academic performance based on their GSA in ESP with 88.06. Meanwhile, comparing the GSA of the grade 3 pupils for the first and second quarters, the highest gain was noted in the mother tongue subject. But all in all, pupils had better performance and gained their scholastic average during the second quarter. Findings could be attributed to adjustments that teachers and pupils had already made, compared to the first year of implementation of modular distance learning. Also, teachers had already seen some consequences and disadvantages of the MDL. Thus, necessary adjustments had been made, like frequent monitoring and provisions of activity sheets and making activities easier to facilitate better understanding on the part of the learners. Likewise, the most valuable competencies were selected for MDL during the pandemic. As the lessons progress and take place in a sophisticated manner, the teachers extend help to the learners through the provision of activity sheets and localized materials to aid the learners.

The findings may also indicate how learner monitoring effect the practices employed by teachers, including how often they monitor, the timing and days of monitoring, as well as the modes and strategies used. Therefore, if teachers are unable to effectively monitor their classes in any format of distance learning, they cannot offer timely feedback and formative guidance, potentially resulting in poor learner performance (United Nations Children's Fund, 2020). The performance of the Grade 3 pupils may not be as good as the performance compared to the face-to-face set-up, yet still, the performance was satisfactory during the onset of the pandemic. It gradually changed during the second quarter as the learners and teachers adjusted to the pandemic.

Part III. Significant Effect of Teacher's Monitoring of learners on the Modular Distance Learning to the Academic Performance of Grade Three Pupils

The table presents the results of a statistical test examining the relationship between the "Process of Monitoring" and "Academic Performance During First Grading and Second Grading

Table 8. *Significant Effect of Teacher's Monitoring of learners on the Modular Distance Learning to the Academic Performance of Grade Three Pupils*

Variables	**p-value**	**Verbal Interpretation.**
Process of Monitoring Vs. Academic Performance	0.034	Significant

The analysis shows a statistically significant relationship between the process of monitoring and academic performance, indicated by the p-value of 0.034. This suggests that effective monitoring is associated with improved academic outcomes. The findings emphasize the importance of implementing and maintaining strong monitoring practices as a means to enhance academic performance, supporting the notion that how learners are monitored plays a vital role in their educational success. Schools and educators are encouraged to refine their monitoring processes to leverage their positive impact on learner achievement.

Part IV: Encountered Problems and Challenges in Monitoring of Grade Three Pupils during Modular Distance Learning

Table 9 enumerates that some problems and challenges hinder the monitoring of MDL during the pandemic. The most frequently observed was localized quarantine prevents home visitation, with 4.18, while the least was "Learners were not available during monitoring.

Table 9. *Encountered Problems and Challenges in Monitoring of Grade Three Pupils during Modular Distance Learning.*

Problems and Challenges	**Average Mean**	**Verbal Interpretation**
1. Learners do not follow the Class-Home Program	3.52	FO
2. Learners are not available during monitoring of classes.	3.50	FO
3. Learners do not cooperate during monitoring of classes.	3.90	FO
4. Technological problem occur during monitoring of classes	4.16	FO
5. Localized quarantine that prevents home visitation as part of monitoring.	4.18	FO

6. Threats of pandemic limits teachers home visitation	4.09	FO
7. Learners do not follow instruction/directions in the learning modules	3.68	FO
8. Learners do not complete their answers in the learning modules	3.54	FO
9. Learners choose only those which they wanted to answer.	3.50	FO
10. It seems that someone else (parent or a sibling) answered the learning assessment or learning activities.	3.62	FO
11. Bulk of learning activities to answer that prevents the learners to answer.	3.62	FO
12. Confusion on some directions in the assessment	3.61	FO
13. Worthiness of learners' answers in the assessment part.	3.5	FO

Legend: *"Always Observed (4.51 – 5.00)", "Frequently Observed (3.51 – 4.50)", "Moderately Observed (2.51 – 3.50)", "Occasionally Observed (1.51 – 2.50)", "Never Observed (1.00 – 1.50)"*

Data only affirmed that the lockdown had prevented the teachers or the school in general from conducting monitoring. In this regard, the issuance of the Schools Division Office and the mandates of the Inter-Agency Task Force were the basis of the schedule of monitoring classes. It was made to contain the spread of the COVID-19 virus.

On a good point, parents had been so involved in the MDL. Thus, they ensured that their children were at home during the MDL. It was the least problem encountered. In other words, parents and learners knew the setup of the MDL. So, they made themselves available at home during their MDL and followed the Home-Based Schedule.

Moreover, data from the monitoring affirm that very few uses online platforms to monitor classes due to technological issues like no high-end gadgets on the part of the learners or weak signals if there are gadgets. There were also locations without any signal. Also, frequent power interruption affects the monitoring. In addition to the localized quarantine, which the school heads, the parents, and the teachers themselves see as a factor that hinders the continuity of the monitoring process. Another problem with the pandemic is that school heads think of the safety of the teachers and the learners, and this limits the frequency of monitoring. Also, the respondents observed that learners do not follow the classes based on weekly-home schedules. Other factors are related to the content of learning modules, like confusion on some activities and too many activities to answer, which learners failed to finish, which resulted in poor performance. It was identified during "Kumustahan" with the teachers regarding feedback on modular distance learning.

Data revealed that three groups of respondents have similar observations regarding the problems during modular distance learning. Researchers affirm that technology plays a vital role in distance learning. Thus, policymakers, the highest officials, must put great concern on technology (Wesley, 2017; Ajmal & Ahmad, 2019) to support

education. Problems in the local setting include the availability of gadgets for use but more of the internet connection, signal, and frequent power interruption. Nevertheless, if there is available technology for learners and teachers, at least occasionally or as needed, there are technological gadgets for use.

Other concerns related to the schedule of weekly home classes and the contents of the modules can be addressed through constant monitoring of the flexibility of teachers and the cooperation of the parents to help their children during modular distance learning. Besides, according to DepEd, parents play vital roles during MDL.

Part V: The experienced-based suggestions of the three groups of respondents to address the problems and challenges in the monitoring process of the Grade 3 pupils in the modular distance learning.

There are experience-based suggestions to address the problems encountered, like the schedule of weekly home classes and the contents of the modules. Respondents suggest having regular monitoring and providing engaging activities. Hence, most of the activities seem hard to answer and too many in terms of content. Thus, this needs modification and revision to suit the learning needs of the learners. According to the respondents, monitoring should be done daily and as much as possible during the morning.

Table 10. *Responses of the Key Informants on the Experienced-Based Suggestions of the Three Groups of Respondents to Address the Problems and Challenges in the Monitoring Process of the Grade 3 Pupils in Modular Distance Learning*

Codes/Categories	Transcriptions
Regular Monitoring	A1: *Teachers should keep a record of the pupils who were monitored on a specific day/date.* A2: *Monitoring should be done regularly to address the learners' needs and provide them with activities for reinforcement.* A3: *Provide more activity sheets/worksheets during onsite monitoring.* A4: *Provide more engaging activities to the learners.*
Regular Monitoring	B1: *daily monitoring should be done.* B2: *Provide more activity sheets for reinforcement.* B3: *See to it* B4: *Monitoring should be done the soonest time possible preferably 7:30 Am*
Differentiated Instruction	*C1: It is recommended to utilize a blend of on-site and online monitoring approaches.* *C2: Modular distance learning poses significant challenges for teachers but also offers valuable opportunities for growth.* *C3: Proposed methods and strategies for enhancing Modular Distance Learning include reducing module activities, providing additional subject examples, conducting weekly home visits, and implementing limited face-to-face classes or a Blended Learning approach.*

	C4: While it provides students with increased flexibility and autonomy, it also demands greater self-discipline, which may be challenging for children to adapt to.
Open and Distance Education	D1: *Modular learning entails the option for students to engage in studying individual modules or units of learning, rather than committing to the entire course at once. However, courses typically comprised of multiple modules often require students to enroll in the entire course and fulfill its requirements within a specified timeframe.* D2: *Some of which have bad impact or cause negative impact if they are using the online modular distance learning due to net inconsistency connection problems.* D3: *One of the biggest difficulties with distance learning is that it really requires a shift in focus to keep students engaged and to be successful. What works in-person does not necessarily translate online. For one, large classes pose a huge challenge online. Depending on the platform, you must scroll to see everyone, and you might miss questions, facial expressions, and feedback.* D4: *Strictly follow the schedule.*

To break the monotony of answering modules, teachers may employ differentiated instruction, vary strategies on the needs of the learners, reduce activities, and provide more examples instead of too many activities to comprehend. Open and distance education is another suggestion.

6. Proposed Instructional Intervention Program Using Strategic Intervention Materials to improve the Academic Performance of the Learners.

Instructional Intervention Program

From the data of General Scholastic Average as the measure of Academic Performance of the Grade 3 pupils, the researcher found that among the subjects, Science has the lowest GSA based on the computed Mean Percentage Scores, consistent in Quarter 1 and Quarter 2. Thus, Science seems difficult to comprehend for Grade 3 pupils during Modular Instruction. The study by Recto (2020) affirmed the findings. In this regard, the researcher proposes an instructional intervention program using Strategic Intervention Materials to improve the academic performance of the learners.

Compliance with Ethical Standards

This study prioritized several considerations to safeguard the privacy and confidentiality of both respondents and subjects, aiming to forestall any potential issues during the research process. Key concerns included obtaining informed consent, ensuring confidentiality, maintaining the anonymity of subjects, and safeguarding data protection. Throughout the research, the researcher meticulously devised indicators for the survey form and questionnaire to mitigate any potential confusion among participants. Adequate

time was afforded to respondents to respond to questions, reducing the likelihood of errors or inaccuracies in their responses. Additionally, respondents were provided with a waiver concerning the confidentiality of their identity and any information they preferred not to disclose.

The cooperation of respondents was actively sought, with assurances that all data collected would be handled with the utmost confidentiality. Ultimately, the researcher aimed to cultivate trust between themselves and the respondents through the conduct of the study.

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TEACHING COMPETENCE OF SENIOR HIGH SCHOOL TEACHERS AND ITS INFLUENCE ON STUDENTS' ACADEMIC PERFORMANCE

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ABSTRACT

This study sought to establish the competence of Senior High School teachers in relation to learners' academic performance in Negros Oriental High School for the first and second quarters of school year 2019-2020. It utilized descriptive research design and employed the stratified random sampling technique using Slovin's formula in identifying the 255 respondents (Grade 11 and 12) from the total population of 702. To analyze the data, the study employed a validated questionnaire. It utilized a range of statistical methods, including frequency counts, percentages, means, and non-parametric tests such as the Mann-Whitney U test, Kruskal-Wallis H test, and Spearman's rho. The significant findings revealed that the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery and assessment delivery are both at "great extent". In contrast, the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management is at a "moderate extent". On the other hand, the extent of teaching competence in instructional delivery and assessment delivery when grouped according to age, sex, and track are at "great extent". However, in classroom management, competence varied by group. Furthermore, it was found that there is a significant difference in the extent of teaching competence of senior high school teachers when grouped and compared according to age, and there is no significant difference when grouped according to sex and track. Lastly, it was found that there is a significant relationship between the extent of teaching competence and the level of learners' academic performance.

Keywords: *teaching competence, academic performance, instructional delivery, classroom management, assessment delivery*

INTRODUCTION

Teachers' skills and knowledge, often referred to as competencies, are fundamental to their effectiveness. To maximize student learning in today's complex classrooms, teachers need expertise in areas like curriculum development, differentiated instruction, and classroom management, requiring them to make hundreds of crucial decisions daily (Naz, 2016). However, simply recognizing the importance of these skills isn't enough. To ensure quality education for all, we need to establish a clear link between a teacher's competency and student achievement through solid evidence (Bilasa, 2017).

This highlights the need to examine how teacher competencies may be impacting student achievement, particularly in schools facing achievement gaps.

Negros Oriental High School serves as a case study for this concern. In School Year 2018-2019, the grade summary revealed a significant disparity in knowledge distribution among senior high school students. This data exposes a concerning achievement gap that needs to be addressed. A key factor in tackling this gap is the ability of secondary teachers to effectively guide students. A study by Goldhaber et al. (2015) highlights a crucial point: disadvantaged students are more likely to have less qualified teachers. This lack of access to skilled educators can hinder academic progress and exacerbate existing achievement gaps.

Based on School Form 9, or the Learners' Report for the first grading period of the school year 2019-2020, a significant number of students fell below proficiency level, with average grades ranging from 78 to 82 percent. If education is delivered on an equal footing, what keeps these students lagging? These observations prompted the researcher to conduct this study.

Research Questions

The study aimed to determine the extent of the teaching competence of senior high school teachers and their influence on the students' academic performance of Negros Oriental High School for the first and second quarters of School Year 2019-2020.
Specifically, this study sought to answer the following questions:

1. What is the profile of the respondents in terms of the following variables:
    - 1.1. Age;
    - 1.2. Sex; and
    - 1.3. Track?

2. What is the extent of teaching competence of senior high school teachers as assessed by the students in terms of the following areas:
    - 2.1. Instructional Delivery;
    - 2.2. Classroom Management; and
    - 2.3. Assessment Delivery?

3. What is the extent of teaching competence of senior high school teachers as assessed by the students and when they are grouped according to the aforementioned variables?

4. What is the level of students' academic performance when they are grouped according to the aforementioned variables?

5. Is there a significant difference in the extent of teaching competence of senior high school teachers as assessed by the students and when they are grouped and compared according to the aforementioned variables?

6. Is there a significant difference in the level of students' academic performance when they are grouped and compared to the aforementioned variables?

7. Is there a significant relationship between the extent of teaching competence and the level of students' academic performance?

METHODOLOGY

Research Design

This study employed a descriptive research design to investigate the relationship between the teaching competence of secondary school teachers and the academic performance of senior high school students at Negros Oriental High School during the first and second quarters of the 2019-2020 school year.

Locale of the Study

This study was conducted at Negros Oriental High School (NOHS) in Dumaguete City, Philippines. Founded in 1902, NOHS is a cornerstone of the city's educational landscape. With over a century of experience, it has played a significant role in shaping the lives of countless students from Dumaguete City and the surrounding Negros Oriental province. The school's central location within Dumaguete City makes it readily accessible to students from various backgrounds, fostering a diverse student body.

Respondents of the Study

The respondents of the study were 255 from the total population of 702 Grade 11 and 12 Senior High School students enrolled at Negros Oriental High School (NOHS) for School Year 2019-2020. Since the total number of respondents is too large to handle, stratified random sampling using Slovin's formula was employed.

The selection of respondents was done through the lottery method, specifically the fishbowl technique wherein the researcher picked the corresponding number of samples from a bowl containing the complete list of students in the aforementioned tracks of offerings.

Table 1 shows the distribution of respondents according to their grade level and track.

Table 1
Distribution of Respondents

Grade Level	Track	Population (N)	Percentage (%)	Sample (n)
11	GAS	31	4.42	11
	HUMSS	135	19.23	49
	ABM	48	6.84	17
	STEM	31	4.42	11
	TVL	134	19.09	49
	Arts & Design	25	3.56	9
	Sports	15	2.14	6
12	GAS	48	6.84	17
	HUMSS	83	11.82	30
	ABM	51	7.26	19
	STEM	24	3.42	9
	TVL	50	7.12	18
	Arts & Design	13	1.85	5
	Sports	14	1.99	5
	Total	**702**	**100.00**	**255**

Data Gathering Instruments

In this study, the researcher used a self-made questionnaire to gather all the data, mainly from student respondents. The questionnaire consisted of 2 parts: Part 1 contains queries on respondents' profiles such as age, sex, grade level, and track, while Part 2 contains the questionnaire proper consisting of 30 items on teaching competencies of secondary school teachers, 10-line items per area.

The questionnaires were gathered and the results were recorded, analyzed, and treated. The respondents were asked to rate each item using the five-point Likert scale which contains the following scores: 5 – Very High; 4 – High; 3 – Moderate; 2 – Low and 1 – Very Low.

Validity

A research instrument's effectiveness hinges on its ability to measure what it's designed to assess accurately. This concept, known as validity, ensures the interpretations drawn from the data are well-founded. While achieving perfect validity is uncommon, researchers employ various techniques to evaluate the instrument's strength in different aspects.

This study implemented face and content validation to ensure the instrument captured the intended information. Face validity involved presenting the questionnaire to three education experts: one holding a Master's degree and two with a doctorate. These experts evaluated the clarity, relevance, and appropriateness of the questions. Their feedback and suggestions, particularly regarding the alignment of questions with the targeted construct, were incorporated into the final version of the instrument. Following this initial assessment, we conducted a content validation process to ensure the instrument aligned with the targeted construct in a more comprehensive manner.

The instrument validation for content validity was anchored from those developed by Oducado (2020), built upon the eight criteria set forth by Carter V. Good and Douglas V. Scates. This validation process confirms that the average rating of the three jurors was 4.77, which falls within the "excellent" range (4.04 – 5.00) on the established scale. This high rating suggests that the survey instrument possesses strong face and content validity.

Reliability

A research instrument's effectiveness relies on its ability to produce consistent results. This concept, known as reliability, ensures the instrument measures the same construct stably. Internal consistency, a key aspect of reliability, reflects how closely related individual items within an instrument are to the overall construct being measured.

This study assessed the internal consistency of the self-developed instrument using Cronbach's alpha, which provides a value between 0 and 1, with higher values indicating stronger internal consistency. While it remains a widely used measure, it's crucial to acknowledge its limitations, such as sensitivity to the number of items (Clark & Watson, 2019).

To assess the instrument's internal consistency in this regard, a pilot test was conducted with 30 senior high school students from the same school, excluding them from the final sample population. The Cronbach's Alpha coefficient for the pilot test was 0.932, which suggests a high level of internal consistency for the instrument.

Data Gathering Procedure

The data gathered from the responses of the respondents were tallied and tabulated using the appropriate statistical tools. The raw data was transformed into

numerical code guided by a coding manual. This allows computer processing, statistical derivations, and tabular presentation. The Statistical Package for Social Sciences (SPSS) was used in the computer processing of the encoded data.

Analytical Schemes

In the analysis of the data, various procedures will be employed per the objectives of the study.

Objective No. 1 which aimed to determine the profile of the respondents in terms of the following variables: age, sex, and track, the descriptive analytical scheme was used.

Objective No. 2 which aimed to determine the extent of teaching competence of secondary school teachers as assessed by the students in the following areas: instructional delivery, classroom management, and assessment delivery, the descriptive analytical scheme was used.

Objective No. 3 which aimed to determine the extent of teaching competence of secondary school teachers as assessed by the students and when they are grouped according to the aforementioned variables, the descriptive analytical scheme was used.

Objective No. 4 which aimed to determine the level of student academic performance of senior high school teachers as assessed by the students and when they were grouped according to the aforementioned variables, the descriptive analytical scheme was used.

Objective No. 5 which aimed to determine the significant difference in the extent of teaching competence of secondary school teachers as assessed by the students and when grouped and compared according to the aforementioned variables, the comparative analytical scheme was used.

Objective No. 6 which aimed to determine the significant difference in the level of students' academic performance when they are grouped and compared according to the aforementioned variables, the comparative analytical scheme was used.

Objective No. 7 which aimed to determine the relationship between the extent of teaching competence and the level of students' academic performance, the relational analytical scheme was used.

Statistical Tools

In the analysis of the data, various statistical tools will be employed per the objectives of the study.

Objective No. 1 which aimed to determine the profile of the respondents in terms of the following variables: age, sex and track, frequency count, and percentage was used. This approach is suitable for establishing the typical characteristics of the study's respondent group.

Categorical data are best described by counting how many of the subjects' responses fall within each category in a frequency distribution and by calculating their percentages or proportions, that is the number of times each response was given by the total number (Mellinger and Hanson, 2017).

Objective No. 2 which aimed to determine the extent of teaching competence of secondary school teachers as assessed by the students in the following areas: instructional delivery, classroom management, and assessment delivery, mean was used.

The mean, often referred to as the average, is a widely used statistic for summarizing a dataset by calculating the sum of all values divided by the number of observations (Gravetter and Wallnau, 2017).

The mean scores were interpreted as follows:

Mean Range	Score Description	Verbal Interpretation
4.50 - 5.00	Always	Very Great Extent
3.50 - 4.49	Oftentimes	Great Extent
2.50 - 3.49	Frequent	Moderate Extent
1.50 - 2.49	Sometimes	Low Extent
1.00 - 1.49	Almost never	Very Low Extent

Objective No. 3 which aimed to determine the extent of teaching competence of secondary school teachers as assessed by the students and when they are grouped according to the aforementioned variables, mean was used.

Objective No. 4 which aimed to determine the level of students' academic performance of senior high school teachers as assessed by the students and when they are grouped according to the aforementioned variables, mean was used.

The mean scores were interpreted as follows based on the DepEd Standard on Learning Progress and Achievement Report:

Mean Score	Verbal Interpretation
90 - 100%	Outstanding
85 - 89%	Very Satisfactory
80 - 84%	Satisfactory
75 - 79%	Fairly Satisfactory
74% and below	Did not meet the expectation

Objective No. 5 which aimed to determine the significant difference in the extent of teaching competence of secondary school teachers as assessed by the students and

when grouped and compared according to age and sex, the Mann-Whitney U test was used and for the variable track, Kruskal Wallis H test was used.

The Mann-Whitney U test is particularly useful when the data is ordinal (ranked data) or when the assumptions of normality (normal distribution) for the t-test are not met (Ferguson, 2016)

The Kruskal-Wallis H test, also known as the “one-way analysis of variance (ANOVA) on ranks”, is a non-parametric statistical test based on ranks. It is used to assess whether statistically significant differences exist among two or more independent groups in a continuous or ordinal dependent variable.

Objective No. 6 which aimed to determine the significant difference in the level of students’ academic performance when they are grouped and compared according to age and sex, Mann-Whitney U test was used and for the variable track, Kruskal Wallis H test was used.

Objective No. 7 which aimed to determine the significant relationship between the extent of teaching competence and the level of students’ academic performance, Spearman Rho was used.

Spearman's rank-order correlation, often denoted by the Greek letter rho (ρ) or rs, is a non-parametric alternative to the Pearson product-moment correlation coefficient (Pallant, 2016). It measures the strength and direction of association between two ranked variables.

In Spearman's rank-order correlation, the null hypothesis states that there is no monotonic association between the ranks of the two variables. This means that a change in the rank of one variable does not necessarily correspond to a change (increase or decrease) in the rank of the other variable.

Finally, the computation of the p-values was interpreted using the following guide. Reject null hypothesis if the p-value is equal to or less than 0.05 level of significance. Accept the null hypothesis if the p-value is greater than 0.05 level of significance

RESULTS

Table 2
Profile of the Respondents

Variable	Category	Frequency	Percentage
Age	younger (below 18 years old)	123	48.2
	older (18 years old and above)	132	51.8

	Total	**255**	**100.00**
Sex	male	101	39.6
	female	154	60.4
	Total	**269**	**100.00**
Track	GAS	28	11.0
	HUMSS	79	31.0
	ABM	36	14.1
	STEM	20	7.8
	TVL	67	26.3
	Arts & Design	14	5.5
	Sports	11	4.3
	Total	**255**	**100.00**

Table 2 shows the profile of the respondents. In terms of age, 123, or 48.2% were younger (below 18 years old) and 132, or 51.8% were older (18 years and above) respondents. In terms of sex, 101, or 39.6% were male, and 154, or 60.4 were female respondents. In terms of track, 28, or 11.0% belonged to GAS, 79 or 31.0% belonged to HUMSS, 36, or 14.1% belonged to STEM, 67, or 26.3% belonged to TVL, 14, or 5.5% belonged to Arts, and Design, and 11 or 4.3% belonged to Sports.

Table 3
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery

	Items	**Mean**	**Interpretation**
1	Lesson contents are delivered with corresponding visual aids or video clips.	3.90	Great Extent
2	Teachers always ask students if they have questions before proceeding to the next topic.	4.68	Very Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.75	Great Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.14	Great Extent
5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.93	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	3.83	Great Extent
7	In general, the teacher is very effective in delivering lesson content	4.26	Great Extent
8	Even if some of the class projects are done in groups, our teacher manages to make sure that everyone is participating.	4.42	Great Extent

9	Compliments are always given to those who volunteer to provide good answers during class discussions.	4.03	Great Extent
10	Our teacher knows how to empower her students by delegating some tasks to them.	4.10	Great Extent
	Overall Mean	**4.10**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 3 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery. Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.68, interpreted as “very great extent”. Meanwhile, Item No. 3 which states “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75, interpreted as “great extent”. The overall mean score was 4.10, interpreted as a great extent.

Table 4
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management

	Items	Mean	Interpretation
1	The room is very conducive to learning.	4.25	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.36	Great Extent
3	The cleanliness of the classroom is properly maintained	4.36	Great Extent
4	Noisy students are being called out during class	3.60	Great Extent
5	Blackboards, bulletin boards, and the teachers’ tables and chairs are always clean and in place	4.31	Great Extent
6	We have a clean CR inside the classroom	2.21	Low Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	1.96	Low Extent
8	The room is maintained clean every day, floor and walls are dusted.	4.07	Great Extent
9	We have a storage cabinet for our raincoats, umbrellas, or boots during the rainy season.	1.97	Low Extent
10	The room has a clean trash bin	3.66	Great Extent
	Overall Mean	**3.48**	**Moderate Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent

3.50 - 4.49	Oftentimes	Great Extent
2.50 - 3.49	Frequent	Moderate Extent
1.50 - 2.49	Sometimes	Low Extent
1.00 - 1.49	Almost never	Very Low Extent

Table 4 shows the extent of the teaching competence of senior high school teachers as assessed by students in the area of classroom management. Item Nos. 2 and 3 which state, “Our classroom has a homey atmosphere – curtains, tables, etc.” and “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.36, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers and others are available inside our classroom toilet” got the lowest mean score of 1.96, interpreted as “low extent”. The overall mean score was 3.48, interpreted as “moderate extent”.

Table 5
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery

	Items	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	4.05	Great Extent
2	Pointers are provided before the exams	4.42	Great Extent
3	The results of our tests are being discussed with us individually	3.74	Great Extent
4	Exams and long quizzes are being discussed in the class.	4.24	Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	3.54	Great Extent
6	If students are unable to take a test, makeup tests are given	3.91	Great Extent
7	The teacher always asks what part of the exam is difficult.	4.23	Great Extent
8	The teacher maintains total silence during exam days.	4.52	Very Great Extent
9	The students are given the option to tell the teacher what test type they like.	2.96	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.36	Great Extent
	Overall Mean	**4.00**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 5 shows the extent of the teaching competence of senior high school teachers as assessed by students in the area of assessment delivery. Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.52, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.96, interpreted as “moderate extent”. The overall mean score was 4.00, interpreted as “great extent”.

Table 6
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to Age

	Items	Younger		Older	
		Mean	Interpretation	Mean	Interpretation
1	Lesson contents are delivered with corresponding visual aids or video clips.	3.88	Great Extent	3.92	Great Extent
2	Teachers always ask students if they have questions before proceeding to the next topic.	4.67	Very Great Extent	4.69	Very Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.55	Great Extent	3.94	Great Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.01	Great Extent	4.27	Great Extent
5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.80	Great Extent	4.05	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	3.74	Great Extent	3.91	Great Extent
7	In general, the teacher is very effective in delivering lesson content	4.25	Great Extent	4.27	Great Extent
8	Even if some of the class projects are done in groups, our teacher manages to make sure that everyone is participating.	4.38	Great Extent	4.46	Great Extent
9	Compliments are always given to those who volunteer to provide good answers during class discussions.	3.97	Great Extent	4.08	Great Extent

10	Our teacher knows how to empower her students by delegating some tasks to them.	4.05	Great Extent	4.14	Great Extent
	Overall Mean	**4.03**	**Great Extent**	**4.17**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 6 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to age. Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.67 for younger respondents and 4.69 for older respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.55 for younger respondents interpreted it as “great extent”, while Item No. 6 which states,” the teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.91 for older respondents interpreted as “great extent”. The overall mean scores were 4.03 for younger and 4.17 for older respondents, both were interpreted as “great extent”.

Table 7
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to Sex

	Items	**Male**		**Female**	
		Mean	Interpretation	Mean	Interpretation
1	Lesson contents are delivered with corresponding visual aids or video clips.	3.78	Great Extent	3.97	Great Extent
2	Teachers always ask students if they have questions before proceeding to the next topic.	4.63	Very Great Extent	4.71	Very Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.75	Great Extent	3.75	Great Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.06	Great Extent	4.19	Great Extent

5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.89	Great Extent	3.95	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	3.71	Great Extent	3.90	Great Extent
7	In general, the teacher is very effective in delivering lesson content	4.19	Great Extent	4.31	Great Extent
8	Even if some of the class projects are done in groups, our teacher manages to make sure that everyone is participating.	4.46	Great Extent	4.40	Great Extent
9	Compliments are always given to those who volunteer to provide good answers during class discussions.	4.06	Great Extent	4.01	Great Extent
10	Our teacher knows how to empower her students by delegating some tasks to them.	4.08	Great Extent	4.11	Great Extent
	Overall Mean	**4.06**	**Great Extent**	**4.13**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 7 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to sex. Item No. 2 which states, “Teacher always ask students if they have questions before” got the highest mean score of 4.63 for male respondents and 4.71 for female respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 6 which states, “the teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.71 for male respondents, interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75 for male respondents were both interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75 for female respondents interpreted as “great extent”. The overall mean scores were 4.06 for male and 4.13 for female respondents, both were interpreted as “great extent”.

Table 8
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to GAS and HUMSS

	Items	GAS		HUMSS	
		Mean	Interpretation	Mean	Interpretation
1	Lesson contents are delivered with corresponding visual aids or video clips.	3.82	Great Extent	3.86	Great Extent
2	Teachers always ask students if they have questions before proceeding to the next topic.	4.89	Very Great Extent	4.70	Very Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.64	Great Extent	3.85	Great Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.00	Great Extent	4.11	Great Extent
5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.79	Great Extent	4.05	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	3.61	Great Extent	3.89	Great Extent
7	In general, the teacher is very effective in delivering lesson content	4.07	Great Extent	4.39	Great Extent
8	Even if some of the class projects are done in groups, our teacher manages to make sure that everyone is participating.	4.32	Great Extent	4.54	Great Extent
9	Compliments are always given to those who volunteer to provide good answers during class discussions.	4.14	Great Extent	4.04	Great Extent
10	Our teacher knows how to empower her students by delegating some tasks to them.	4.14	Great Extent	4.19	Great Extent
	Overall Mean	**4.04**	**Great Extent**	**4.16**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent

1.50 - 2.49	Sometimes	Low Extent
1.00 - 1.49	Almost never	Very Low Extent

Table 8 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to GAS and HUMSS. Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.89 for GAS and 4.70 for HUMSS respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 6 which states “The teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.61 for the GAS group, interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest score of 3.85 for HUMSS group, interpreted as “great extent”. The overall mean scores were 4.04 for the GAS group and 4.16 for the HUMSS group, both were interpreted as “great extent”.

Table 9
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to ABM and STEM

	Items	ABM		STEM	
		Mean	Interpretation	Mean	Interpretation
1	Lesson contents are delivered with corresponding visual aids or video clips.	3.97	Great Extent	3.75	Great Extent
2	Teachers always ask students if they have questions before proceeding to the next topic.	4.69	Very Great Extent	4.45	Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.86	Great Extent	3.50	Great Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.22	Great Extent	4.30	Great Extent
5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.89	Great Extent	3.65	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	3.83	Great Extent	3.65	Great Extent
7	In general, the teacher is very effective in delivering lesson content	4.17	Great Extent	4.40	Great Extent

8	Even if some of the class projects are done in groups, our teacher manages to make sure that everyone is participating.	4.42	Great Extent	4.20	Great Extent
9	Compliments are always given to those who volunteer to provide good answers during class discussions.	4.22	Great Extent	3.95	Great Extent
10	Our teacher knows how to empower her students by delegating some tasks to them.	4.08	Great Extent	3.90	Great Extent
	Overall Mean	**4.14**	**Great Extent**	**3.98**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 9 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to ABM and STEM. Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.69 for ABM, interpreted as “great extent” and 4.45 for STEM respondents, interpreted as “great extent”. Meanwhile, Item No. 6 which states “The teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.83 for ABM, interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest 3.50 for STEM, interpreted as “great extent”. The overall mean scores were 4.14 for the ABM group and 3.98 for the STEM group, both were interpreted as “great extent”.

Table 10
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to TVL, Arts & Design, and Sports

	Items	**TVL**		**Arts & Design**		**Sports**	
		Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
1	Lesson contents are delivered with corresponding visual aids or video clips.	4.19	Great Extent	3.36	Moderate Extent	3.27	Moderate Extent

2	Teachers always ask students if they have questions before proceeding to the next topic.	4.66	Very Great Extent	4.64	Very Great Extent	4.64	Very Great Extent
3	One day before discussing the topic, the teacher assigns students to read in advance - at home or the library.	3.91	Great Extent	3.79	Great Extent	2.45	Low Extent
4	The teacher always encourages students to throw more questions to clarify some unclear points.	4.16	Great Extent	4.14	Great Extent	4.00	Great Extent
5	Sometimes, our teacher employs group dynamics in the class for us to understand better the lessons she delivers.	3.97	Great Extent	4.00	Great Extent	3.73	Great Extent
6	The teacher can manage to provide anecdotes to ease tension and boredom.	4.01	Great Extent	3.64	Great Extent	3.36	Moderate Extent
7	In general, the teacher is very effective in delivering lesson content	4.37	Great Extent	4.07	Great Extent	3.36	Great Extent
8	Even if some of the class projects are done in groups, our teacher manages to make sure that	4.52	Very Great Extent	4.43	Great Extent	3.64	Great Extent

	everyone is participating.						
9	Compliments are always given to those who volunteer to provide good answers during class discussions.	3.96	Great Extent	4.00	Great Extent	3.64	Great Extent
10	Our teacher knows how to empower her students by delegating some tasks to them.	4.19	Great Extent	4.21	Great Extent	3.00	Moderate Extent
	Overall Mean	**4.20**	**Great Extent**	**4.03**	**Great Extent**	**3.51**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 10 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to TVL, Arts & Design, and Sports. Item No. 2 which states. “Teacher always asks students if they have questions before proceeding to the next topic” got the highest mean score of 4.66 for the TVL group and 4.64 for both the Arts & Design and Sports group, all were interpreted as “very great extent”. Meanwhile. Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest 3.91 for the TVL group, interpreted as “great extent” and 2.45 for the Sports group, interpreted as “low extent”, while Item No. 1 which states, “Lesson contents are delivered with corresponding visual aids or video clips” got the lowest mean score of 3.36 for Arts & Design group, interpreted as “moderate extent. The overall mean scores were 4.20 for TVL, 4.03 for Arts and Design, and 3.51 for Sports group, all were interpreted as “great extent”.

Table 11
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to Age

	Items	Younger		Older	
		Mean	Interpretation	Mean	Interpretation
1	The room is very conducive to learning.	4.27	Great Extent	4.24	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.42	Great Extent	4.30	Great Extent
3	The cleanliness of the classroom is properly maintained	4.33	Great Extent	4.39	Great Extent
4	Noisy students are being called out during class	3.59	Great Extent	3.61	Great Extent
5	Blackboards, bulletin boards, and the teachers' tables and chairs are always clean and in place	4.33	Great Extent	4.30	Great Extent
6	We have a clean CR inside the classroom	2.02	Low Extent	2.38	Low Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	1.87	Low Extent	2.08	Low Extent
8	The room is maintained clean every day, floor and walls are dusted.	3.93	Great Extent	4.19	Great Extent
9	We have a storage cabinet for our raincoats, umbrellas, or boots during the rainy season.	1.73	Low Extent	2.19	Low Extent
10	The room has a clean trash bin	3.64	Great Extent	3.68	Great Extent
	Overall Mean	**3.41**	**Moderate Extent**	**3.54**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 11 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to age. Item No. 2 which states, "Our classroom has a homey atmosphere – curtains, tables, etc." got the highest mean score of 4.42 for the younger group, interpreted as "great extent", while Item No. 3 which states, "Cleanliness of the classroom is properly maintained" got the highest mean score of 4.39 for the older group, interpreted as "great extent". Meanwhile,

Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.73 for the younger group, interpreted as “low extent”, while Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 2.08 for the older group, interpreted as “low extent”. The overall mean scores were 3.41 for the younger group, interpreted as “moderate extent” and 3.54 for the older group, interpreted as “great extent”.

Table 12
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to Sex

	Items	Male		Female	
		Mean	Interpretation	Mean	Interpretation
1	The room is very conducive to learning.	4.29	Great Extent	4.23	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.30	Great Extent	4.40	Great Extent
3	The cleanliness of the classroom is properly maintained	4.31	Great Extent	4.40	Great Extent
4	Noisy students are being called out during class	3.77	Great Extent	3.49	Moderate Extent
5	Blackboards, bulletin boards, and the teachers’ tables and chairs are always clean and in place	4.26	Great Extent	4.34	Great Extent
6	We have a clean CR inside the classroom	2.31	Low Extent	2.14	Low Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	2.02	Low Extent	1.95	Low Extent
8	The room is maintained clean every day, floor and walls are dusted.	4.03	Great Extent	4.09	Great Extent
9	We have a storage cabinet for our raincoats, umbrellas, or boots during the rainy season.	2.12	Low Extent	1.87	Low Extent
10	The room has a clean trash bin	3.61	Great Extent	3.69	Great Extent
	Overall Mean	**3.50**	**Great Extent**	**3.46**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent

1.50 - 2.49	Sometimes	Low Extent
1.00 - 1.49	Almost never	Very Low Extent

Table 12 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to sex. Item No. 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.31 for the male group, interpreted as “great extent”, while Items No. 2 and 3 which states, “Our classroom has a homey atmosphere – curtains, tables, etc.” and “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.40 for the female group, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 2.02 for the male group, interpreted as “low extent”, while Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.87 for the female group, interpreted as “low extent”. The overall mean scores were 3.50 for the male group, interpreted as “great extent” and 3.46 for the female group, interpreted as “moderate extent”.

Table 13
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to GAS and HUMSS

	Items	GAS		HUMSS	
		Mean	Interpretation	Mean	Interpretation
1	The room is very conducive to learning.	4.14	Great Extent	4.25	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.18	Great Extent	4.46	Great Extent
3	The cleanliness of the classroom is properly maintained	4.25	Great Extent	4.38	Great Extent
4	Noisy students are being called out during class	4.14	Great Extent	3.56	Great Extent
5	Blackboards, bulletin boards, and the teachers’ tables and chairs are always clean and in place	4.29	Great Extent	4.37	Great Extent
6	We have a clean CR inside the classroom	2.07	Low Extent	2.13	Low Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	1.75	Low Extent	1.87	Low Extent
8	The room is maintained clean every day, floor and walls are dusted.	4.00	Great Extent	4.16	Great Extent

9	We have a storage cabinet for our raincoats, umbrellas, or boots during the rainy season.	1.86	Low Extent	1.53	Low Extent
10	The room has a clean trash bin	3.57	Great Extent	3.49	Moderate Extent
	Overall Mean	**3.43**	**Moderate Extent**	**3.42**	**Moderate Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 13 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to GAS and HUMSS. Item No. 5 which states, “Blackboards, bulletin boards, and the teachers’ table and chair are always clean and in place” got the highest mean score of 4.29 for the GAS group, interpreted as “great extent”, while Item No. 2 which states, “Our classroom has a homey atmosphere – curtains, tables, etc.” got the highest mean score of 4.46 for HUMSS, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 1.75 for the GAS group, interpreted as “low extent”, while Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.53 for HUMSS group, interpreted as “low extent”. The overall mean scores were 3.43 for GAS and 3.42 for the HUMSS group, both were interpreted as “moderate extent”.

Table 14
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to ABM and STEM

	Items	**ABM**		**STEM**	
		Mean	Interpretation	Mean	Interpretation
1	The room is very conducive to learning.	4.03	Great Extent	4.20	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.22	Great Extent	4.60	Very Great Extent
3	The cleanliness of the classroom is properly maintained	4.44	Great Extent	4.05	Great Extent
4	Noisy students are being called out during class	4.03	Great Extent	3.10	Moderate Extent

5	Blackboards, bulletin boards, and the teachers' tables and chairs are always clean and in place	4.08	Great Extent	4.30	Great Extent
6	We have a clean CR inside the classroom	2.25	Low Extent	3.30	Moderate Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	2.00	Low Extent	2.50	Moderate Extent
8	The room is maintained clean every day, floor and walls are dusted.	3.97	Great Extent	4.10	Great Extent
9	We have a storage cabinet for our raincoats, umbrellas, or boots during the rainy season.	2.22	Low Extent	2.85	Moderate Extent
10	The room has a clean trash bin	3.58	Great Extent	3.85	Great Extent
	Overall Mean	**3.48**	**Moderate Extent**	**3.69**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 14 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to ABM and STEM. Item No. 3 which states, "Cleanliness of the classroom is properly maintained" got the highest mean score of 4.44 for the ABM group, interpreted as "great extent", while Item No 2 which states, "Our classroom has a homey atmosphere - curtains, tables, etc." got the highest mean score of 4.60 for STEM, interpreted as "great extent". Meanwhile, Item No. 7 which states, "Soap, tissue papers, and others are available inside our classroom toilet" got the lowest mean score of 2.00 for the ABM group, interpreted as "low extent" and 2.50 for the STEM group, interpreted as "moderate extent". The overall mean scores were 3.48 for ABM, interpreted as "moderate extent" and 3.69 for the STEM group, interpreted as "great extent".

Table 15
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to TVL, Arts & Design, and Sports

	Items	TVL		Arts & Design		Sports	
		Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
1	The room is very conducive to learning.	4.48	Great Extent	4.36	Great Extent	3.91	Great Extent
2	Our classroom has a homey atmosphere – curtains, tables, etc.	4.46	Great Extent	4.57	Very Great Extent	3.27	Moderate Extent
3	The cleanliness of the classroom is properly maintained	4.42	Great Extent	4.64	Very Great Extent	4.18	Great Extent
4	Noisy students are being called out during class	3.51	Great Extent	3.50	Great Extent	2.82	Moderate Extent
5	Blackboards, bulletin boards, and the teachers' tables and chairs are always clean and in place	4.40	Great Extent	4.21	Great Extent	4.27	Great Extent
6	We have a clean CR inside the classroom	2.09	Low Extent	1.93	Low Extent	2.09	Low Extent
7	Soap, tissue paper, and others are available inside our classroom toilet	2.01	Low Extent	1.50	Low Extent	2.73	Moderate Extent
8	The room is maintained clean every day, floor and walls are dusted.	4.09	Great Extent	4.29	Great Extent	3.36	Moderate Extent
9	We have a storage cabinet for our raincoats, umbrellas, or	1.73	Low Extent	2.43	Low Extent	3.82	Great Extent

	boots during the rainy season.						
10	The room has a clean trash bin	4.03	Great Extent	3.43	Moderate Extent	3.09	Moderate Extent
	Overall Mean	**3.52**	**Great Extent**	**3.49**	**Moderate Extent**	**3.35**	**Moderate Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 15 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to TVL, Arts & Design, and Sports. Item No. 1 which states, “The room is very conducive for learning” got the highest mean score of 4.48 for the TVL group, interpreted as “great extent”, while Item No 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.64 for Arts & Design group, interpreted as “very great extent” and Item No. 5 which states, “Blackboards, bulletin boards, and the teachers’ table and chair are always clean and in place” got the highest mean score of 4.27 for Sports group, interpreted as “great extent”. Meanwhile, Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.73 for the TVL group, interpreted as “low extent”; Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 1.50 for Arts & Design group, interpreted as “low extent” and Item No. 6 which states, “We have a clean CR inside the classroom” 2.09 for Sport group, interpreted as “low extent”. The overall mean scores were 3.52 for TVL, interpreted as “great extent”, while 3.49 for the Arts & Design group and 3.35 for the Sports group, both were interpreted as “moderate extent”.

Table 16
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to Age

	Items	**Younger**		**Older**	
		Mean	Interpretation	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	4.03	Great Extent	4.07	Great Extent
2	Pointers are provided before the exams	4.41	Great Extent	4.42	Great Extent
3	The results of our tests are being discussed with us individually	3.61	Great Extent	3.86	Great Extent

4	Exams and long quizzes are being discussed in the class.	4.19	Great Extent	4.30	Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	3.41	Moderate Extent	3.65	Great Extent
6	If students are unable to take a test, makeup tests are given	3.76	Great Extent	4.06	Great Extent
7	The teacher always asks what part of the exam is difficult.	4.25	Great Extent	4.21	Great Extent
8	The teacher maintains total silence during exam days.	4.45	Great Extent	4.58	Very Great Extent
9	The students are given the option to tell the teacher what test type they like.	2.76	Moderate Extent	3.14	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.37	Great Extent	4.35	Great Extent
	Overall Mean	**3.92**	**Great Extent**	**4.06**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 16 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to age. Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.45 for the younger group, interpreted as “great extent” and 4.58 for the older group, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.76 for the younger group and 3.14 for the older group, both were interpreted as “moderate extent”. The overall mean scores were 3.92 for the younger group and 4.06 for the older group, both were interpreted as “great extent”.

Table 17
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to Sex

	Items	**Male**		**Female**	
		Mean	Interpretation	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	3.99	Great Extent	4.09	Great Extent

2	Pointers are provided before the exams	4.49	Great Extent	4.38	Great Extent
3	The results of our tests are being discussed with us individually	3.80	Great Extent	3.69	Great Extent
4	Exams and long quizzes are being discussed in the class.	4.25	Great Extent	4.24	Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	3.68	Great Extent	3.44	Moderate Extent
6	If students are unable to take a test, makeup tests are given	4.01	Great Extent	3.85	Great Extent
7	The teacher always asks what part of the exam is difficult.	4.19	Great Extent	4.26	Great Extent
8	The teacher maintains total silence during exam days.	4.51	Very Great Extent	4.52	Very Great Extent
9	The students are given the option to tell the teacher what test type they like.	3.27	Moderate Extent	2.76	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.40	Great Extent	4.33	Great Extent
	Overall Mean	**4.06**	**Great Extent**	**3.96**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 17 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to sex. Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.51 for the male group and 4.52 for the female group, both were interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 3.27 for the male group and 2.76 for the older group, both were interpreted as “moderate extent”. The overall mean scores were 4.06 for the male group and 3.96 for the female group, both were interpreted as “great extent”.

Table 18
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to GAS and HUMSS

	Items	GAS		HUMSS	
		Mean	Interpretation	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	4.11	Great Extent	4.05	Great Extent
2	Pointers are provided before the exams	4.61	Very Great Extent	4.51	Very Great Extent
3	The results of our tests are being discussed with us individually	4.21	Great Extent	3.63	Great Extent
4	Exams and long quizzes are being discussed in the class.	4.50	Very Great Extent	4.10	Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	4.04	Great Extent	3.57	Great Extent
6	If students are unable to take a test, makeup tests are given	4.21	Great Extent	3.63	Great Extent
7	The teacher always asks what part of the exam is difficult.	4.32	Great Extent	4.23	Great Extent
8	The teacher maintains total silence during exam days.	4.68	Very Great Extent	4.57	Very Great Extent
9	The students are given the option to tell the teacher what test type they like.	3.18	Moderate Extent	2.87	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.43	Great Extent	4.32	Great Extent
	Overall Mean	**4.23**	**Great Extent**	**3.95**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 18 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to GAS and HUMMS. Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.68 for the GAS group and 4.57 for the HUMSS group, both were interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 3.18 for the GAS group and 2.87 for the HUMMS group, both were

interpreted as “moderate extent”. The overall mean scores were 4.23 for the GAS group and 3.95 for the HUMSS group, both were interpreted as “great extent”.

Table 19
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to ABM and STEM

	Items	GAS		HUMSS	
		Mean	Interpretation	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	4.14	Great Extent	3.80	Great Extent
2	Pointers are provided before the exams	4.31	Great Extent	4.35	Great Extent
3	The results of our tests are being discussed with us individually	3.78	Great Extent	3.15	Great Extent
4	Exams and long quizzes are being discussed in the class.	4.28	Great Extent	4.55	Very Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	3.72	Great Extent	3.55	Great Extent
6	If students are unable to take a test, makeup tests are given	3.97	Great Extent	4.50	Very Great Extent
7	The teacher always asks what part of the exam is difficult.	4.31	Great Extent	4.35	Great Extent
8	The teacher maintains total silence during exam days.	4.39	Great Extent	4.45	Great Extent
9	The students are given the option to tell the teacher what test type they like.	3.33	Moderate Extent	2.65	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.33	Great Extent	4.40	Great Extent
	Overall Mean	**4.06**	**Great Extent**	**3.98**	**Great Extent**

Legend	Mean Range	Score Description	Verbal Interpretation
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 19 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to ABM and STEM. Item No. 8 which states, “The teacher maintains total silence during exam days” got the

highest mean score of 4.39 for the ABM group, interpreted as “great extent”, while Item No. 4 which states, “Exams and long quizzes are being discussed in the class” got the highest mean score of 4.55 for STEM group, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 3.33 for the ABM group and 2.65 for the STEM group, both were interpreted as “moderate extent”. The overall mean scores were 4.06 for the ABM group and 3.98 for the STEM group, both were interpreted as “great extent”.

Table 20
Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to TVL, Arts & Design, and Sports

	Items	TVL		Arts & Design		Sports	
		Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
1	Short and long quizzes are consistently given after each lesson	4.13	Great Extent	3.93	Great Extent	3.73	Great Extent
2	Pointers are provided before the exams	4.48	Great Extent	4.29	Great Extent	3.64	Great Extent
3	The results of our tests are being discussed with us individually	3.85	Great Extent	3.93	Great Extent	3.27	Great Extent
4	Exams and long quizzes are being discussed in the class.	4.37	Great Extent	3.79	Great Extent	3.82	Great Extent
5	Students who score low on long quizzes and exams are being called to be given coaching sessions.	3.28	Moderate Extent	3.14	Moderate Extent	3.45	Moderate Extent
6	If students are unable to take a test, makeup tests are given	3.85	Great Extent	3.93	Great Extent	4.00	Great Extent
7	The teacher always asks what	4.22	Great Extent	4.07	Great Extent	3.82	Great Extent

	part of the exam is difficult.						
8	The teacher maintains total silence during exam days.	4.60	Very Great Extent	4.36	Great Extent	4.18	Great Extent
9	The students are given the option to tell the teacher what test type they like.	2.91	Moderate Extent	2.64	Moderate Extent	3.09	Moderate Extent
10	Everything that comes out of the exams is from our daily lessons	4.55	Very Great Extent	4.07	Great Extent	3.64	Great Extent
	Overall Mean	**4.03**	**Great Extent**	**3.81**	**Great Extent**	**3.66**	**Great Extent**

Legend	**Mean Range**	**Score Description**	**Verbal Interpretation**
	4.50 - 5.00	Always	Very Great Extent
	3.50 - 4.49	Oftentimes	Great Extent
	2.50 - 3.49	Frequent	Moderate Extent
	1.50 - 2.49	Sometimes	Low Extent
	1.00 - 1.49	Almost never	Very Low Extent

Table 20 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to TVL, Arts & Design, and Sports. Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.60 for the TVL group, interpreted as “very great extent”; 4.36 for Arts & Design and 4.18 for Sports, both were interpreted as “great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.91 for the TVL group, 2.64 for the Arts & Design group, and 3.09 for the Sports group, all were interpreted as “moderate extent”. The overall mean scores were 4.03 for the TVL group, 3.81 for the Arts & Design group, and 3.66 for the Sports group, all were interpreted as “great extent”.

Table 21
Level of Students’ Academic Performance when They Are Grouped According to Variables

Variable	Category	Mean	Interpretation
Age	Younger	86.28	Very Satisfactory
	Older	86.51	Very Satisfactory
Sex	Male	86.81	Very Satisfactory
	Female	86.13	Very Satisfactory

	GAS	87.14	Very Satisfactory
	HUMSS	87.15	Very Satisfactory
	ABM	86.67	Very Satisfactory
Track	STEM	92.30	Outstanding
	TVL	84.22	Satisfactory
	Arts & Design	84.43	Satisfactory
	Sports	83.27	Satisfactory
Overall Mean		**86.45**	**Very Satisfactory**

Legend	**Mean Score**	**Verbal Interpretation**
	90 - 100%	Outstanding
	85 - 89%	Very Satisfactory
	80 - 84%	Satisfactory
	75 - 79%	Fairly Satisfactory
	74% and below	Did not meet the expectation

Table 21 shows the level of students' performance when grouped according to variables. When grouped according to age, the younger group has a mean score of 86.28 and 86.51 for the older group, both were interpreted as "very satisfactory". When grouped according to sex, the male group has a mean score of 86.81 and 86.13 for the female group, both were interpreted as "very satisfactory". When grouped according to track, the STEM group obtained a mean score of 92.30, interpreted as "outstanding" while the Sports group had a mean score of 83.27, interpreted as "satisfactory".

Table 22
Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery When they are Grouped and Compared According to Age, Sex, and Track

Variable	**Category**	**Mean**	**Mann Whitney U**	**Kruskal Wallis H**	***p*-value**	**Sig level**	**Interpretation**
Age	Younger	115.01	6520.00		0.006		Significant
	Older	140.11					
Sex	Male	120.66	7036.00		0.197		Not Significant
	Female	132.81					
Track	GAS	118.66		16.43	0.012	0.05	Significant
	HUMSS	136.99					
	ABM	133.51					
	STEM	106.40					
	TVL	139.75					
	Arts & Design	113.18					
	Sports	55.77					

Level of significance = 0.05

Table 22 shows the comparative analysis if the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to variables. When grouped according to sex, the male group has a mean score of 120.66 and 132.81 for the female group, the computed U-test was 7036.00 and the p-value was 0.197, which is higher than the significance level of 0.05, interpreted as “not significant”.

Table 23
Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management When they are Grouped and Compared According to Age, Sex, and Track

Variable	Category	Mean	Mann Whitney U	Kruskal Wallis H	*p*-value	Sig level	Interpretation
Age	Younger	118.31	6926.50		0.042		Significant
	Older	137.03					
Sex	Male	132.71	7301.00		0.408		Not Significant
	Female	124.91					
Track	GAS	119.23		6.32	0.388	0.05	Not Significant
	HUMSS	122.97					
	ABM	129.47					
	STEM	160.60					
	TVL	130.20					
	Arts & Design	134.11					
	Sports	101.18					

Level of significance = 0.05

Table 23 shows the comparative analysis if the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to variables. When grouped according to sex, the male group has a mean score of 132.71 and 124.91 for the female group, the computed U-test was 7301.00 and the p-value was 0.408, it is higher than the significance level of 0.05, interpreted as “not significant”. When grouped according to track, the GAS group has a mean score of 119.23; 122.97 for HUMMS; 129.47 for ABM; 160.60 for STEM; 130.20 for TVL; 134.11 for Arts & Design, and 101.18 for SPORTS, the computed H-test was 6.32 and the p-value was 0.388, it is higher than the significance level of 0.05, interpreted as “not significant”.

Table 24
Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery When they are Grouped and Compared According to Age, Sex, and Track

Variable	Category	Mean	Mann Whitney U	Kruskal Wallis H	*p*-value	Sig level	Interpretation
Age	Younger	117.19	6788.50		0.024		Significant
	Older	138.07					
Sex	Male	137.51	6816.00		0.095		Not Significant
	Female	121.76					
Track	GAS	118.66		12.38	0.054	0.05	Not Significant
	HUMSS	136.99					
	ABM	133.51					
	STEM	106.40					
	TVL	139.75					
	Arts & Design	113.18					
	Sports	55.77					

Level of significance = 0.05

Table 24 shows the comparative analysis if the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to variables. When grouped according to sex, the male group has a mean score of 137.51 and 121.76 for the female group, the computed U-test was 6816.00 and the p-value was 0.095, which is higher than the significance level of 0.05, interpreted as “not significant”. When grouped according to track, the GAS group has a mean score of 118.66; 136.99 for HUMMS; 133.51 for ABM; 106.40 for STEM; 139.75 for TVL; 133.18 for Arts & Design, and 55.77 for Sports, the computed H-test was 12.38 and the p-value was 0.054, it is higher than the significance level of 0.05, interpreted as “not significant”.

Table 25
Differences in the Level of Students’ Academic Performance when they are Grouped and Compared According to Age, Sex, and Track

Variable	Category	Mean	Mann Whitney U	Kruskal Wallis H	*p*-value	Sig level	Interpretation
Age	Younger	125.57	7819.50		0.611	0.05	Not Significant
	Older	130.26					
Sex	Male	135.72	6997.00		0.174		Not Significant
	Female	122.94					

Track	GAS	143.30	75.34	0.000	Significant
	HUMSS	141.35			
	ABM	133.69			
	STEM	234.08			
	TVL	87.93			
	Arts & Design	91.43			
	Sports	72.32			

Level of significance = 0.05

Table 25 shows the comparative analysis of the level of academic performance of senior high school teachers as assessed by students when they are grouped and compared according to variables. When grouped according to age, the younger group has a mean score of 125.57 and 130.26 for the older group, the computed U-test was 7819.50 and the p-value was 0.611, which is higher than the significance level of 0.05, interpreted as “not significant”. When grouped according to sex, the male group has a mean score of 13.72 and 122.94 for the female group, the computed U-test was 6997.00 and the p-value was 0.174, it is higher than the significance level of 0.05, interpreted as “not significant”.

Table 26
Relationship Between the Extent of Teaching Competence and the Level of Students’ Academic Performance

Variables	**rho**	***Sig. level***	***p*-value**	**Interpretation**
Extent of Teaching Competence Level of Students’ Academic Performance	0.020	0.05	0.756	Not Significant

Level of significance = 0.05

Table 26 shows the relational analysis between the extent of teaching competence and the level of students’ academic performance. The extent of teaching competence and the level of student’s academic performance has a computed rho-value of 0.020 and a p-value of 0.756, it is higher than the level of significance of 0.05, interpreted as “not significant”.

DISCUSSION

Profile of the Respondents

Table 2 shows the profile of the respondents. In terms of age, 123, or 48.2% were younger (below 18 years old) and 132, or 51.8% were older (18 years and above) respondents. In terms of sex, 101, or 39.6% were male, and 154, or 60.4 were female respondents. In terms of track, 28, or 11.0% belonged to GAS, 79 or 31.0% belonged to HUMSS, 36, or 14.1% belonged to STEM, 67, or 26.3% belonged to TVL, 14, or 5.5% belonged to Arts, and Design, and 11 or 4.3% belonged to Sports.

The findings of the study showed that the majority of the respondents belong to the younger group. A little over half of the total number of respondents were female. The majority of the respondents came from HUMSS Track.

In surveys, demographics like age, education, and income describe the population being studied (De Franzo, 2015). This information is crucial for crafting an effective survey. It guides who gets surveyed (target population) and how the collected data is analyzed. By segmenting responses based on demographics, researchers can uncover variations in how different groups answer the survey questions, leading to a more nuanced understanding of the results.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery

Table 3 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery.

Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.68, interpreted as “very great extent”. Meanwhile, Item No. 3 which states “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75, interpreted as “great extent”. The overall mean score was 4.10, interpreted as a great extent.

The findings showed that in terms of instructional delivery, the strength of the teachers lies in the fact that they are able to ask back the learners if there are things that they don’t understand before proceeding to another topic. On the other hand, the result of the study showed the inability of some teachers to assign advanced reading materials for the next day’s topic.

Sickler (2017) confirmed that students seem to direct the majority of their energy to learning the material after class, which causes an unnecessary cycle of complications. Many fall into the trap of trying to copy down every word during lectures, leading to a frantic struggle to keep up. To break this unproductive cycle, students should prioritize

coming to class prepared. A brief preview of the day's material beforehand can save them hours of ineffective studying later.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management

Table 4 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management.

Item Nos. 2 and 3 which state, “Our classroom has a homey atmosphere – curtains, tables, etc.” and “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.36, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers and others are available inside our classroom toilet” got the lowest mean score of 1.96, interpreted as “low extent”. The overall mean score was 3.48, interpreted as “moderate extent”.

The study identified strengths and weaknesses in classroom cleanliness. Teachers were praised for creating a clean and welcoming atmosphere in the classrooms. However, a recurring issue was the lack of consistent supplies like soap, toilet paper, and other essentials in the restrooms. This inconsistency between the well-maintained classrooms and potentially unmaintained restrooms could negatively impact the overall perception of the school environment.

Research suggests that cleanliness perception goes beyond physical conditions. A study (Liu, 2017) found that people rated public washrooms as cleaner when they knew the recent cleaning time, even if they hadn't witnessed the cleaning itself. This highlights the psychological aspect of cleanliness perception. In a school setting, chronically neglected restrooms could lead students and staff to infer a generally less cared-for environment, potentially affecting their well-being.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery

Table 5 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.52, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.96, interpreted as “moderate extent”. The overall mean score was 4.00, interpreted as “great extent”.

The result of the study implies that maintaining silence during exams is a teacher's strength, however, student involvement in choosing assessments needs improvement. While considering student preferences can be beneficial, limitations beyond teachers'

control, such as standardized testing, may dictate test formats. This reinforces the importance of effective assessment practices, as highlighted in various studies.

Furthermore, research by Xu and Brown (2016) emphasizes the need to move beyond a basic understanding of assessment and integrate it with real-world teaching situations. Their work highlights the importance of considering factors like educational policies and cultural values that can influence assessment practices. This broader perspective on teacher assessment literacy (TALiP) acknowledges the complexities teachers face and aims to equip them with the knowledge and skills to navigate these challenges effectively.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to Age

Table 6 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to age.

Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.67 for younger respondents and 4.69 for older respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.55 for younger respondents interpreted it as “great extent”, while Item No. 6 which states,” the teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.91 for older respondents interpreted as “great extent”. The overall mean scores were 4.03 for younger and 4.17 for older respondents, both were interpreted as “great extent”.

The result of the study showed that the younger respondents were greatly concerned that some teachers were not giving advance reading assignments for the next topic while the older group were concerned with the teachers’ inability to inject anecdotes to break the ice during classes.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to Sex

Table 7 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to sex.

Item No. 2 which states, “Teacher always ask students if they have questions before” got the highest mean score of 4.63 for male respondents and 4.71 for female respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 6 which states, “the teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.71 for male respondents, interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75

for male respondents were both interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest mean score of 3.75 for female respondents interpreted as “great extent”. The overall mean scores were 4.06 for male and 4.13 for female respondents, both were interpreted as “great extent”.

The result of the study showed that some teachers are unable to crack jokes to break the usual boredom in the classroom, according to the male group while the female group was mostly concerned that some teachers are unable to provide advanced reading materials for the next day’s lesson.

When teachers share a laugh or a smile with students, they help students feel more comfortable and open to learning. Using humor brings enthusiasm, positive feelings, and optimism to the classroom (McNeely, 2017).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to GAS and HUMSS

Table 8 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to GAS and HUMSS.

Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.89 for GAS and 4.70 for HUMSS respondents, both were interpreted as “very great extent”. Meanwhile, Item No. 6 which states “The teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.61 for the GAS group, interpreted as “great extent”, while Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest score of 3.85 for HUMSS group, interpreted as “great extent”. The overall mean scores were 4.04 for the GAS group and 4.16 for the HUMSS group, both were interpreted as “great extent”.

The results showed that across all tracks, the respondents were concerned that some of their teachers could not crack a joke to break the monotony of the usual classroom routine. At times, there is a need to inject some humor into the class, no matter how serious the discussion, to allow learners to breathe fresh air. Breaking the usual monotony of class discussion keeps the class more engaged.

According to McNeely (2017), humor can be a valuable tool for teachers to create a more enthusiastic, positive, and optimistic learning environment in the classroom.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to ABM and STEM

Table 9 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to ABM and STEM.

Item No. 2 which states, “Teacher always ask students if they have questions before proceeding to the next topic” got the highest mean score of 4.69 for ABM, interpreted as “great extent” and 4.45 for STEM respondents, interpreted as “great extent”. Meanwhile, Item No. 6 which states “The teacher can manage to provide anecdotes to ease tension and boredom” got the lowest mean score of 3.83 for ABM, interpreted as “great extent”. In contrast, Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest 3.50 for STEM, interpreted as “great extent”. The overall mean scores were 4.14 for the ABM group and 3.98 for the STEM group, both were interpreted as “great extent”.

The results showed that respondents across all tracks expressed a desire for more humor in their teachers' instructional styles. They felt that incorporating humor, even during serious discussions, could provide a welcome break for learners and improve engagement by alleviating the monotony of classroom routines.

Every teacher’s goal is to be effective in the classroom and help students learn. Educators want their students to be eager and engaged. Humor has the power to fuel that engagement (Aranda and Zamora, 2016).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery According to TVL, Arts & Design, and Sports

Table 10 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to TVL, Arts & Design, and Sports.

Item No. 2 which states. “Teacher always asks students if they have questions before proceeding to the next topic” got the highest mean score of 4.66 for the TVL group and 4.64 for both Arts & Design and Sports group, all were interpreted as “very great extent”. Meanwhile. Item No. 3 which states, “One day before discussing the topic, the teacher assigns students to read in advance - at home or the library” got the lowest 3.91 for the TVL group, interpreted as “great extent” and 2.45 for the Sports group, interpreted as “low extent”, while Item No. 1 which states, “Lesson contents are delivered with corresponding visual aids or video clips” got the lowest mean score of 3.36 for Arts & Design group, interpreted as “moderate extent. The overall mean scores were 4.20 for TVL, 4.03 for Arts and Design, and 3.51 for Sports group, all were interpreted as “great extent”.

The findings revealed a common concern among students across all tracks regarding instructional delivery. Many students expressed dissatisfaction with the lack of advanced reading guides or assignments for upcoming topics. This finding suggests that students value knowing what to expect for future lessons, potentially to prepare more effectively. This highlights the importance of effective lesson planning, as emphasized by Naade & Okwelle (2018). Effective lesson plans can include providing students with

advance notice of upcoming topics and learning objectives. A well-prepared teacher can create engaging experiences that promote student understanding. However, developing these lessons requires a significant investment of time and effort. This is particularly true for new teachers who are still honing their pedagogical skills. New teachers should be committed to dedicating the necessary time to crafting effective lesson plans, which will ultimately benefit their students' learning journey.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to Age

Table 11 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to age.

Item No. 2 which states, “Our classroom has a homey atmosphere – curtains, tables, etc.” got the highest mean score of 4.42 for the younger group, interpreted as “great extent”, while Item No. 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.39 for the older group, interpreted as “great extent”. Meanwhile, Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.73 for the younger group, interpreted as “low extent”, while Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 2.08 for the older group, interpreted as “low extent”. The overall mean scores were 3.41 for the younger group, interpreted as “moderate extent” and 3.54 for the older group, interpreted as “great extent”.

In terms of classroom management, the respondents were concerned that tissue papers, soaps, and the like are not available all the time and also the older respondents indicated that there is no available cabinet or rack for their raincoats and umbrellas during the rainy season. These can be easily corrected with proper coordination with the parents.

Teachers often find that building strong relationships with students helps prevent classroom disruptions. The study found that classrooms where teachers focused on building and maintaining good relationships with students had a big improvement. Students were 33% more engaged in lessons, and there were 75% fewer disruptions. (Terada, 2019).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to Sex

Table 12 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to sex.

Item No. 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.31 for the male group, interpreted as “great extent”, while Items No. 2 and 3 which states, “Our classroom has a homey atmosphere – curtains, tables, etc.” and “Cleanliness of the classroom is properly maintained” got the highest

mean score of 4.40 for the female group, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 2.02 for the male group, interpreted as “low extent”, while Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.87 for the female group, interpreted as “low extent”. The overall mean scores were 3.50 for the male group, interpreted as “great extent” and 3.46 for the female group, interpreted as “moderate extent”.

This implies that regardless of their gender, the respondents indicated concern for the lack of the necessary toiletries in their toilets and the lack of storage cabinets for raincoats, umbrellas, or boots during the rainy season. Supply must have been affected by the availability of funds, in this part, PTA support may be needed.

Effective teaching and learning process is directly or indirectly influenced by organized classroom management. By establishing clear routines and minimizing disruptions, teachers can create a more structured learning environment, which paves the way for deeper student engagement (Mastul and Hajilan, 2017).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to GAS and HUMSS

Table 13 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to GAS and HUMSS.

Item No. 5 which states, “Blackboards, bulletin boards, and the teachers’ table and chair are always clean and in place” got the highest mean score of 4.29 for the GAS group, interpreted as “great extent”, while Item No. 2 which states, “Our classroom has a homey atmosphere – curtains, tables, etc.” got the highest mean score of 4.46 for HUMSS, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 1.75 for the GAS group, interpreted as “low extent”, while Item No. 9 which states, “We have a storage cabinet for our raincoats, umbrellas or boots during the rainy season” got the lowest mean score of 1.53 for HUMSS group, interpreted as “low extent”. The overall mean scores were 3.43 for GAS and 3.42 for the HUMSS group, both were interpreted as “moderate extent”.

This implies that regardless of their tracks, the respondents have the same concern over the lack of toiletries in their toilets. These needs could critically affect hygiene and sanitation and they must be addressed on time.

The complexities of classroom management demand awareness, patience, good timing, the ability to set clear boundaries, and a touch of intuition. Guiding a diverse group of students with varying interests and attention spans on a path to meaningful learning is a challenging, yet rewarding endeavor. (Rabadi and Ray, 2017).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to ABM and STEM

Table 14 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to ABM and STEM.

Item No. 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.44 for the ABM group, interpreted as “great extent”, while Item No 2 which states, “Our classroom has a homey atmosphere - curtains, tables, etc.” got the highest mean score of 4.60 for STEM, interpreted as “great extent”. Meanwhile, Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 2.00 for the ABM group, interpreted as “low extent” and 2.50 for the STEM group, interpreted as “moderate extent”. The overall mean scores were 3.48 for ABM, interpreted as “moderate extent” and 3.69 for the STEM group, interpreted as “great extent”.

This implies that regardless of their tracks, the respondents have the same concern over the lack of toiletries in their toilets. These needs could critically affect hygiene and sanitation and they must be addressed on time.

Schools hold a central role in a child's life, shaping their intellectual development and social skills. Beyond academics, student health and safety remain paramount concerns for both parents and school administrators. Germs and bacteria can readily spread in classrooms, cafeterias, restrooms, libraries, playgrounds, and other school spaces, highlighting the importance of consistent cleaning and sanitation practices. A growing body of research underscores the significant influence of the school environment on student outcomes. Studies suggest that factors like cleanliness, safety, and overall atmosphere can positively or negatively impact both academic performance and student well-being (Lawson et al., 2017).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management According to TVL, Arts & Design, and Sports

Table 15 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to TVL, Arts & Design, and Sports.

Item No. 1 which states, “The room is very conducive for learning” got the highest mean score of 4.48 for the TVL group, interpreted as “great extent”, while Item No 3 which states, “Cleanliness of the classroom is properly maintained” got the highest mean score of 4.64 for Arts & Design group, interpreted as “very great extent” and Item No. 5 which states, “Blackboards, bulletin boards, and the teacher’s table and chair are always clean and in place” got the highest mean score of 4.27 for Sports group, interpreted as “great extent”. Meanwhile, Item No. 9 which states, “We have a storage cabinet for our raincoats,

umbrellas or boots during the rainy season” got the lowest mean score of 1.73 for the TVL group, interpreted as “low extent”; Item No. 7 which states, “Soap, tissue papers, and others are available inside our classroom toilet” got the lowest mean score of 1.50 for Arts & Design group, interpreted as “low extent” and Item No. 6 which states, “We have a clean CR inside the classroom” 2.09 for Sport group, interpreted as “low extent”. The overall mean scores were 3.52 for TVL, interpreted as “great extent”, while 3.49 for the Arts & Design group and 3.35 for the Sports group, both were interpreted as “moderate extent”.

This implies that a core concern for the respondents is ensuring proper health and sanitation within classrooms. Equipping students with the necessary toiletries, like soap, toilet paper, and others, is fundamental. Without these supplies, it's akin to lacking a clear sanitation plan for the students. They wouldn't have the means to maintain good hygiene throughout the day, potentially compromising their health and the overall classroom environment.

In a study conducted in Botswana's Ngamiland district, researchers supported this notion (Thakadu et al., 2018). Their findings highlighted the importance of hygiene education in primary schools for preventing the spread of diseases. However, the study also revealed that a lack of proper sanitation facilities and supplies can hinder hygiene practices. This reinforces the importance of providing essential toiletries in classrooms.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to Age

Table 16 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to age.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.45 for the younger group, interpreted as “great extent” and 4.58 for the older group, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.76 for the younger group and 3.14 for the older group, both were interpreted as “moderate extent”. The overall mean scores were 3.92 for the younger group and 4.06 for the older group, both were interpreted as “great extent”.

With regards to assessment delivery, the main concern of the respondents across age groups is that they are not truly given the option to suggest what type of exam is best for them. For short quizzes and daily tasks, this concern may be valid. However, for long tests and other exams, teachers may not have the option to accommodate learners' requests regarding assessment types. Regardless of the assessment format, providing students with effective feedback is crucial for their learning.

Students become actively involved in evaluating their learning when they receive descriptive feedback throughout the learning process. A study by Garrison and Ehringhaus (2019) highlights this type of feedback as one of the most effective tools for

advancing student progress. Effective descriptive feedback goes beyond just grades, stickers, or generic praise like "good job!" Instead, it offers specific details about what students are doing well in relation to the learning objectives. This feedback also provides clear guidance for improvement, outlining the next steps students can take to move forward. By receiving such focused and actionable feedback, students gain valuable insights into their learning journey, allowing them to understand their current level and propelling them toward future growth.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to Sex

Table 17 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to sex.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.51 for the male group and 4.52 for the female group, both were interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 3.27 for the male group and 2.76 for the older group, both were interpreted as “moderate extent”. The overall mean scores were 4.06 for the male group and 3.96 for the female group, both were interpreted as “great extent”.

The study revealed that learners are still looking at the possibility that they will be given the chance to suggest or pick their exam types but unfortunately, teachers have limited options as to the kind of assessment to be administered.

Formative assessment isn't something teachers tack onto instruction; it's the very foundation of effective teaching. It's about continuously gathering information on student learning, but more importantly, what teachers do with that information. The key lies in how they use this valuable insight to improve their teaching and actively engage students in their learning journey. This might involve adapting teaching methods based on student needs or sharing feedback in a way that empowers students to take ownership of their progress (Garrison and Ehringhaus, 2019).

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to GAS and HUMSS

Table 18 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to GAS and HUMMS.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.68 for the GAS group and 4.57 for the HUMSS group, both were interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest

mean score of 3.18 for the GAS group and 2.87 for the HUMMS group, both were interpreted as “moderate extent”. The overall mean scores were 4.23 for the GAS group and 3.95 for the HUMSS group, both were interpreted as “great extent”.

This indicates that learners are not given a free hand to pick what options they prefer with the assessments. The option for students to pick their assessment type is not a traditional practice, but in some private universities, it is an open practice. With public schools in the Philippines, particularly with long tests, it is the SDO that decides on the kind of assessments that must be administered.

However, the world of education is filled with various types of assessment, from standardized state tests to classroom quizzes. While concerns exist about potential testing overuse, a crucial shift in perspective is needed (Garrison and Ehringhaus, 2019). Effective assessment goes beyond simply measuring achievement; it's about gathering valuable information on student learning. The more comprehensive this data is, the clearer picture educators gain of student strengths, weaknesses, and areas needing further support. This allows educators to tailor instruction and interventions to meet individual student needs, ultimately promoting deeper learning.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to ABM and STEM

Table 19 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to ABM and STEM.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.39 for the ABM group, interpreted as “great extent”, while Item No. 4 which states, “Exams and long quizzes are being discussed in the class” got the highest mean score of 4.55 for STEM group, interpreted as “very great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 3.33 for the ABM group and 2.65 for the STEM group, both were interpreted as “moderate extent”. The overall mean scores were 4.06 for the ABM group and 3.98 for the STEM group, both were interpreted as “great extent”.

Across all tracks, the learners indicated that they are having some issues with their inability to choose or suggest what exam types they prefer. On one hand, it has not been established that learners' preferred type can guarantee higher exam results.

Garrison and Ehringhaus (2019) believe that most successful middle schools engage students in all aspects of their learning. There are many strategies for accomplishing this. One such strategy is student-led conferences. To ensure student-led conferences present a balanced view of strengths and weaknesses, educators can leverage a combination of summative and formative assessment data alongside student self-reflection.

Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery According to TVL, Arts & Design, and Sports

Table 20 shows the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to TVL, Arts & Design, and Sports.

Item No. 8 which states, “The teacher maintains total silence during exam days” got the highest mean score of 4.60 for the TVL group, interpreted as “very great extent”; 4.36 for Arts & Design and 4.18 for Sports, both were interpreted as “great extent”. Meanwhile, Item No. 9 which states, “The students are given the option to tell the teacher what test type they like” got the lowest mean score of 2.91 for the TVL group, 2.64 for the Arts & Design group, and 3.09 for Sports group, all were interpreted as “moderate extent”. The overall mean scores were 4.03 for the TVL group, 3.81 for the Arts & Design group, and 3.66 for the Sports group, all were interpreted as “great extent”.

The results showed that across all tracks students are aiming to have their exam type considered but it appeared that none of their options could be followed.

According to Anderson (2017), a study investigated the impact of formative assessment training on student achievement. The study involved 22 Year 4 mathematics teachers from a Swedish municipality who participated in a professional development program focused on formative assessment. This program emphasized a unified approach incorporating various strategies. The research examined how changes in teachers' classroom practices following the program affected student achievement. Results showed that, after controlling for pretest scores, classes in the intervention group significantly outperformed the control group in a post-test administered one school year later. This study contributes to our understanding of the under-studied areas of professional development in formative assessment and the impact of teacher practice based on a unified approach to formative assessment strategies.

Level of Students’ Academic Performance when They Are Grouped According to Variables

Table 21 shows the level of students’ performance when grouped according to variables.

When grouped according to age, the younger group has a mean score of 86.28 and 86.51 for the older group, both were interpreted as “very satisfactory”. When grouped according to sex, the male group has a mean score of 86.81 and 86.13 for the female group, both were interpreted as “very satisfactory”. When grouped according to track, the STEM group obtained a mean score of 92.30, interpreted as “outstanding” while the Sports group had a mean score of 83.27, interpreted as “satisfactory”.

STEM appeared to have garnered the best academic performance from amongst, as they reached the “outstanding” level. When grouped according to aforementioned variables, the results of the study showed that each track fairly had the same effort as they all showed a “very satisfactory” level.

Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Instructional Delivery When they are Grouped and Compared According to Age, Sex, and Track

Table 22 shows the comparative analysis in the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to variables.

When grouped according to sex, the male group has a mean score of 120.66 and 132.81 for the female group, the computed U-test was 7036.00 and the p-value was 0.197, which is higher than the significance level of 0.05, interpreted as “not significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by students’ in the area of instructional delivery according to sex” was therefore “accepted”.

This implies that sex does not significantly affect the opinion of the respondents in assessing the teaching competence of senior high school teachers as assessed by students in the area of instructional delivery.

When grouped according to age, the younger group has a mean score of 114.01 and 140.11 for the older group, the computed U-test was 6250.00 and the p-value was 0.006, which is lower than the significance level of 0.05, interpreted as “significant”. When grouped according to track, the GAS group has a mean score of 118.66; 136.99 for HUMSS; 133.51 for ABM; 106.40 for STEM; 139.75 for TVL; 113.18 for Arts & Design, and 55.77 for Sports, the computed H-test was 16.43 and the p-value was 0.012, it is lower than the significance level of 0.05, interpreted as “significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by students in the area of instructional delivery according to age and track” was therefore “rejected”.

This implies that age and track significantly affect the opinion of the respondents in assessing the teaching competence of senior high school teachers as assessed by students in the area of instructional delivery. As the results revealed, the older respondents appeared to have a higher expectation of their teacher for them to consider the latter as truly competent. On the other hand, the respondents belonging to TVL were highly expectant of their teacher's specialized skills.

According to Aranda and Zamora (2016), a study explored the use of differentiated instruction to improve student academic performance in a Filipino language class at the

National University. The researchers highlighted the challenge educators face in creating environments that cater to diverse learning styles within a classroom. They proposed that differentiated instruction, tailored to individual student needs, could address this challenge. The study's purpose was to investigate the effectiveness of differentiated instruction on the academic performance of grade ten students.

Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Classroom Management When they are Grouped and Compared According to Age, Sex, and Track

Table 23 shows the comparative analysis in the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to variables.

When grouped according to sex, the male group has a mean score of 132.71 and 124.91 for the female group, the computed U-test was 7301.00 and the p-value was 0.408, it is higher than the significance level of 0.05, interpreted as “not significant”. When grouped according to track, the GAS group has a mean score of 119.23; 122.97 for HUMMS; 129.47 for ABM; 160.60 for STEM; 130.20 for TVL; 134.11 for Arts & Design, and 101.18 for SPORTS, the computed H-test was 6.32 and the p-value was 0.388, it is higher than the significance level of 0.05, interpreted as “not significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by students in the area of classroom management according to sex and track” was therefore “accepted”.

This implies that sex and track do not significantly affect the opinion of the respondents in assessing the teaching competence of senior high school teachers as assessed by students in the area of classroom management.

When grouped according to age, the younger group has a mean score of 118.31 and 137.03 for the older group, the computed U-test was 6926.50 and the p-value was 0.042, which is lower than the significance level of 0.05, interpreted as “significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by the student in the area of classroom management according to age and track” was therefore “rejected”.

This implies that age significantly affects how respondents assess their senior high school teachers' classroom management skills. As learners get older, they become more sensitive to the classroom environment. What might be acceptable to younger students might not be for older ones.

This heightened sensitivity aligns with research on healthy classroom systems. Studies like the one by Barrett et al. (2017) emphasize the importance of factors like indoor air quality, lighting, and acoustics. This research delves deeper by investigating

how design principles can influence these aspects of the classroom environment. Their findings suggest that optimizing design features like lighting, temperature, and air quality can significantly contribute to a healthy learning environment, ultimately impacting learning outcomes.

Difference in the Extent of Teaching Competence of Senior High School Teachers as Assessed by Students in the Area of Assessment Delivery When they are Grouped and Compared According to Age, Sex, and Track

Table 24 shows the comparative analysis in the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to variables.

When grouped according to sex, the male group has a mean score of 137.51 and 121.76 for the female group, the computed U-test was 6816.00 and the p-value was 0.095, which is higher than the significance level of 0.05, interpreted as “not significant”. When grouped according to track, the GAS group has a mean score of 118.66; 136.99 for HUMMS; 133.51 for ABM; 106.40 for STEM; 139.75 for TVL; 133.18 for Arts & Design, and 55.77 for Sports, the computed H-test was 12.38 and the p-value was 0.054, it is higher than the significance level of 0.05, interpreted as “not significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to sex and track” was therefore “accepted”.

This implies that sex and track do not significantly affect the opinion of the respondents in assessing the teaching competence of senior high school teachers as assessed by students in the area of assessment delivery.

When grouped according to age, the younger group has a mean score of 117.19 and 138.07 for the older group, the computed U-test was 6788.50 and the p-value was 0.024, which is lower than the significance level of 0.05, interpreted as “significant”.

Thus, the hypothesis that states, “there is no significant difference in the extent of teaching competence of senior high school teachers as assessed by students in the area of assessment delivery according to age and track” was therefore “rejected”.

This implies that age significantly affects the opinion of the respondents in assessing the teaching competence of senior high school teachers as assessed by students in the area of assessment delivery.

The term "assessment" encompasses a wide range of practices, from large-scale standardized tests to informal classroom checks. This broad use can lead to concerns about over-testing. To address this, educators can shift their perspective by viewing all testing as a form of assessment, and ultimately, as a way to gather information. The

more comprehensive this information is, the clearer picture we gain of student achievement and areas needing improvement (Garrison & Ehringhaus, 2019).

Difference on the Level of Students' Academic Performance when they are Grouped and Compared According to Age, Sex, and Track

Table 25 shows the comparative analysis in the level of academic performance of senior high school teachers as assessed by students when they are grouped and compared according to variables.

When grouped according to age, the younger group has a mean score of 125.57 and 130.26 for the older group, the computed U-test was 7819.50 and the p-value was 0.611, which is higher than the significance level of 0.05, interpreted as "not significant". When grouped according to sex, the male group has a mean score of 13.72 and 122.94 for the female group, the computed U-test was 6997.00 and the p-value was 0.174, it is higher than the significance level of 0.05, interpreted as "not significant".

Thus, the hypothesis that states, "there is no significant difference in the level of academic performance of senior high school teachers as assessed by students when they are grouped and compared according to sex and age" was therefore "accepted".

This implies that age and sex do not significantly affect the level of academic performance of senior high school students.

When grouped according to track, the GAS group has a mean score of 143.30; 141.35 for HUMSS; 133.69 for ABM; 234.68 for STEM; 87.93 for TVL; 91.43 for Arts & Design, and 72.32 for Sports, the computed H-test was 75.34 and the p-value was 0.000, it is lower than the significance level of 0.05, interpreted as "significant".

Thus, the hypothesis that states, "there is no significant difference in the level of academic performance of senior high school teachers as assessed by students when they are grouped and compared according to track" was therefore "rejected".

This implies that track significantly affects the level of academic performance of senior high school students.

According to Gbollie and Keamu (2017), students' motivation, learning strategies, and academic performance are interconnected. Their study found that students placed the most value on motivational beliefs associated with extrinsic goals, meaning they were most motivated by external rewards. Interestingly, students also reported the lowest levels of test anxiety. When it came to learning strategies, rehearsal techniques, like memorization, were the most commonly used. In contrast, seeking help from teachers or peers was the least frequently employed strategy. The research also revealed significant correlations between motivation and learning strategies. Furthermore, the study identified factors that hinder learning and concluded with recommendations for improving student performance.

Relationship Between the Extent of Teaching Competence and the Level of Students' Academic Performance

Table 26 shows the relational analysis between the extent of teaching competence and the level of students' academic performance.

The extent of teaching competence and the level of student's academic performance has a computed rho-value of 0.020 and a p-value of 0.756, it is higher than the level of significance of 0.05, interpreted as "not significant".

Hence, the hypothesis that states, "there is no significant relationship between the extent of teaching competence of senior high school teachers and students' academic performance" was therefore "accepted".

This implies that the extent of teaching competence does not significantly affect the student's academic performance. This could be due to the fact that today's learners are mostly digitally inclined and even with their sedentary lifestyle, their access to the internet and some advanced gadgets allows them to do self-studying. This means that learners' dependence on teachers to facilitate learning may have been reduced.

Naz (2016), conducted a study to see the "Effects of Teachers Professional Competence on Students Academic Achievements at Secondary School level in Muzzafarabad District" in the light of National Professional Standards for Teachers. It was found that male and female teachers were competent. There was a significant difference between male teachers' professional competence scores and female teachers' professional competence scores. It was found that there was a difference between male students' achievement scores and female students' achievement scores. It was recommended that teachers might be trained according to professional standards. IT facilities, libraries, books, helping material, etc. might be provided to teachers.

Conclusions

The extent of teaching competence of senior high school teachers when grouped and compared according to the aforementioned variables showed that (a) Some teachers are not giving advance reading guides or materials for the next day's topic. It can be concluded that some teachers are not readily prepared to provide pre-discussion reading assignments to learners. (b) Soaps and toiletries are not available in the classroom's toilet. It can be drawn out of this result that funds for the supply of the said toiletries is an issue.

To establish the extent of teaching competence of senior high school teachers as assessed by the students when grouped according to the aforementioned variables showed the same set of concerns as follows: (a) Teachers are not giving advance reading materials or clues for the next days' lessons. It can be concluded that the learners are

mostly preparing for the next day's lessons and their anticipatory moves may not have been sensed by their teachers. (b) Toiletries are not available in the classroom's toilet. It can be concluded that there is no consistent source of funding for these toiletries to be supplied as needed.

The results of the learner's performance are indicative of their academic capabilities but based on the results, it can be drawn that tracks like TVL, Sports, and Arts need more study time to keep up and get through a satisfactory level.

There was a significant difference in the extent of teacher's competence of senior high school teachers when grouped according to age. This means that the opinion of the younger respondents differs largely from the opinion of older respondents. The older respondents take into account the competence of their teachers in almost all teaching aspects and they believe in their competence while the younger respondents take things lightly. As such, competence among their teachers is like any other ordinary thing teachers do.

There was a significant relationship between the extent of teaching competence and the level of student academic performance. This means that the more competent the teachers, the academic performance of learners is expected to be higher as well.

Recommendations

The findings of the study indicated that some teachers are not providing advanced reading materials/assignments to learners for them to study for the next day's discussion. It is recommended that teachers provide an advanced course guide at the onset of the class each year to provide students with a heads-up on what to prepare or read.

The finding also showed that soap and tissue paper are not regularly available inside the toilet. It is recommended that teachers and the classroom PTA officers collaborate to discuss funding sources. The PTA may decide to provide the funds for toiletries to the homeroom teacher or supply directly the said needs. There is also an option for the teachers or parents to tap additional donors who can help provide the toiletries.

The results also showed that the performance of TVL, Sports, and Arts tracks were all at the bottom with satisfactory levels. It is recommended that teachers' competence in handling these specialized subjects be measured through a calibration test. A course-specific training may then be provided for teachers handling these subjects.

There was a significant difference extent of teaching competence when respondents were grouped according to age across all areas. It can be recommended that yearly in-service training focusing on teaching styles and instructional delivery be given to teachers.

There was a significant relationship between the extent of teachers' competence and the level of learners' academic performance. This means there is a need to ensure that teaching skills and instructional competence are at their highest level because learners' performance could be greatly affected. There is a need for teachers to be regularly trained and there is also a need to make sure that teachers can pursue their postgraduate studies to remain on top of the game.

Compliance with Ethical Standards

The researcher prioritized ethical considerations throughout the study. As human respondents were involved, the research ensured the confidentiality of their information and respected their dignity. Additionally, the study minimized any potential risks to the respondents.

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TECHNOSTRESS INHIBITORS AND WORK-LIFE BALANCE: INFLUENCE ON LIBRARY STAFF'S WELL-BEING IN THE DIGITAL AGE

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ABSTRACT

In an era of increasing reliance on technology, understanding the influence of technostress and the importance of work-life balance on staff well-being is crucial for creating a supportive work environment. This study aimed to investigate the relationship among technostress inhibitors, work-life balance, and the well-being of library staff. Work-life balance plays a vital role in determining the overall well-being of employees. There were 97 library staff who participated in the study. Total enumeration was employed as sampling method. A survey questionnaire was utilized to collect the data. Data were analyzed using descriptive and inferential statistics. The findings revealed that the library staff assessment of the technostress inhibitors in terms of literacy facilitation, technical support provision, and involvement facilitation was high; the library staff's work-life balance was high; and the level of the library staff's well-being in terms of job satisfaction, living satisfaction, and psychological well-being is generally high. Moreover, the library staff's assessment of technostress inhibitors in terms of literacy facilitation, technical support provision, and involvement facilitation and their work-life balance significantly influence their well-being. These findings confirm the conceptual model of Ragu-Nathan et al. (2019). Drawing the inference, effective technostress management practices and supportive work-life balance initiatives contribute to higher job satisfaction, living satisfaction, psychological well-being and the overall well-being among library staff. It is recommended that the librarians may take advantage of the available training and support resources to become proficient in the latest technologies used in the library.

Keywords: *Work-Life Balance, Technostress Inhibitors, Psychological Well-Being, Library Staff*

INTRODUCTION

As a result, people are experiencing information overload due to the overwhelming amount of data that is readily available to them, a consequence of the rapid proliferation of digital information. Because of their line of work, library employees are among the people who are constantly inundated with information. They have the difficult responsibility of sorting through enormous volumes of digital content while making sure that it is accurate and relevant for their customers. Library employees may experience cognitive overload, lower productivity, and higher stress levels as a result of this ongoing exposure to information overload (Abowha, 2022).

The usage of electronic resources and novel search tactics has made it necessary for library employees to continuously learn and adapt in order to keep up with the most recent tools and approaches. This ongoing desire to learn and up skilling can cause worry and anxiety, particularly for employees who might feel unprepared or unable to handle e demands of new technological improvement.

Technostress has resulted from the library's digital transition, information expansion, changing resources, and new search techniques, which may have an impact on worker welfare. On the other hand, personnel may have less harmful consequences from technostress if they take inhibitors of technostress. Technostress inhibitors are methods, approaches, or resources that people can use to lessen and manage the consequences of technological strain. Brennan, M. (2020) described that technostress, a prevalent issue in the digital age, can negatively impact employees' mental and physical well-being. To mitigate this, implementing technostress inhibitors like setting boundaries, practicing digital detoxes, and seeking social support is imperative.

Considering the aforementioned viewpoint, preserving a healthy balance between Personal and professional lives can enhance wellbeing. The failure to keep oneself in a healthy. A person may experience low psychological well-being as a result of work-life balance. Not succeeding failing to achieve the required balance has a detrimental effect on mental health, which can cause family strife, despair, and burnout (Yang, 2018). Prasad and According to Saraswati, K. and Lie, D. (2020), psychological wellness is impacted by work-life balance.

This study assumes that technostress inhibitors and work-life balance influence individual well-being. This assumption draws upon the theoretical framework established. Technostress Creators and Inhibitors, which lays the foundation for understanding how work-life balance and technostress inhibitors can both improve well-being in a technologically advanced society. According to Tarafdar et al. (2019), technostress is the stress that people experience as a result of using information and communication technology and systems. Technostress producing variables include things like job uncertainty and overload related to information and communications technology, and other ICT complexities associated to ICT usage. Technostress inhibitors are the mechanisms that might reduce overall technostress (Rangu-Nathan, 2019). This study focused on the conceptual model of Technostress Inhibitors. In effect, the conceptual model of technostress creators and inhibitors may provide a valuable framework in

understanding the influence of technology on work-life balance and well-being. By examining both the positive influences surrounding technology use, in a world where technology is pervasive, this approach can direct actions to support healthier and more balanced lives. Furthermore, resources that can lower employee ICT usage and results connected to job stress are referred to as technostress inhibitors. In the same way, organizational procedures and mechanisms that assist in reducing the adverse impacts of ICT use are known as inhibitors.

Theoretical/Conceptual Framework

This study makes the assumption that work-life balance and technological stress reducers have an impact on people's wellbeing. This presumption is based on the theoretical framework developed by Ragu-Nathan et al.'s (2008) model, Technostress Creators and Inhibitors, which establishes the knowledge of how work-life balance enhances well-being in a technologically advanced world and how technostress inhibitors can reduce technostress.

According to Tarafdar et al. (2019), technostress is the stress that people experience as a result of using information and communication technologies and systems. Technostress creators include things like job insecurity related to technology, overload related to technology, and other technical difficulties arising from the use of technology. The mechanisms that could lessen overall technostress are known as technostress inhibitors (Tarafdar, Tu, & Ragu-Nathan, 2011) The Technostress Inhibitors conceptual model was the main focus of this investigation. Essentially, the theoretical construct of technostress generators and deterrents could offer a useful structure for comprehending how technology impacts well-being and work-life equilibrium. Through an analysis of the advantages and disadvantages of technology use, this model can direct efforts to support more balanced and healthy lifestyles in a world where technology permeates every aspect of daily life. Furthermore, resources that can lower employee ICT usage and outcomes related to job stress are referred to as technostress inhibitors.

In the same way, organizational procedures and mechanisms that assist in reducing the adverse effects of ICT use are known as inhibitors. These mechanisms include end-user training, technical assistance, and user involvement in the development and deployment of new ICT solutions. Organizational mechanisms that lower technostress foster communication, fortify a culture of support, and increase innovation, claim Tarafdar et al. (2019). Richardson (2017). Conceptualized technostress inhibitors as consisting of three main categories or components: literacy facilitation, technical support and involvement facilitation. Each of these three mechanisms has the potential to reduce the effect of technostress creators on strain-related ICT outcomes for employees.

The first inhibitor of stress is ***Literacy facilitation***. This inhibitor refers to mechanisms that increase employee levels of ICT literacy (e.g., establishment of a close relationship with the IS department and encouragement of ICT knowledge sharing among co-workers). According to Aktan & Toraman (2022), literacy facilitation describes mechanisms that encourage and foster the sharing of ICTs related knowledge between individuals, where it enables them to cope with the demand of learning new ICTs programs. Literacy facilitation reduces technostress because it helps users to understand

the ICTs programs. Literacy facilitation involves improving individuals' knowledge and understanding of technology. By enhancing their digital literacy skills, they can feel more confident and competent when using technology, thereby, reducing the stress and anxiety associated with technological challenge through training programs, workshops, or online resources that provide guidance on using technology effectively (Tarafdar et al., 2019).

One way to implement literacy involvement in the library setting is to offer staff workshops and training sessions to help them improve their literacy skills. This could involve workshops on writing, research, and other literacy-related subjects in addition to instruction on new software or tools. Another would be to provide a range of reading materials, such as books, magazines, and newspapers, and create an atmosphere that highlights the value of literacy. They can also design areas like writing centers and quiet study spaces that are good for reading and writing. This could give the employees greater self-assurance and technological competence.

This is an additional technostress inhibitor. This inhibitor alludes to assistance mechanisms in the sense of formalized assistance. Initiatives for end-user assistance and technical support are offered to users to address their ICT problems and mitigate the effects of technostress. According to Stana, R., & Nicolajsen, H. W. (2021). IT workers should encourage users to experiment with new ICTs and offer helpdesk and technical support to address end-user issues. Having dependable technical support at hand can make it easier for people to diagnose and fix technical problems, which will lessen their stress and frustration. Tarafdar et al. (2019) state that by offering an easily accessible help desk manned by IT professionals, such support can reduce techno-uncertainty and techno-complexity. Organizations can provide help desks, IT support teams, or online for a where people can seek assistance with technology-related problems.

In a library setting, this could include providing access to a wide range of digital resources, such as e-books, audiobooks, and online databases, to support literacy development. . These resources can be accessed through library websites, mobile apps, and other digital platforms, making it easier for patrons to access and engage with reading materials. In order to support their patrons' literacy development, libraries can also provide online tutorials, webinars, and interactive exercises. These resources are available via the library's website or via collaborations with organizations and educational institutions. All of these could lessen the stress brought on by technical difficulties and problems, allowing library employees to feel supported and less overburdened by the demands of technology.

Moreover, the third inhibitor of technostress is ***Involvement facilitation*** referring to mechanisms that strengthen employee ‘s engagement in new technology (e.g., incentive systems connected to usage and participation in process changes). Roskova and Cova (2022) opined that involvement facilitation helps alleviate technostress by keeping users informed about the rationale for introducing new ICTs and by letting them know about the effects of such introduction, and by encouraging them to use and experiment with new ICTs. Organizations can empower people to feel more in control of how they use technology by involving them in decision-making processes, offering

opportunities for feedback and input, and fostering an inclusive and supportive technological environment. Encouraging people to actively participate in technology-related activities can help lower technostress and improve people's general well-being (Walton, 2019). This is also consistent with research conducted by Lorrain (2020) and Singh et al. (2022) showing the relationship and impact of technostress inhibitors on employees' personal and professional well-being.

Including library employees in the development, selection, and application of new technologies increases their sense of empowerment and engagement. Employees can participate in focus groups, feedback sessions, or project teams to offer their opinions and suggestions on the new technologies. Moreover, fostering a collaborative and knowledge-sharing atmosphere within the workplace can aid in the decrease of technostress. Staff members will feel more supported and less overwhelmed by the demands of new technologies if regular team meetings, knowledge-sharing sessions, and collaborative projects are implemented.

Through the implementation of literacy facilitation, technical support, and involvement facilitation, people can effectively handle and overcome the stressors that are linked to technology use. These stress-reduction technologies seek to enhance people's understanding, offer the assistance they require, and cultivate a feeling of empowerment and engagement, ultimately lowering technological stress and enhancing wellbeing. These inhibitors of technological stress can help lower technological stress and improve participants' general well-being (Walton, 2019).

By leveraging technology through literacy facilitation, technical support, and involvement facilitation, individuals can better manage and cope with the stressors associated with the use of technology. These technostress inhibitors aim to improve individuals' knowledge, provide necessary support, and foster a sense of control and involvement, ultimately reducing technostress and promoting well-being. These technostress inhibitors can help reduce technostress and enhance overall well-being of the participants (Walton, 2019). This study adopted two meanings of The first is the definition given by Adisa, T.A., Gbadamosi, and Mordi, C.(2019) which refer to WLB as encompassing several initiatives design to help employees to balance the competing demands of paid work and private lives. The second meaning is the one developed by Lewis and Beauregard (2018) relating WLB to the complex and dynamic interaction between paid employment and non- work life domains. This study focuses on the work-life balance (WLB) of library staff, highlighting the importance of maintaining balance between professional activities and personal life to ensure a balanced relationship.

While work-life balance guarantees that people have time and energy for their personal lives outside of work, technostress inhibitors help people cope with the stresses associated with technology. By taking these things into consideration, businesses can a nurturing workplace that improves psychological health and cultivates employee well-being. People who have access to technology-enhanced stress relievers and manage their work and personal lives well are likely to report feeling less stressed, more satisfied with their jobs, having better mental health, and feeling better overall. Increased

engagement, productivity, and general job performance may follow from this. It is imperative that organizations acknowledge the importance of these variables and put strategies in place to assist staff in balancing work and personal life and managing technostress. By putting employees' well-being first, businesses can foster a positive workplace culture that improves psychological health and boosts overall business success.

In the context of technostress inhibitors, psychological well-being can be affected by these inhibitors on organizational resources that help reduce the negative effects of techno-stressors on employees. Technostress inhibitors, which act as a buffer against the negative effects of techno-stressors, have been linked to employees' psychological well-being, according to a number of studies (Dai et al., 2021; Tement et al. 2020; & Trafadar et al., 2019). For instance, a study by Hang et al. (2023) discovered that technostress inhibitors are anticipated to have a dual function, as they are positively correlated with the psychological well-being of employees and act as a buffer against the detrimental effects of technological stressors. This suggests that the presence of technostress inhibitors in the workplace can enhance employees' psychological health. Thus, the emphasis in the context of technostress inhibitors is on comprehending how The organizational resources of the technostress inhibitors can protect workers' psychological health from the negative effects of technostress.

Regarding the library, it is widely recognized that librarians are the frontline staff who maintain the vitality and functionality of libraries. They do, however, frequently deal with particular technostress issues that may be detrimental to their mental health. Libraries can prioritize the psychological well-being of their staff and create a supportive environment by implementing technostress inhibitors. By fostering a supportive atmosphere, lowering technological stress, and boosting positive user experiences, libraries can support the psychological well-being of their staff members and build a stronger, more resilient library community.

Meanwhile, the harmony between our personal and professional lives is greatly influenced by the strong and complex relationship between psychological well-being and work-life balance (Saraswati & Lie, 2020). A more harmonious balance between work and personal life can directly result from improved psychological well-being, and vice versa. The relationship is a two-way street. Improved emotional regulation abilities are directly related to psychological well-being. Resilience is fostered by a solid psychological foundation, which enables people to overcome obstacles at work without feeling overwhelmed. This makes it possible for them to establish sound boundaries and uphold them in the face of adversity.

It's critical to keep in mind that there is reciprocal influence between psychological health and work-life balance. Achieving a healthy work-life balance requires psychological well-being. People can develop the abilities and resources necessary to more easily manage the demands of both work and personal life by fostering mental health and emotional resilience. contentment, resulting in a life that is more balanced and meaningful (Saraswati & Lie, 2020).

Psychological well-being can be promoted in the context of technology by addressing technostress and promoting the inhibitors. The development of technostress has been linked to employees' psychological health. Previous studies have indicated that the demands placed on employees' jobs by technology in the workplace can have a detrimental effect on their psychological health (Borowiec et. al.,2022). According to the study, employees who are unable to effectively manage their work using the latest technological advancements may experience technostress creators. Technostress inhibitors have the ability to reduce the adverse effects of technology while safeguarding psychological health.

It is possible to preserve and improve the psychological health of library staff members in the workplace by encouraging literacy facilitation, offering technical assistance, and easing participation in digital activities. Putting policies in place to the psychological health of library employees can be considerably enhanced by addressing technostress and realizing its significance (Delmo & Dequito, 2023).

Additionally, this helps to establish a favorable workplace that encourages efficiency and productivity, guaranteeing the survival of library services in the digital. Particularly in the context of technology use, the conceptual model of technostress inhibitors provides a useful framework for comprehending how psychological well-being can influence and be influenced by work-life balance. These links develop as follows. Misuse and overuse of technology can result in Technostress is defined as weariness, frustration, and anxiety associated with using technology.

The following are some ways that this technostress can impair psychological health: first, because work demands and continuous connectivity can invade personal time, making it challenging to switch off and relax; second, the pressure to be available and responsive to technology at all times can result in work overload; and third, feeling overpowered by technology can reduce one's sense of control over one's personal and professional lives, which affects both. Mitigating these negative impacts of technology are the technostress inhibitors that protect psychological wellbeing. By addressing technostress and promoting these inhibitors, individuals can ultimately achieve psychological well-being. This positive mental state then plays a crucial role in maintaining work-life balance.

Work-life balance refers to an ideal condition in which an employee can divide their time, energy, or attention between work and other vital elements of their life (Greenhaus, J. H., et. al., 2023) It is associated with psychological well-being as it has a profound impact on how individuals navigate the often-demanding juggling act of work and personal life (Borowiec & Drygas, 2022). Good psychological well-being equips individuals with better tools to manage stress, anxiety, and negativity arising from work. It has been pointed out that a strong psychological foundation makes individuals more resilient in the face of work challenges (Delmo & Dequito, 2023).
Furthermore, in the digital age, the connection between librarians' psychological health and work-life balance becomes even more nuanced. Their equilibrium and general well-being may also be jeopardized by technostress, which is defined as the physical and

mental strain brought on by using technology. The presence of technostress inhibitors can act as countermeasures, creating a healthier work environment. While some studies may show that there may not be a direct correlation between work-life balance and librarians' psychological well-being, maintaining a healthy work-life balance is still crucial for overall well-being. Employers and employees in various professions can benefit from implementing strategies that promote work-life balance, stress management, and wellness programs to support librarians' well-being From the foregoing discussion, this study focused on exploring the relationship between technostress inhibitors (literacy facilitation, technical support provision, and involvement facilitation) and the library staff's well-being (job satisfaction, living satisfaction, and psychological well-being) in the digital age.

The theory, concepts, and studies discussed provided new and valuable insights and essential ideas that helped the researcher arrive at the assumption that techno with that technostress inhibitors and work-life balance influence library staff well-being. It is within this framework that this study has been conceptualized, and Figure 1 shows the interplay of the variables.

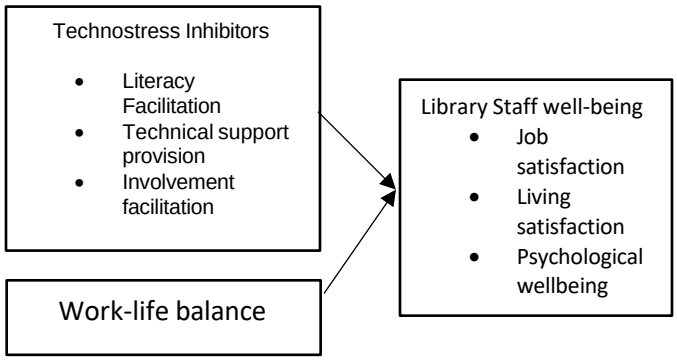


Figure 1. Schematic Presentation of the Study

Research Objective

This study aimed to explore how factors such as technostress inhibitors, which are strategies or interventions to mitigate the negative effects of technology-related stress, and work-life balance, which refers to the equilibrium between work responsibilities and personal life, influence the overall well-being of library staff members.

METHODOLOGY

This study utilized a descriptive correlational research design. The correlational methods are commonly used to assess the relationship between variables (Darshini et. Al (2021). Additionally, correlational studies are examined to determine descriptive or predictive

relationships. In this study, the researcher will be investigating the relationship between technostress inhibitors and work-life balance as predictors of library staff's wellbeing in the digital age. This study was participated by 97 library staff,70 from Marawi city,7 from MSU IIT, 3 from MSU Naawan and 17 from Bangsamoro Library and Archives. Convince sampling was used in the study often used to assess how well variables are correlated (Darshini et. Al. ,2021). Further, descriptive and predictive relationship are sought after via correlational research. Who are willing and able to take in the study.

Table 1. Summary Table of Assessment of the Technostress Inhibitor

Dimensions	**Mean**	**Interpretation**	**SD**
Literacy Facilitation	3.97	High	0.70
Technical Support Provision	3.70	High	0.69
Involvement Facilitation	3.83	High	0.74
Overall Assessment	3.83	High	0.62

RESULTS AND DISCUSSION

Table 2 shows the summary table of well-being in terms of Job satisfaction, Living satisfaction and Psychological well-being. The data show that the well-being of the participants considering the Job satisfaction, Living satisfaction and Psychological well-being were generally rated as “high”.

Range	Description	Frequency	Percentage
4.51-5.00	Very High	31	31.96
3.51-4.50	High	32	32.99
3.51-3.50	Moderate	34	35.05
1.51-2.50	Low	0	0.0
1.00-1.50	Very Low	0	0.0
	Total	97	100.0
	Overall Mean	3.97	
	Interpretation	High	
	SD	0.70	

The three aspects of literacy facilitation, technical support provision, and involvement facilitation work together to create a supportive environment that empowers library staff to navigate technology effectively. Literacy facilitation refers to programs and resources that help employees develop the skills and knowledge needed to use technology

effectively. It can include training, workshops, user guides, and readily available resources. By increasing digital literacy, employees feel more confident and competent in using technology, reducing anxiety and frustration associated with technostress. Technical support provision refers to readily available technical support, whether through dedicated IT staff, online resources, or peer-to-peer troubleshooting channels. Knowing that help is readily available reduces feelings of helplessness and isolation when facing technical difficulties. Efficient support minimizes downtime and frustrations associated with technostress.

Involvement facilitation: refers to practices that encourage employee participation in decisions and discussions regarding technology implementation. Feeling involved fosters a sense of control and ownership. When employees understand the "why" behind technology adoption and have a say in "how" it's implemented, they are more likely to embrace it, reducing resistance and technostress. The studies of Brennan (2020) showcase the effectiveness of a multi-faceted approach that combines literacy facilitation, technical support provision, and involvement facilitation. By addressing both technical skills and user experience, organizations can significantly reduce technostress and foster a more positive and productive work environment for employees using new technologies

Table 2. Summary Table of well-being.

Dimensions of Well-being	Mean	Interpretation	SD
Job Satisfaction	3.82	High	0.71
Living Satisfaction	3.65	High	0.74
Psychological Well-being	3.92	High	0.71
Overall	**3.80**	**High**	**0.61**

The summary table of well-being in terms of Job satisfaction, Living satisfaction and Psychological well-being. The data show that the well-being of the participants considering the Job satisfaction, Living satisfaction and Psychological well-being were generally rated as "*high"*. This findings reflect a positive work environment and supportive organizational culture within the library, which contributes to the overall well-being of the staff. Daluma (2022) points out that it is important for library management to continue fostering a supportive work environment, recognizing the achievements and contributions of staff, and providing opportunities for growth and development. By prioritizing staff well-being, libraries can cultivate a positive and effective workforce, leading to enhanced service delivery and overall organizational success.

Table 3. *Regression Analysis of the Influence of Participants' Assessment of Technostress Inhibitors and their Work-life Balance on their Well-being*

Table 3 presents the regression analysis of the influence of participants' assessment of technostress inhibitors and their work-life balance towards their well-being. Data revealed that the whole model is significant (F = 43.83, p =.000), implying that participants who highly assessed the technostress inhibitors and whose work-life balance are high, also have high level of well-being. Thus, the null hypothesis is rejected.

Furthermore, 47.2 percent of the variability in their well-being can be accounted for by a combination of their assessment of technostress inhibitors and work-life balance. The remaining 52.8 percent can be attributed to additional factors not included in this study, such as social support, a strong network of friends and family, and support systems in both the personal and professional spheres. Additionally, the balance between job demands and available resources can have an impact on well-being. Greater well-being is a result of sufficient resources and reasonable expectations.

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.579	.361		1.60	.112
Assessment of Technostress Inhibitors	.423	.094	.430	4.50**	.000
Work-life Balance	.460	.130	.338	3.53**	.001
Model Summary					
R = .695	R^2 = .483	Adjusted R^2 = .472	F = 43.83**	p =.000	

In terms of the individual independent variables, their assessment of technostress inhibitors came out as having the highest influence on their well-being, showing that for every unit increase in their assessment of these inhibitors, there is a corresponding .423 increase in their well-being (B=.423, t= 4.50, p=.000).

As indicated by the unstandardized coefficient (B = 0.423), for every unit increase in the assessment of technostress inhibitors, there is a corresponding increase of 0.423 in the participants' well-being. This suggests that the more participants recognize and utilize technostress inhibitors, the higher they rate their well-being. Moreover, work-life balance also significantly influences their well-being. To support the claim that the assessment of technostress inhibitors has the highest influence on well-being. Tarafdar et al. (2019) explored technostress's negative effects on well-being, emphasizing the need for inhibitors to mitigate its detrimental effects.

Conclusions

The present study was centered on exploring the relationship between technostress inhibitors and the library staff's well-being in the digital age. Evidently, the study reveals that technology has become a crucial part of library services as technostress inhibitors positively impact staff well-being.

This finding confirms the conceptual model of Rangu-Nathan et al. (2019) that guided this study, where both technostress creators and inhibitors, as a conceptual model, offered the hypothesis on how work-life balance and technostress inhibitors affect wellbeing. This

study emphasized the significance of work-life balance and technostress inhibitors in predicting the well-being of library employees. Moreover, technostress inhibitors helped in enhancing library staff's knowledge, support, and control, thereby reducing technostress and promoting overall well-being. It can be inferred that effective technostress management practices and supportive work-life balance initiatives can contribute to higher job satisfaction, living satisfaction, psychological well-being and the overall well-being among library staff. Librarians who have a good WLB are less likely to experience stress and burnout, which can contribute to higher levels of job satisfaction. Also, librarians who have clear communication about technology-related expectations and goals are more likely to experience higher levels of job satisfaction. Recognizing the importance of these factors and implementing appropriate measures to address technostress benefits the psychological well-being of the library staff. This enables them to set healthy boundaries and maintain personal boundaries even under pressure.

Recommendations

Based on the findings and conclusion derived from the study, the following recommendations are offered for considerations:

1. For **Library Administrators.** The current initiatives that offer technical support (consistent help with tech concerns), literacy facilitation (training on new technologies), and engagement facilitation (opportunities for staff input on tech deployment) may be kept and strengthened. They might also think about doing recurring staff polls to find out where technostress inhibitors could be improved.

2. For **Librarians.** They can learn how to use the newest technology in the library by making use of the training and assistance materials that are offered. This will enable the support of colleagues who are under technostress and serve as an example of the usefulness of these services. Furthermore, they might encourage candid communication and teamwork among the relevant departments, which can aid in fostering a feeling of support and belonging, lowering stress levels, and enhancing general wellbeing.

3. For **Faculty**. It is possible for them to contemplate their pivotal function in upholding a favorable work milieu through the promotion of cooperation, candid communication, and gratitude towards peers. Additionally, they can leverage existing resources to effectively handle technological stress and preserve a salubrious work-life equilibrium.

4. For **future Researchers**. They might investigate how these work-life balance programs and technostress inhibitors affect employees' well-being in the long run. Examine the particular features of each inhibitor that have the biggest impact on lowering technostress. Further investigation into the particular requirements of various library staff roles may be necessary to further customize tech-stress reduction techniques.

Compliance with Ethical Standards

In accordance with research protocol, the paper was submitted, reviewed and approved by the College's Research and Ethics Committee.

This study adhered to the Republic Act No. 10173 of the Philippines, also known as the Data Privacy Act of 2012, which mandates that all participants' information and data were treated with utmost confidentiality. Information was coded and did not have a direct correlation identifying the participants. Only the researcher knew the participant code number. The data collected was kept in an encrypted computer file. It was also made clear data would be used for research purpose only. The participants' informed consent were taken with a confidentiality guarantee of protection against unauthorized use of their data.

This research had minimal risks. No personal and confidential information were asked and participation was voluntary and anonymous. Participants could withdraw their participation at any time if a question made them uncomfortable and they did not have to give any reason for not responding to any question.

Only eligible participants were selected and in compliance with this, inclusion criteria was not based on race, ethnicity, and socioeconomic class but ensured that only qualified persons were selected as participants and in this study only the library staff of the institution were selected. The potential benefits of participating include contributing valuable knowledge on technostress and work-life balance, which can ultimately lead to improved workplace practices and employee well-being.

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THE EFFECT OF INTEGRATING INFORMATION COMMUNICATION TECHNOLOGY (ICT) IN THE EDUCATIONAL TOOL OF INSTRUCTION OF MANADO INDEPENDENT SCHOOL

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ABSTRACT

This study aims to determine the effectiveness of ICT integration in the classroom, exploring various strategies for incorporating ICT procedures into teaching and learning. Technology in education today is largely equated with the use of computers, enabling the storage and playback of diverse media such as textbooks, presentations, images, audio recordings, and videos on computers and mobile devices. Traditional computer education typically focuses on the history, parts, functions, and programming of these machines, often leaving students with skills limited to basic word processing and simple file management. There is a notable gap in emphasizing the use of technology to support teaching and learning. The study involves 96 respondents, comprising 36 teachers and 60 students. The demographic profiles of the respondents include their educational attainment, age, sex, civil status, and number of years in service for teachers and grade level for students. Statistical tools such as percentage, weighted mean, and ranking were used to analyze the data and identify differences in the perceptions of the respondents regarding the effectiveness and improvement of ICT integration. The findings of this study explicitly identify problems, descriptions, perceptions, and recommendations for both teachers and students to improve ICT integration at Manado Independent School. The results reveal a significant difference between teacher and student respondents in the perceived effectiveness of ICT as an educational tool of instruction.

Keywords: *Information Communication Technology, Integration of ICT in Education, Educational Tool of Instruction*

INTRODUCTION

The integration of Information and Communication Technologies (ICT) into education is increasingly vital for enhancing teaching and learning processes. ICT encompasses a broad range of technologies, including computers, the internet, multimedia tools, and mobile devices, which are utilized to transmit, process, and store information electronically (Bates, 2015). These technologies provide diverse and immediate responses to educational needs, making them essential for modern pedagogy (Smith, & Anderson, 2018).

Recent studies have highlighted the benefits of ICT in education, such as improved student engagement, enhanced collaborative learning, and the development of critical thinking skills (Higgins et al., 2012). However, despite substantial investments in ICT by Southeast Asian governments, there remains a gap in understanding how teachers effectively integrate these technologies into their teaching practices. This gap underscores the need for empirical research focusing on teachers' perspectives and the factors influencing their ICT adoption.

The rapid technological advancements necessitate ongoing adaptation by educators to ensure the effective use of these tools. Teachers use ICT not only for delivering content but also for monitoring student progress and facilitating communication (Ertmer & Ottenbreit-Leftwich, 2010). As technology evolves, so too must the methods for integrating it into the classroom to maximize its educational benefits.

This study aims to address the observed gap by exploring the factors that influence teachers' decisions to integrate ICT in teaching and learning. It seeks to provide a model that enhances understanding and offers practical guidance for educators. By focusing on ICT as a mediational tool to engage students in higher-order thinking skills such as analyzing, evaluating, and synthesizing, this study will contribute to the development of effective ICT integration strategies in education (Mishra & Koehler, 2006).

The effective integration of ICT in education holds the potential to transform teaching and learning processes, making them more interactive, collaborative, and student-centered. This study is timely and relevant, as it seeks to bridge the gap in current research and offer practical solutions to optimize the use of ICT in educational settings.

The quality of teaching and learning significantly impacts student outcomes, necessitating the enhancement of teachers' skills and the provision of ICT resources to foster new instructional methods (Olutola, 2015). In Indonesia, teacher education is a critical area of reform. According to the Levin Institute, computers have accelerated the evolution of the global economy, workforce, and education system, fostering international interaction and integration. Teaching and learning resources, such as visual aids, audio aids, and animated pictures, facilitate instruction.

Recent technological advancements have impacted nearly every sector, including education. Enhancing the quality of teaching and learning has become a priority, with governments ensuring that policy documents guide the implementation of significant educational projects. The integration of ICT in education is a crucial aspect of this reform, aimed at improving instructional methods and student engagement. These efforts reflect a global trend towards leveraging technology to create more effective and interactive learning environments.

According to Bonk (2015), ICT integration offers educational opportunities where learners actively engage in acquiring and sharing knowledge, often through social networking and resources like Massive Open Online Courses (MOOCs). This approach values learning outside the classroom as much as inside, utilizing a wide range of digital resources. Establishing guidelines for ICT integration is crucial, as they set clear expectations for student knowledge and abilities, providing a framework for national testing, curriculum development, instructional programs, and assessments. These guidelines help teachers plan and deliver effective instruction and make learning objectives clear to students, enhancing their educational experience.

Over the past two decades, the rapid growth of ICT has become a key topic in education due to its potential to create dynamic and proactive learning environments (Ghavifekr, et al, 2014). In the digital era, teachers are encouraged to integrate ICT into their daily teaching, replacing traditional methods with modern tools. This paper focuses on the effectiveness of ICT integration in education, particularly the computer skills and knowledge of primary school teachers, and the extent of ICT use in classrooms. Suat Çapuk (2015) emphasizes that to prepare students for the information society, ICT should be integrated into all levels and subjects of the curriculum. Teachers need to be equipped with skills and knowledge in both ICT and pedagogy to effectively incorporate technology into their teaching, providing opportunities for learners to enjoy and enhance their educational experiences.

Research Questions

This study aimed to find the effect of integrating Information Communication Technology (ICT) in the educational tool of instruction in the Secondary school of Manado Independent School. Specifically, it answers the following questions:

1. What ICT electronic devices promote effective teaching and learning?
2. How often do you use ICT integration in your classroom?
3. How may the benefits of integrating ICT in terms of teaching and learning be described?
4. How may the challenges of using ICT in teaching and learning be described?
5. How can ICT be improved in teaching and learning?

METHODOLOGY

The study focused on the effect of integrating Information and Communication Technology (ICT) into the educational tools at Manado Independent School, specifically aiming to determine the effectiveness of ICT integration in the teaching and learning processes of high school students. Conducted from July to September 2019, the research targeted high school students and faculty members. A total of 96 respondents participated, including all 36 high school teachers and 60 randomly selected students from grades 10 to 12. The primary data collection tool was a questionnaire designed to capture the respondents' perspectives on ICT utilization in their educational experiences.

Utilizing a descriptive-causal research design, the study adopted a quantitative approach with a descriptive survey design. This design is appropriate for systematically describing and testing relationships and examining cause-and-effect interactions among variables. The descriptive survey method is particularly suitable for collecting original data from large populations that cannot be observed directly, providing a comprehensive picture of the characteristics under study. Data were organized and analyzed using simple descriptive statistics, including frequency tables, weighted means, percentages, and rankings. The research was conducted at Manado Independent School Parkville Estate, Jl. Walanda Maramis, Kolongan, Manado North Sulawesi, Indonesia, specifically involving high school teachers and students. The findings aimed to offer insights into the current utilization and impact of ICT tools on enhancing the educational experiences at the school.

RESULTS

Respondents of the Study

The study's respondents were Manado Independent School's high school students and teachers. The researchers obtained data directly from 36 high school teachers and 60 selected high school students.

Profile distribution of respondents who were high school instructors and students.

Table 1. Respondents' Distribution

Groups	f	%
Teachers	36	38
Students	60	62
Total	96	100

Table 1 illustrates the distribution of respondents. Thirty-six (36) teachers, or 38%, participated in this study, whereas 60 students, or 62%, were picked from the student population.

Demographic Background of Respondents

The demographic features of high school teacher respondents demonstrated the distribution of groups based on age, gender, duration of teaching experience, civil status, and educational achievement. The following table shows the profiles of the teachers and students who responded.

Profile Distribution of the Teacher Respondents According to their highest educational attainment.

Table 2. Highest Educational Attainment of the Teacher

Degree	f	%	Rank
Doctorate	2	6	3
Masters	20	55	1
Bachelor	14	39	2
Total	36	100	

As shown in table 2, the majority of instructor responses had a master's degree, with a frequency of 20 or 55%, and ranked first. Fourteen (14) or 39% had a bachelor's degree and were rated second, while only two (2) or 6% of the 36 total teacher responders held a doctoral degree and were ranked third.

Profile Distribution of the Teacher Respondents According to Civil Status

Table 3. Civil Status of the Teacher Respondents

Civil Status	f	%	Rank
Married	25	69	1
Single	11	31	2
Total	36	100	

According to table 3, married teachers accounted for 25 or 69% of respondents, followed by single respondents, who accounted for 11 or 31% of the 36 respondents. The majority of respondents were married teachers.

Profile Distribution of the Teacher Respondents according to Gender

Table 4. Gender of the Teacher Respondents

Gender	f	%	Rank
Male	17	47	1
Female	19	53	2
Total	36	100	

As seen in Table 4, the majority of the teacher respondents are female, with 19 or 53%, while male teachers account for 17 or 47% of the total respondents. It appears that female respondents outnumbered male respondents.

Profile Distribution of the Teacher Respondents According to Age

Table 5. Age of the Teacher Respondents

Age	f	%	Rank
25 - 29	10	28	2
30 - 34	20	55	1
35 - 39	4	11	3
40 - 44	2	6	4
Total	36	100	

Table 4 shows the results for the age of the teacher responders who teach in the high school portion of Manado Independent School, which ranges from 20 to 44 years old and up.

According to the data, 20 or 55% of the teachers who responded were between the ages of 30 and 34, ranking first, followed by 10 or 28% who were between the ages of 25 and 29, ranking second. Out of 36 total teacher responders, only 4 (11%) were between the ages of 35 and 39, and only 2 (6%) were between the ages of 40 and 44. The data also shows that the majority of teachers reacted as to age were in the range of 30 to 34 years old.

Profile Distribution of the Teacher Respondents According to Length of Service

Table 6. Length of Service the Teacher Respondents

Length of Service (years)	f	%	Rank
1 – 3	23	64	1
4 – 6	10	28	2
7 – 9	1	3	4
10 and above	2	5	3
Total	36	100	

Table 6 shows the number of years the teacher responses worked in the high school section of Manado Independent School. According to the data, the bulk of teacher respondents' lengths of service varied from one to three years, or 64%, and they placed first. Following that were ten teacher respondents aged four to six years old, with 28%, ranking second. Only 2 or 6% of the instructor respondents were between the ages of 10 and 12, and only 1 or 3% were between the ages of 7 and 9 years old.

Profile distribution of the Student Respondents according to Educational Attainment

Table 7. Grade Level of Student Respondents

Grade	f	%	Rank
10	10	17	3
11	35	58	1
12	15	25	2
Total	60	100	

Table 7 shows the statistical analysis of the grades 10, 11, and 12. The data shows that the majority of the respondents are in grade 11, with a frequency of 35 or 58% and ranked first, followed by grade 12 with 15 or 25% student respondents and ranked second, and grade 10 with a frequency of 10 or 17% out of the 60 total number of student respondents and ranked third.

Profile Distribution of the Student Respondents according to Gender

Table 8. Gender of the Student Respondents

Gender	f	%	Rank
Male	26	43	2
Female	34	57	1
Total	60	100	

Table 8 presents the data as a statistical analysis of the gender of student respondents. This analysis showed that females were the majority of the student respondents with 34 or 57% while the male students were only 26 or 43% out of 60 total number of respondents. It also showed that female responses outweighed male ones.

Profile Distribution of the Student Respondents According to Age

Table 9. Age Summary of the Student Respondents

Age	f	%	Rank
15 -16	45	75	1
17 – 18	13	22	2
19 and above	2	3	3
Total	60	100	

Table 9 shows the statistical analysis of student respondents based on their age. The majority of the students were between the ages of 15 and 16 years old, accounting for 45 or 75% of the total and ranking first. Next in rank was 17 to 18 years of age (22%), with only 2 or 3% of student responses aged 19 and above.

DISCUSSION

A. ICT devices that promote effective teaching and learning in Manado Independent School

Table 10. ICT Devices that Promote Effective Teaching and Learning

Indicators	f	%	Rank
Desktop Computer	72	75	3
Mobile phone	58	60	4
Tablet	30	31	6
Laptop	86	90	2
Scanner	26	27	7
Projector	91	95	1
Smart Board	4	4	8
Printer	46	48	5
Flash Disk Drive	72	75	3

Note: Multiple Responses

Table 10 illustrates the survey results for the most often used and successful devices for ICT integration in the learning process, as reported by teachers and students. The 'Projector' was named the most effective ICT device by 91 respondents (95%). The 'Laptop' came in second, with 86 (90%) respondents believing it useful for teaching and studying. 'Desktop Computer' and 'Flash Disc Memory' tied for third place, with 72 each (75%). The 'Mobile Phone' followed, with 58 respondents (60%) rating it as effective. Next came the 'Printer' (46 respondents, 48%), 'Tablet' (30 respondents, 31%), and 'Scanner' (26 respondents, 27%). The 'Smart Board' was the least-priority device, with only four (4%) respondents calling it effective.

These results show that various ICT devices play a significant role in enhancing the teaching and learning process.

B. How often is the use of ICT integration in the classroom?

Table 11. ICT Integration in the Classroom

Indicators	WM	VI	R
E - book reference	3.80	VO	3
Internet to retrieve information, MS Office PowerPoint, word processing, Spreadsheets, use of email, and flash disks for storage of data.	4.65	A	1
Online learning management system (Schoology, Edmodo, Google Classroom, etc..)	3.81	VO	2
Online social media for communication (Skype, WhatsApp, Messenger, etc..)	2.51	S	4
Average	3.69		

Legend:

Weight	Interval	Verbal Interpretation	Symbol
5	4.51 – 5.00	Always	A
4	3.51 – 4.50	Very – Often	VO
3	2.51 – 3.50	Sometimes	S
2	1.51 – 2.50	Rarely	R
1	1.00 – 1.50	Never	N

Table 11 provides the weighted mean for ICT integration in the classroom. The instructors and students at Manado Independent School stated that the Internet was the primary method for retrieving information, followed by MS Office PowerPoint, word processing, spreadsheets, email, and flash discs for data storage, with a weighted mean of 4.65 verbally interpreted as 'Always'. The 'Online learning management system like Schoology, Edmodo, Google Classroom' ranked second with a weighted mean of 3.81 and was verbally translated as 'Very Often'. The 'Electronic Book (E-Book)', weighted 3.80 and orally rendered as 'Very Often', came in third place. While 'Online social media for communication like Skype, WhatsApp, Messenger' was ranked fourth with a weighted mean of 2.51 and audibly interpreted.

The results also revealed that teachers usually saw the incorporation of ICT as having a beneficial impact on the delivery of modern education. It boosted teachers' confidence because the use of ICT infused their teaching with vigor and raised pupils' interest and enthusiasm to learn.

C. The Benefits of Integrating ICT in terms of Teaching and Learning Process

Table 12. Benefits of ICT Integration in Teaching and Learning

Indicators	WM	VI	R
Makes learning easier	4.41	A	1
Enhances students' critical thinking	4.18	A	5
Promotes innovation and problem-solving skills of students.	4.23	A	2
Enhances collaborative learning among learners and teachers	4.21	A	3
Promotes research-based teaching and learning.	4.19	A	4
Average	4.24		

Legend:

Weight	Interval	Verbal Interpretation	Symbol
5	4.51 – 5.00	Strongly Agree	SA
4	3.51 – 4.50	Agree	A
3	2.51 – 3.50	Moderately Agree	MA
2	1.51 – 2.50	Disagree	D
1	1.00 – 1.50	Strongly Disagree	SD

To assess how teachers and students respond to the benefits of ICT integration, all respondents provide a verbal interpretation of 'Agree'. It demonstrates that teachers and students reaped the most benefits from ICT integration. The variable 'Makes Learning Easier' received the highest rank, with a weighted mean of 4.41. Next was 'Promotes Student Innovation and Problem-Solving Skills', which had a weighted mean of 4.23 and ranked second. 'Enhances Collaborative Learning among Learners and Teachers' came in second with a weighted mean and rank of 4.21. Next in rank was 'Promotes Research-Based Teaching and Learning', with a weighted mean of 4.19, and 'Enhances Students Critical Thinking' was fifth, with a weighted mean of 4.19. Teachers' opinions on the value of ICT integration were also explored.

The majority of teachers stated that they found ICT integration to be more useful because it allowed them to innovate by accessing digital formats and improving their skills using computer applications, as well as the fact that internet research improved their lesson notes and provided them with computer information. In general, most teachers and students provided good feedback and enthusiasm for ICT integration.

D. The challenges of using ICT in teaching and learning

Table 13. Challenges of ICT Integration in Teaching and Learning

Indicators	WM	VI	R
Difficult to keep up with the current trends in education	3.04	MA	2
Time-consuming *(ICT teaching requires a lot of time for preparation)*	3.59	A	1
Problem-based – learning (Lack of proper information for ICT integration in teaching/learning skills.)	2.72	MA	3
Poor school-administrator support (*Limited resources for ICT integration in teaching/learning skills.)*	2.31	D	4
Lack of knowledge on how to integrate ICT into teaching.	1.69	D	5
Average	2.67		

Legend:

Weight	Interval	Verbal Interpretation	Symbol
5	4.51 – 5.00	Strongly Agree	SA
4	3.51 – 4.50	Agree	A
3	2.51 – 3.50	Moderately Agree	MA
2	1.51 – 2.50	Disagree	D
1	1.00 – 1.50	Strongly Disagree	SD

As indicated in Table 13, ICT instruction takes a significant amount of time to prepare. The respondents scored 'Time Consuming' first, with a weighted mean of 3.59 and a verbal interpretation of 'Agree'. The weighted mean for 'Difficult to keep up with the current developments in schooling' was 3.04, which was orally interpreted as 'Moderately Agree'. The next category was 'Problem-based - learning', which had a weighted mean of 2.72 and was verbally interpreted as 'Moderately Agree'. 'Poor school-administrator support' was ranked fourth with a weighted mean of 2.31 and orally translated as 'Disagree,' while 'Lack of understanding on how to integrate ICT into teaching' was ranked fifth with a weighted mean of 1.69 and verbally interpreted as 'Disagree'.

E. ICT Integration that Can Improve Teaching and Learning

Table 14. ICT Integration to Improve Teaching and Learning

Indicators	WM	VI	R
Integrate ICTs in the learning process, as a key competence and contributing to the acquisition of the target foreign language.	4.68	SA	1
Use ICTs in the classroom to work on information processing, authentic communication, and learner autonomy, as the builder of his or her learning process.	3.90	A	2
Give ICTs a role to help young people be able to arrange, evaluate, and decide on the information that comes to them.	3.76	A	3
Challenge students with different types of supports and formats and, therefore, a great variety of activities in which they pass from receivers to makers.	3.50	MA	4
Average	3.95		

Legend:

Weight	Interval	Verbal Interpretation	Symbol
5	4.51 – 5.00	Strongly Agree	SA
4	3.51 – 4.50	Agree	A
3	2.51 – 3.50	Moderately Agree	MA
2	1.51 – 2.50	Disagree	D
1	1.00 – 1.50	Strongly Disagree	SD

Table 13 shows how teachers and students assess the potential for improved teaching and learning when ICT is integrated. The variable 'ICT integration in the teaching and learning process, as a key ability and contributing to the acquisition of the target foreign language' was ranked first, with a verbal interpretation of 'Strongly Agree' and a weighted average of 4.6. Next came 'The use of ICT in the classroom to focus on information processing, authentic communication, and learner autonomy, as the builder of his or her learning process', which had a weighted mean of 3.90 and was verbally interpreted as 'Agree'. 'ICT has a role to help young people be able to arrange, assess, and decide on the information that comes to them' ranked third, with an overall weighted mean of 3.76 and translated as 'Agree'. While 'The problem of students with varied types of assistance and formats' was ranked fourth with a weighted mean of 3.5 and verbally defined as 'Moderately Agree'.

According to the respondents' feedback, ICT integration resulted in an important growth for both teachers and students.

Conclusions

Based on the findings which study yielded the following conclusions were drawn:

1. The statistics presented, as well as the replies of the respondents, demonstrated that the majority of teachers at Manado Independent School used ICT in the classroom. The incorporation of ICT in the classroom had a significant impact on teachers' and students' adoption of the teaching and learning processes. Furthermore, it increased self-motivation to enhance their talents and perform better in all classroom-related duties.
2. Despite the hurdles connected with ICT integration at Manado Independent School, teachers and students have indicated a willingness to become more acquainted with ICT to stay current with educational trends. Furthermore, teachers and students use a variety of ICT tools for teaching and learning.
3. Teachers and students observed that the incorporation of ICT to enhance teaching and learning in the classroom was superior to the traditional approach to teaching and learning.
4. Technology plays an important role in making education more inclusive since it has the potential to increase student academic achievement. However, respondents reported that the curricula used lacked ICT integration.
5. Access to information through ICT integration helped to minimize communication barriers, particularly during the teaching and learning process. Teachers and students were confronted with several forms of assistance, such as having limited resources for ICT integration in teaching/learning skills, and for teachers, how to properly implement ICT into teaching.

Recommendations

Given the above findings and conclusions, hereunder are the recommendations:

1. Teachers and students can be proactive in implementing ICT as an effective teaching and learning aid in the classroom.
2. Teachers and students may be exposed to ICT-related training/seminars that can increase their skills in integrating ICT in the classroom and eventually upgrade the implementation by employing virtual e-learning such as Google Class, Edmodo, Schoology, and other e-learning portals.
3. Administrators and principals of the school may examine the critical needs of the academic community, particularly students and teachers, for the availability of computer peripherals in the classroom to supplement, enhance, and sustain their computer abilities.
4. The management can meet the demands of the learners by providing them with updated IT-based curricula that can identify the students' learning demands, such as the rigorous use of internet websites and any other ICT learning enhancements that can promote critical thinking skills and collaborative learning practice among students and teachers.
5. There were numerous ways of teaching called education that might be applied. This paper provided an assessment to demonstrate that through ICT integration, teachers and students will easily be inspired to learn and create better learning environments if school administrators fully support the provision of adequate ICT

resources that may help the teachers and students meet their needs as preparation for noteworthy future tasks.

Compliance with Ethical Standards

The authors declare that there are no conflicts of interest in the publication of this research. They maintained the highest ethical standards throughout the study. All respondents gave informed consent and understood they could withdraw at any moment without penalty. The respondents' identities were kept anonymous, and their safety was guaranteed throughout the research process. The study was carried out without any conflicts of interest. Plagiarism was completely prohibited, ensuring the research's originality and integrity. The data were assessed objectively, and the findings were only used for research reasons.

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THE FILIPINO SISYPHUS: AN ALLEGORY ON THE EXISTENTIAL CONDITION OF POVERTY AND FILIPINO RESILIENCY AN INVESTIGATION ON ALBERT CAMUS' ABSURDITY

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ABSTRACT

This research study explores the profound impact of poverty on Filipino society and individuals, delving into the existential crisis that arises from being trapped in a never-ending cycle of poverty. By examining Albert Camus' concept of absurdity, this study aims to shed light on the struggles of those experiencing poverty and their persistent efforts to find meaning and purpose in a seemingly meaningless existence. Using Camus' absurdist philosophy as a framework, this research paper explores the parallelism between the myth of Sisyphus and the experiences of impoverished Filipinos. The relentless struggle for survival mirrors Sisyphus' endless task of rolling a boulder uphill, yet Filipinos demonstrate remarkable resilience, embodying their defiance against the absurd. This research study through descriptive analysis of cultural narratives, personal accounts, and socio-economic data aims to; understand how the existential implications of poverty affect the totality of the human person, beyond traditional economic definitions. By investigating Camus' philosophical project on absurdity, the study offers new perspectives on the relationship between poverty, existential crises, and the enduring spirit of resilience among Filipinos.

Keywords: *Absurdity, existentialism, existential crisis, poverty, resilience,*

INTRODUCTION

This research study explores the profound impact of poverty on Filipino society and individuals, delving into the existential crisis that arises when individuals are trapped

in a never-ending cycle of poverty. By examining Albert Camus' concept of absurdity, this study seeks to illuminate the struggles of people experiencing poverty and their persistent efforts to find meaning and purpose in a seemingly meaningless existence. By investigating the existential implications of poverty, this research study aspires to a deeper understanding of poverty's challenges that go beyond the traditional economic definition, viewing it as a phenomenon that affects the totality of the human person.

Existentialism is a philosophical movement that emphasizes individual freedom, choice, and responsibility. It focuses on the individual's subjective experience and the search for meaning and purpose in life (White, 2023). Poverty, as an existential crisis, profoundly impacts individuals by depriving them of basic needs and necessary opportunities for meaningful living. When individuals struggle to meet these basic needs, it becomes challenging to pursue dreams or find purpose. According to Abraham Maslow’s hierarchy of needs, physiological needs form the foundational level, including air, water, food, shelter, sleep, and other necessities. The need for self-actualization arises only after these basic needs are met (Maslow, 1943).

Jean-Paul Sartre, a key figure in existentialism, emphasized the importance of human freedom and the responsibility of individuals to define their essence through their choices and actions. His seminal work, "Being and Nothingness," explores existentialist principles, shedding light on human existence, freedom, responsibility, and the individual's confrontation with life's absurdity. Sartre's philosophy indirectly raises questions about the influence of external factors, such as poverty, on human existence (Sartre, 2003).

Albert Camus, another significant existentialist figure, is known for his contributions to absurdism. His works, including "The Stranger," "The Myth of Sisyphus," and "The Stranger," explore themes of the human condition, meaninglessness, and the search for purpose in an indifferent universe. In "The Myth of Sisyphus," Camus examines the existential dilemma of the human desire for meaning in a seemingly indifferent universe. Despite acknowledging the futility of this search, Camus suggests embracing life's absurdity and finding value in the act of rebellion against it.

An existential crisis arises when an individual questions the meaning and purpose of their existence, often accompanied by despair and anxiety (Foley, 2008). For Camus, this crisis emerges from the realization that life has no inherent meaning or purpose: "The absurd is born out of this confrontation between the human need and the unreasonable silence of the world” (Camus, 1942). Poverty can trigger such an existential crisis, leading to a sense of meaninglessness and despair as individuals struggle to meet basic needs. Sartre (1943) argues that poverty can reduce existence to mere survival, causing anxiety and despair. Similarly, in the study of Kruks, (1987) “Simone de Beauvoir and the Limits of Freedom,” contends that poverty restricts freedom and limits the ability to create meaning, leading to a sense of powerlessness.

Globally, an estimated 9.2% of the population lived in extreme poverty on less than $1.90 per day in 2020 World Bank, (2021). In the Philippines, the poverty incidence in 2020 was 21.1%, affecting around 23.5 million people, with significant regional variations Philippine Statistics Authority, (2021). Understanding poverty as an existential crisis involves recognizing it as a condition that profoundly affects individuals' existence, prohibiting authentic living.

Filipino resiliency, defined as the ability to adapt to and recover from difficult situations through social support systems, cultural values, and faith, plays a crucial role in coping with the existential crisis of poverty (Abella and De Guzman, 2017). However, this resilience can be ambivalent. While it is a positive trait, it can also be romanticized, masking the real issues surrounding poverty and perpetuating a culture of acceptance and resignation (Lasco, 2018).

By exploring these themes, this research aims to offer new perspectives on the relationship between poverty, existential crises, and the enduring spirit of resilience among Filipinos, providing valuable insights into the human condition and its manifestations in a specific cultural context.

Research Questions

Main Problem

This research study endeavors to redefine the concept of Filipino resiliency, analyzing its conventional understanding, investigating the impact of romanticization and ambivalence, and proposing a new perspective that sees resilience as a form of metaphysical revolt.

By adopting Camus' absurdist philosophy as a framework, this study seeks to answer the following;

1. What is Albert Camus' notion of absurdity and his proposed response to it?
2. Why poverty is an existential condition of human existence?
3. What is the proper response to poverty's existential condition, and how can it redefine the meaning of Filipino resiliency?

METHODOLOGY

This research study will employ existential investigation and descriptive analysis as its methodology.

Existentialism is a philosophical movement that emphasizes individual freedom, choice, and responsibility, focusing on personal subjective experiences and the search for meaning in life. It explores fundamental questions about human existence, such as its

meaning, purpose, and value, with key concepts including existential crisis, despair, and anxiety (Macquarrie, 1973).

Existential investigation, rooted in this tradition, aims to understand these aspects of human existence through individuals' subjective experiences (Guntman & Pincus, 2003). This research study applies Albert Camus' existentialist absurdist philosophy to understand the existential condition of poverty and Filipino resiliency. It critically analyzes Camus' major works—The Myth of Sisyphus, The Stranger, and The Rebel: An Essay on Man in Revolt—and adopts his notion of "The Metaphysical Revolt" as the appropriate human response to absurdity and poverty. This approach ultimately seeks to redefine the essence of Filipino resiliency.

Descriptive Analysis deals with describing a phenomenon and how we think something is. It attempts to examine the situations to explain the norm. (Baha, 2016). Descriptive analysis as a research method involves gathering data using various methods. In this research study, the primary method of collecting data is through content analysis and careful scrutinization and explanation of the existing records, documents, and literature related to the subject. The data gathered are presented by summarizing the key themes, patterns, and narratives that emerge in the data collected. Though descriptive analysis as a research method is commonly used in quantitative research, the researcher believes that it can be applied in qualitative research design through careful and thoughtful description and analysis of the phenomenon being investigated through textual analysis.

Scope and Delimination

This research study delves into Albert Camus' absurdist philosophy, connecting it with the existential challenges of poverty and the resilience of Filipinos. The study involves a meticulous review of pertinent literature and a comprehensive analysis of relevant primary and secondary references. It is important to note that the scope of this study is limited to the Filipino context, and the findings may not broadly apply to other cultural or societal settings. The research adopts a qualitative approach, drawing insights from scholarly literature and academic journals. Notably, this qualitative methodology refrains from direct engagement with participants through surveys, interviews, or focus groups, relying instead on the wealth of existing knowledge and expert analyses available in the academic realm.

RESULTS AND DISCUSSION

Camus Notion of Absurdity and His Proposed Response to It

Albert Camus' notion of absurdity revolves around the idea that life is inherently devoid of meaning or purpose because of the fundamental tension between the human desire for meaning and the indifference of the universe. Absurdity is an ontological reality of human existence that individuals must confront. “At this point of his effort, a man stands face to face with the irrational. He feels within him his longing for happiness and reason. The absurd is born of this confrontation between the human need and the unreasonable silence of the world.” (Camus, The Myth of Sisyphus, 1942). Responding to the problem

of absurdity, Camus proposes the concept of “revolt,” which involves a conscious and active engagement with life’s inherent absurdity, embracing freedom and authenticity, rejection of despair and nihilism and the quest for illusory meaning.

The Conflict Between Human Desire and the Universe

> At this point of his effort, a man stands face to face with the irrational. He feels within him his longing for happiness and reason. The absurd is born of this confrontation between human needs and the unreasonable silence of the world (Camus, 1942, MS: 25; E: 173).

Desire is a fundamental aspect of human nature that encompasses human needs, wants, cravings, and aspirations. It is an inclination or longing for something perceived as lacking and, once fulfilled, becomes a source of fulfillment (Standford Encyclopedia of Philosophy, 2009). From the perspective of existentialism, desire is the emphasis on human freedom. The emphasis on freedom could be seen in the works of prominent existentialists like Sartre, Camus, and Nietzsche. In “Being and Nothingness,” Sartre (1943) famously stated, “Man is condemned to be free,” understanding this statement means that humans are free to choose their actions without any interference, but freedom, however, comes with the burden of responsibility. Camus’ understanding of desire stems from humans' innate longing for reason and understanding. “At this point of his effort, a man stands face to face with the irrational. He feels within him his longing for happiness and reason. p.25” (Camus, The Myth of Sisyphus, 1942). According to Camus, the origin of the absurd was from the conflict of man not being able to rationalize and explain his existence in human terms. He holds that reality poses a peculiar problem for humans, whose rationality cannot help searching, looking, struggling, and critically looking at life. So, he said, “... that odd state of the sour in which the chain of daily gestures is broken, in which the heart vainly seeks the link that will connect it again, it is, as it were, the first sign of absurdity” (Arinze & Onwuatuegwu, 2020).

Camus’ philosophy pictured the universe as indifferent to the needs and desires of humans, though meaningful on its own; for humans, its utter meaninglessness poses a significant threat to human existence. One real-life illustration of this absurdity can be seen in the face of natural disasters. Consider a devastating earthquake that struck a populated city. In an instant, lives are lost, families are shattered, properties are destroyed, and homes are reduced to rubble. The earthquake itself is indifferent to human needs and the suffering it causes. An earthquake has no inherent meaning; it is a force of nature that cannot be avoided. The least humans can do is blindly anticipate that it may happen at any time. In the aftermath of such a catastrophe, humans grapple with the profound silence of the universe and ask why such a catastrophe occurred, seeking meaning or reason behind man’s suffering. However, the universe remains silent, offering no explanations or justification for the pain and loss of man.

Humans desire to make the world intelligible; however, reality strikes that no matter how hard humans try, there are questions that cannot be answered and events that cannot be explained. The human being is divorced from his dwelling place.

The Problem of Suicide

> There is but one truly serious philosophical problem and that is suicide. Judging whether life is or is not worth living amounts to answering the fundamental question of philosophy. All the rest— whether or not the world has three dimensions, whether the mind has nine or twelve categories—comes afterward. (Camus, 1942, The Myth of Sisyphus, p. 84)

Questioning the value and meaning of human existence is the core of philosophical inquiry. With the discovery of the absurd, two alternatives are open to the man “who lives based on what he knows" and "does not cheat." Man must choose suicide or recovery. The question is, can man find life absurd and still go on living (Caraway, 1992).

In the Myth of Sisyphus, Camus elaborated on two forms of suicide: physical and philosophical. Physical suicide is the act of intentionally ending one's life. It is a direct response to the perceived absurdity of existence. Individuals contemplating physical suicide often do so because they cannot find meaning or purpose in life, and ending their lives seems like the only way to escape the existential pain and despair. Camus does not advocate for physical suicide; instead, he encourages individuals to confront the absurdity of life and find a reason to live despite its inherent meaninglessness.

Philosophical suicide, according to Camus, is a subtler form of suicide. It occurs when someone embraces religious or ideological beliefs that provide comforting, absolute meanings or explanations for existence. In this case, individuals "philosophically" commit suicide by escaping the absurd through faith or dogma. “The leap in all its forms, rushing into the divine or the eternal, surrendering to the illusion of the everyday or of the idea - all these screens and hide the absurd” (Camus, 1942, MS p. 35). By accepting a ready-made belief system that promises an ultimate purpose or an afterlife, people avoid confrontation with the inherent meaninglessness of life. Camus criticizes this form of suicide because it involves a deliberate intellectual evasion of the absurd, replacing it with false certainties. Caraway, (2002) suggests that, while the existential philosophers have realized the absurdity that links man and the world, according to Camus, "all of them without exception suggest escape." For example, Jaspers and Chestov (Myth of Sisyphus, 24, 25), realizing nothing in experience to infer any satisfactory principle that would negate the absurd and man's impotence, posit God as the only true solution. Camus’ response to any attempt to go beyond human experience and reason is unequivocal; in the Myth of Sisyphus, he wrote:

> “I don't know whether this world has a meaning that transcends it. But I know that I do not know = that meaning and that it is impossible for me just now to know it. What can a meaning outside my condition mean to me? I can understand only in human terms” (Camus, 1942).

The Absurd Heroes

In Albert Camus' philosophy, the "absurd hero" is exemplified by Sisyphus, a figure from Greek mythology condemned to eternally push a boulder up a mountain only to have it roll back down each time he reaches the summit. Camus uses Sisyphus to illustrate the human condition, marked by a perpetual search for meaning in an indifferent universe. Despite the futility of his task, Sisyphus continues with determination, embodying the essence of the absurd hero. By accepting the absurdity of his situation and finding contentment in the struggle itself, Sisyphus achieves a form of freedom and defiance, demonstrating that meaning and happiness can be found in the act of perseverance itself

Two of the Absurd heroes in Camus' absurdist philosophy are Sisyphus and Meursault. These absurd heroes show different responses to the Absurd: The former is through active defiance and perseverance, and the latter is through passive acceptance and authenticity. Both characters exemplify Absurd heroism by confronting the meaninglessness of existence in their ways, reflecting Camus' exploration of the diverse human responses to the Absurdity of the human condition. By presenting these two contrasting characters, Camus provides a distinct understanding of the Absurd and how individuals navigate their existence in an indifferent universe.

While Sisyphus's victory is profound on an individual level, it does not extend to the collective or historical sphere. As Camus describes, the Absurd is an inherent conflict between human beings' search for meaning and the indifferent, chaotic universe. Sisyphus's victory does not alter the universe's nature or the human condition's absurdity for others. It remains a personal triumph, applicable to his own experience, but not something that fundamentally transforms the more significant human struggle with the Absurd.

Meursault, the protagonist of Camus' novel "The Stranger," embodies the Absurd Hero differently. Meursault is detached and indifferent to the world around him. He shows little emotion, even in the face of significant events such as his mother's death or his trial. He accepts the universe's indifference and lives according to his desires and impulses.

Meursault's rebellion against the Absurd is rooted in his refusal to conform to societal expectations. He did not grieve at his mother's funeral and did not show remorse during his trial. Instead, he embraces his nature, living authentically without the constraints of social norms and moral judgments. This nonconformity grants him a sense of freedom, even though it leads to tragic consequences. His indifference, acceptance of the Absurd, and genuine authenticity make him a symbol of the Absurd Hero. Meursault's story challenges traditional concepts of morality and meaning, illustrating the complexities of human existence in a universe devoid of inherent purpose.

Sisyphus and Meursault differ in their attitudes and responses to the Absurd. Sisyphus finds meaning in the act of defiance, in the repetitive task itself. His rebellion is active and continuous. On the other hand, Meursault rebels by embracing his nature and living authentically. His rebellion is passive, a refusal to conform to the expectations and norms imposed by society. Though they differ in their attitude and response to the absurd, Sisyphus and Meursault display courage in confronting the absurd. This courage lies in

their conscious choice to live authentically by recognizing the meaninglessness of human existence and constantly and actively rejecting it through revolt.

The Rebel an Essay on Man in Revolt: A Philosophical Response to the Absurd

> "What is a rebel? A man who says no, but whose refusal does not imply a renunciation. He is also a man who says yes, from the moment he makes his first gesture of rebellion Rebellion cannot exist without the feeling that, somewhere and somehow, one is right. It is in this way that the rebel slave says yes and no simultaneously" (Camus, 1956).

Camus' depiction of the rebel is someone who says "no" and simultaneously says "yes" in the face of the inherent meaninglessness of human existence. The "yes" signifies the acceptance of the reality of the absurd, and the "no" signifies the active rejection and repulsion that life amidst the reality of absurdity is devoid of meaning. The reality of the absurd did not negate human existence and meaning but affirmed it! The absurdity arising from man's irrational relationship to the universe negated not the meaning of human existence but the meaning attributed to it. The dialectical encapsulates the human condition. It reflects the constant struggle and negotiation between affirming life and rejecting its absurd aspects. This tension embodies the complexity of human existence, where individuals navigate between finding meaning and confronting meaninglessness. It illustrates the ongoing battle between hope and despair, creation and destruction, affirmation and negation. This dialectical response underscores the richness and depth of human experience, acknowledging the coexistence of moments of joy, love, and purpose with moments of suffering, absurdity, and despair (Caraway, 1992).

In contrast to the traditional understanding of a "rebel" as someone who openly opposes, resists, and defies authority as well as social norms and established beliefs, the "rebel" as portrayed by Camus is someone who engages in philosophical contemplation, questioning the fundamental aspects of existence while exploring the meaning of life given the existential condition of the human person. The rebel's rebellion is rooted not in violence but in recognizing the absurd as a fundamental aspect of human existence and condition and courageously resisting it. Its rebellion is a courageous act against the inherent meaninglessness of life, refusing to succumb to despair and nihilism. Further, the rebel values autonomy and freedom by rejecting imposed societal norms, dogmas, and ideologies, blatantly asserting independence in thought and action, making the act of rebellion not influenced by external influences but something that arises from one's convictions and reasoning. The Rebel understands that life lacks inherent meaning yet engages in creative endeavors and meaningful actions because its rebellion involves the discovery of personal meaning and significance in a universe devoid of meaning. This is possible due to the freedom discovered in the realization and dialectic response to the absurd.

"The rebel, then, is the absurd man." The absurd man, the rebel, lives only based on personal experience. It does not scorn reason. Instead, it uses reason but admits the irrational. He is little inclined to leap before knowing. "He sees no further place for hope beyond this life. However, most importantly, he sees that only this life has value. He rebels against death and for life" (Caraway, 1992). The rebel does not conform to the norms of

the society or any form of ideologies, acknowledges the irrational aspects of human existence, and uses reason to understand the world while simultaneously recognizing its limitations, but chooses not to succumb to take the “leap.” The rebel embraces the irrational, signifying acceptance of human existence's inexplicable reality. The “no” to the absurdity and the “yes” to life highlights the rebel’s clinging and love for being and existing. For this reason, Sisyphus's condemnation of the absurd task, contrary to the belief of the gods as the greatest punishment, is Sisyphus's greatest reward to live among the gods and be eternal like them. The rebel’s love for being and existing amidst the absurdity of his existence makes the rebel the “absurd man. An examination of man's relation to the world reveals that the only knowledge that man has is that he now has his present life, but that he is, to use Heidegger's phrase "a being-to ward-death." Thus, the only value that man knows is life. The rebel, therefore, rebels against death and for life” (Caraway, 1992).

The human person’s external defiance against the absurd and internal philosophical stance distinguished the rebel from the rest. The rebel confronts the absurd with unwavering courage, a creative spirit, and authenticity.

The Metaphysical Revolt

> “Revolt is the ongoing struggle with the absurd, a struggle which maintains the tension between man's desires and what the world offers without allowing man to negate either pole by escaping through suicide on the one hand or hope which does not conform to man's experience on the other hand” (Caraway, 1992).

In Albert Camus' philosophy, metaphysical revolt refers to the inherent human resistance against the absurdity of existence. It is a rebellion not against specific injustices or societal oppressions but against the universe's very nature, which Camus characterizes as inherently devoid of meaning or purpose (Hanna, 1958). This existential crisis paved the way for the metaphysical revolt against the fundamental aspect of reality and the human condition that appears devoid of inherent meaning or value. Metaphysical revolt is not the same as political or social rebellion, which results from injustice and oppression experienced by individuals or groups. Metaphysical revolt transcends the notion of rebellion underscored in societal concerns; it is not a rebellion against an unjust government but a rebellion against the universe and its inherent meaninglessness (Caraway, 1992). In the silence of the universe, metaphysical revolt signifies the human person’s refusal to accept that life is absurd. It is the resistance and insistence of the human spirit to seek meaning and purpose in an indifferent universe. In the face of a universe that does not offer inherent meaning or values, human beings experience a profound sense of disorientation and absurdity. Metaphysical revolt is the response to this existential crisis. It is a rebellion against the silence of the cosmos, the lack of answers to fundamental questions, and the absence of any ultimate purpose in life (Foley, 2008).

Understanding Poverty as an Existential Condition of Human Existence

Poverty is a significant issue in the Philippines, affecting a large portion of the population. According to the latest data, the poverty incidence among Filipinos in 2020 was 21.1%, or around 23.5 million people (Philippine Statistics Authority, 2021). When existence is consumed by "the daily struggle for survival," the pursuit of authentic and

meaningful existence becomes distant. An existential approach to poverty examines how this deprivation of meaning and purpose affects the overall well-being of an individual. Adopting an existential lens in understanding poverty becomes a profound philosophical inquiry that prompts questions about the human condition, societal values, and the ethical responsibilities of individuals and communities in addressing the issue. It, therefore, unravels the more profound implications of poverty, moving beyond economic terminologies and statistical data. Traditionally, poverty is often perceived in economic terms, and it is a state wherein a person lacks the material resources to survive, such as food, shelter, and clothing. Economic aspects are undeniably crucial in living a happy and authentic existence. However, this perspective reduces the impact of poverty on biological and physical needs. Poverty is not just about an individual's economic capabilities; it is an existential condition of human beings that consequently causes an existential crisis, forcing one to question the meaning attributed to life. When examined through the existential lenses, poverty challenges an individual at a fundamental level, making one question their identity and self-worth. A person's identity and self-worth cannot be reduced to economic capabilities and how much money they possess, but also through their beliefs and aspirations, which give life meaning.

Camus' analysis of the absurdity of the human condition and existence can be extended to understand poverty as an existential condition of man. In this context, poverty exists because of man's irrational relationship with fellow human beings. The struggle for necessities and the social injustices, coupled with the inability of the social structures to respond to people's needs, exemplify the clash between the human desire for dignity, purpose, and meaning. The blatant contradiction between the human desire for meaning and the irrationality of human societal structures and relationships perpetuates the existence of poverty, which stresses the absurdity of the human condition.

An Absurd Human Relationship

According to Aristotle, humans are social beings, thriving in social interactions and forming societies. Conflict naturally arises in societies due to individual uniqueness and differences (Dixon, 2010). To mitigate this, humans enter social contracts. Thomas Hobbes argued in "Leviathan" that without societal structures, life in the "state of nature" would be nasty, brutish, and short, leading to barbarism in resolving conflicts. He posited that individuals willingly surrender some freedom to governing authorities for security and order (Martinich, 2003). John Locke, in his social contract theory, believed individuals enter into social contracts to secure their rights to liberty and property, and if the government fails to protect these rights, the people have the right to overthrow it (Jos, 2006). Societal conventions are established to address conflicts from human interactions, creating a structured environment with shared norms, beliefs, culture, and systems to maintain order and define individual roles, rights, and responsibilities (Martinich, 2003). As rational beings, humans can discern the potential consequences of their actions, knowing what constitutes acceptable behavior in society. Despite this knowledge, individuals may choose to act otherwise. To be considered a "good man" in society, one must often perform actions benefiting others, sometimes at the expense of personal happiness, while doing the opposite may label one as selfish or a "bad person," illustrating that "being good" often requires suspending personal gratification..

Desire, which is inherent in humans, urges man to act. Desire, commonly understood as having a strong feeling of wanting or having something, compels humans to act and satisfy wants and needs; it catalyzes human actions (Anderson, 2015). It implies that wants and needs play a significant role in motivating humans to pursue goals. According to Bertrand Russel in his acceptance speech for the Nobel Prize in Literature in 1950, “All human activity is prompted by desire.

> “Some earnest moralist advances a wholly fallacious theory to the effect that it is possible to resist desire in the interest of duty and moral principle. I say this is fallacious, not because no man ever acts from a sense of duty, but because duty has no hold on him unless he desires to be dutiful. If you wish to know what men will do, you must know not only, or principally, their material circumstances, but rather the whole system of their desires with their relative strength” (Russell, 1950).

All human action is driven by desire, and if knowing is the first step in doing, it implies that in the performance of any human act, an individual is capable of knowing if an action will cause harm to others and if acted to do so, it only shows that the satisfaction of desire comes first. It is what causes the conflict in human relationships. Even if an act is performed because of a sense of duty, the satisfaction of desires still comes first. Bertrand Russell labeled this kind of desire as vanity. “Vanity is a motive of immense potency; “look at me” is one of the most fundamental desires of the human heart. It can take innumerable forms, from buffoonery to posthumous fame” (Russell, 1950). This means that the action, because of a sense of duty, is driven by the desire to be known to be famous.

Russell further elaborates in his speech that human desire is insatiable, “but man differs from other animals, that is so to speak man’s desire is infinite, which can never be fully gratified and would keep him restless even in paradise. Russell labels four human desires: acquisitiveness, rivalry, vanity, and love of power” (Russell, 1950). Acquisitiveness is the desire to possess as much as possible of goods. Despite having enough to survive, man desires to retain more. Russell briefly recounted his experience of the two little girls whom he saved from starvation in Estonia. The girls in his family have more than enough food to survive, but despite this, “they spent their leisure visiting neighboring farms stealing potatoes which they hoarded.” It shows that man will always desire to acquire more, no matter how much he/she possesses.

Rivalry, according to Russel, (1950) is the desire to outdo the others because man's perception of the other is not a comrade but a rival. Economically, man sees others as a rival over scarce resources; for this reason, man, due to acquisitive desire, will do everything to possess the resources.

“But great as is the influence of the motives we have been considering, there is one which outweighs them all. I mean the love of power. Love of power is closely akin to vanity, but it is not the same thing. Vanity needs glory for satisfaction, and it is easy to have glory without power” (Russell, 1950). The desire for power outweighs acquisitiveness, rivalry, and vanity. Vanity desires fame, glory, and recognition; rivalry desires the destruction of the other, and acquisitiveness desires possessions; the love of power desires dominion and control. It drives an individual to pursue positions of authority

and leadership, which grant an individual dominion and power over others. Possessing such power means easy access to resources, destruction of rivals, and fame and glory.

Ideally, human relationships should be characterized by mutual respect, empathy, and compassion, equity and fairness, shared values, and goals. However, as long as human desire exists, such ideal relationships will not exist, and man will continue to harm fellow man in the process of satisfying desire. It is for this reason that human relationships are irrational and absurd. Human reason dictated what human relationships should be, but the very heart of human experience tells otherwise. Human relationships are absurd!

Poverty as a Condition of Human Existence

Applying Albert Camus' framework of absurdity to understand poverty as an existential condition involves recognizing the tension between the human desire for a meaningful existence and societal relationships. Humans seek peaceful coexistence but are driven by insatiable desires, which often lead to conflict. Bertrand Russell noted that humans, unlike animals, have infinite desires that can never be fully satisfied, causing restlessness even in ideal conditions (Russell, 1950). This insatiability leads to indifference toward others' needs.

Ideally, societal conventions should guide actions toward justice and harmony. However, individual autonomy allows people to transcend these norms and pursue their desires, often at the expense of others. In the context of poverty, societal norms suggest that excessive wealth leads to greed and inequality. Although reason should temper human desire, it often supports systems like capitalism that protect individual wealth and control resources, exacerbating poverty (Smith, 2002). Capitalism fuels the human drive for possessions and power, making individuals blind to others' needs.

This tension between desire and relationships suggests that poverty is a condition of human existence. It persists not due to actual scarcity but to justify acquisitive desires. Humanity has the resources to eradicate poverty; what is needed is the equitable distribution of these resources to allow everyone opportunities for self-realization rather than mere subsistence. Karl Marx proposed communism as a solution, advocating for the equal distribution of resources, which he believed required a revolution to achieve (Raekstad, 2018).

The Resilience of the Filipino Sisyphus

This study establishes that poverty is an existential condition resulting from the tension between the human desire for meaning and the irrationality of human relationships. The Filipino absurd hero, in the context of poverty, acknowledges this condition but revolts against it through resilience, a unique Filipino trait. Resiliency is Filipinos' act of defiance against poverty's absurdity, allowing them to find meaning despite challenges.

According to the Philippine Statistic Association (PSA), 16.7% of Filipinos lived below the poverty line in 2021, with fisherfolk, farmers, and rural residents most affected (Philippine Statistic Authority, 2021). A 2023 Social Weather Station survey revealed that 51% of Filipino families consider themselves poor (CNN, 2023). The World Bank's global poverty threshold is $2.15 daily, while the PSA sets it at P80.02, criticized for being too

low (Dela Peña, 2023). Poverty impacts various life aspects, including healthcare, education, employment, and overall well-being (Adler & Newman, 2002; Duncan, 2010; World Bank, 2019).

Studies show that poverty also brings social stigmas, associating the poor with criminality, dirtiness, and laziness (Rosales, 2013; Bernardo, 2013). Media often romanticizes poverty, portraying it as noble, which can lead to exploitation and marginalization (Ehrenreich, 2001). Filipinos' coping mechanisms, such as reliance on faith and communal support (Bayanihan), highlight their resilience (Rilveria, 2018).

Resilience, defined by the American Psychological Association as the ability to bounce back from adversity, is deeply rooted in Filipino cultural values and social support systems. This includes family bonds and community solidarity (Umbal & Salanga, 2018). Filipino resilience is also characterized by positivity and humor, which help navigate difficult situations (Salazar, 2010).

However, reliance on faith and religiosity can be seen as evasion of the existential condition, which Camus termed "philosophical suicide" (Foley, 2008). Yet, this study acknowledges that faith and religiosity provide Filipinos with strength and endurance, a departure from Camus' strict rejection of transcendental meaning.

This research diverges from Camus by recognizing the unique cultural context of Filipino resilience, which combines existential awareness with faith. While Camus emphasized confronting the absurd without external frameworks, this study argues that, for Filipinos, faith is a vital source of strength.

On the other hand, redefining Filipino resilience within Camus' framework encourages a self-reliant approach, emphasizing human agency and rationality. This perspective suggests that true resilience can emerge without divine assurance, encouraging critical thinking and empirical reasoning (Garnham, 1967; Foley, 2008).

Ultimately, Filipino resilience is diverse, drawing strength from both existential awareness and faith. This study promotes an inclusive perspective, recognizing that individuals can find strength and meaning in various ways when confronting existential challenges. This approach respects individual choices and cultural backgrounds, fostering collective resilience grounded in Filipino existential experiences.

Metaphysical Revolt, Towards Authentic Resilience

Metaphysical rebellion, as described by Camus, is the act of defiance against the inherent condition of human existence and the universe's lack of meaning. This form of rebellion is not against societal injustices but against the absurdity of life itself (Camus, 1956). Camus acknowledges life's absurdity but rejects nihilism and religious transcendence as responses. Instead, he proposes metaphysical revolt, which is a rebellion against the universe's meaninglessness and an assertion of human spirit seeking meaning (Caraway, 1992).

In the context of poverty, metaphysical revolt involves recognizing poverty as a fundamental human condition arising from irrational human relationships. The insatiable

human desire, as noted by Bertrand Russell, drives individuals to indifference and societal conventions often fail to temper this desire, leading to injustice and inequality (Russell, 1950).

The plight of the poor parallels Sisyphus' struggle. Despite their cyclical and seemingly endless struggles against poverty, the poor continue to hope and live, manifesting their reluctance to accept life's meaninglessness. Their daily perseverance against economic challenges and stigmatization is a form of revolt against their absurd condition. This is encapsulated in the Filipino tagline, "Para kanino ka bumabangon?" which highlights living for others, especially family, as a source of meaning (Filipino coffee brand tagline).

Conclusions

Resiliency Redefined

Traditional resilience suggests "bouncing back" to a prior state after adversity, similar to a rubber band returning to its shape. This notion is flawed as it implies reverting to pre-challenge conditions, overlooking the personal growth that should accompany overcoming difficulties. For instance, after natural disasters, affected individuals are expected to rebuild and return to normalcy. This expectation often masks governmental and institutional failures, as resilience becomes an excuse for inaction.

Breaking Point and Transformation

Human resilience, like a rubber band, has a breaking point. Excessive stress can lead to despair and self-destructive behaviors, evidenced by the link between poverty, crime, and substance abuse. Thus, resilience should be seen not merely as recovery but as a transformative process involving reflection, learning, and growth. Individuals should not only survive challenges but also adapt and thrive, gaining strength and insight from adversity.

Bouncing Forward

Patricia Longstaff's concept of "bouncing forward" emphasizes growth and improvement post-adversity. "Bouncing forward" is a concept that emphasizes an individual's or a community's ability not only to bounce back from adversity or difficult circumstances but also to grow and thrive as a result of those challenges. Rather than simply returning to the previous state, resilient individuals and communities undergo a transformative process that enables them to adapt, learn, and improve their situation (Hynes et al., 2020). Resilience involves not just overcoming but harnessing adversity to emerge stronger and wiser. This process requires reflection, adaptability, and the willingness to learn and change. Michaela Haas's book, "Bouncing Forward: Transforming Bad Breaks into Breakthroughs," illustrates how individuals can turn hardships into opportunities for personal growth (Haas, 2015).

Pagpupunyagi

"Pagpupunyagi," a Filipino term, encapsulates the essence of true resilience. It goes beyond mere survival, signifying continuous effort, perseverance, and the quest for meaning despite challenges. It reflects an active pursuit of growth and development, acknowledging the absurdity of life yet finding purpose through persistent effort. *Pagpupunyagi* goes beyond survival, working, and consuming oneself for physical sustenance. It encompasses an active pursuit that will give meaning to existence; despite the challenges an individual may encounter, it signifies their commitment to personal growth and development. The inherent optimism of *pagpupunyagi* acknowledges the absurdity of the human condition, but at the same time, it also embraces the transformative power of such a condition. An individual now has the power to create meaning imposed not by society nor the pre-established meaning offered by religion but a meaning generated through the individual's effort to thrive and find meaning amidst the absurdity.

The Filipino Sisyphus

The Filipino Sisyphus symbolizes the relentless Filipino spirit, striving for meaning amidst the absurdity of poverty and existential challenges. This symbolic figure represents ordinary Filipinos, like workers, street vendors, slum dwellers, and teachers, who persist daily despite daunting circumstances. These individuals embody "pagpupunyagi," accepting and revolting against life's absurdity through their dedication and perseverance.

The Filipino Sisyphus reflects the resilience and determination of Filipinos who, despite acknowledging the absurdity of their condition, persistently strive to find and create meaning in their lives. This relentless pursuit, embodied in "pagpupunyagi," signifies the true essence of resilience, transforming adversity into a source of strength and purpose. Tuloy pa rin ang laban ng buhay!!!

Recommendations

In light of the findings of this research, "The Filipino Sisyphus: An Allegory on the Existential Crisis of Poverty and Filipino Resiliency—an Investigation on Albert Camus' Absurdity," several recommendations emerge to enrich our understanding of Filipino resilience and its intersection with existential philosophy

1. Expand the investigation and improve the findings of this research by delving into other existentialist and nihilist philosophies that can contribute to a much more profound understanding of Filipino resilience.

2. Conduct qualitative studies that delve into the personal narratives of individuals who have experienced poverty, exploring the factors contributing to their resilience.

3. Conduct cross-cultural analyses of resilience in poverty to extend the research beyond the Filipino context.

Compliance with Ethical Standards

This research study employs a qualitative research design. The study involves a meticulous review of pertinent literature and a comprehensive analysis of relevant primary and secondary references. By rigorously examining existing scholarly works, and articles, the study ensures a clear understanding of the topic under investigation while upholding ethical standards for resource utilization. As such, it refrains from direct engagement with participants through surveys, interviews, or focus groups. This decision aligns with ethical considerations, aiming to respect the autonomy and privacy of individuals while avoiding potential biases or undue influence on the findings of this research. Instead, the study relies solely on the wealth of existing knowledge and resources available to ensure the integrity and validity of its conclusions. Further, there is no conflict of interest in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings, and the results were used purely for research.

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THE IMPACT OF IMPLEMENTING A HEALTHY SCHOOL POLICY ON LEARNERS' ACADEMIC PERFORMANCE AND WELL-BEING: A STUDY ON THE SIX PILLARS OF HEALTH-PROMOTING SCHOOL

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ABSTRACT

This study conducted at Yugno Elementary School investigates the impact of implementing a healthy school policy on learners' academic performance and well-being. Employing a total enumeration technique, data was gathered from 65 parents and 89 learners using test questionnaire and survey utilizing a 5-point Likert scale. Pilot testing ensured validity and reliability of instruments. Descriptive quantitative methods were employed for data analysis. Results indicate significant enhancements in academic performance, particularly in cognitive skills and motivation, with slightly less emphasis on mental health compared to other health-promoting initiatives. Improved academic outcomes were noted across all grade levels, notably in Grade 6, alongside enhancements in physical health through healthier lifestyle choices. The study underscores the effectiveness of health-promoting policies in fostering supportive school environments conducive to student well-being. Recommendations include strategies to enhance parental involvement, proactive stakeholder communication, and tailored policy implementation to diverse cultural contexts, aiming to optimize policy impact and sustainability.

Keywords: *healthy school policy, academic performance, student well-being, six pillars*

INTRODUCTION

In recent years, the importance of creating health-promoting school environments has gained significant attention to improve both academic performance and overall well-being of learners. Schools are not only centers for academic learning but also crucial settings for fostering the physical, mental, and social health of students. The concept of Health-Promoting Schools is built around the integration of health into all aspects of school life, grounded in the understanding that healthy students are better learners.

The World Health Organization (WHO) (2022) defines a Health-Promoting School as one that constantly strengthens its capacity as a healthy setting for living, learning, and working. This holistic approach encompasses various dimensions of health and well-being, aiming to create a supportive environment that enables students to thrive academically and personally. Research indicates that implementing health-promoting policies within schools can lead to significant improvements in students' health behaviours, academic outcomes, and social skills (Lee et al., 2022, McHugh et al., 2022).

This study focuses on the impact of implementing a healthy school policy on learners' academic performance and well-being, structured around the six pillars of health-promoting schools as defined by WHO: school health services, healthy school environment, health education, physical education, nutrition services, and counselling, psychological, and social services. Each pillar plays a vital role in creating a comprehensive and sustainable approach to student health and academic success. According to Memorandum Order No. 31, series of 2024, these pillars are (1) healthy school policies; (2) healthy physical school environments; (3) healthy school social environments; (4) health skills and education; (5) links with parents and school community; and (6) access to school health services.

Healthy school policies are critical for establishing a foundation for health-promoting schools. The Universal Health Care Act (R.A. No. 11223) mandates the support and implementation of clinical care standards by the Department of Health (DOH), ensuring that schools are designated as healthy settings based on these standards (Oseña, Gonzales, & Jorda, 2024). Similarly, the Legal Education Reform Act (R.A. No. 7662) emphasizes the importance of uplifting educational standards, which can also extend to health promotion within educational settings (Saniel, Parcutilo, & Mariquit, 2022).

Creating healthy physical school environments is essential for promoting student health and well-being. Paraguya-Agang (2023, 2024) has explored the challenges and related studies on child-friendly school-health environments, emphasizing the need for supportive physical conditions in schools.

Health skills and education are foundational for equipping students with the knowledge and abilities to maintain their health. Tolentino et al. (2020) developed and evaluated localized digital learning modules for indigenous peoples' health education, highlighting the importance of culturally relevant health education. Similarly, Tiwari et al. (2020)

demonstrated the effectiveness of life skills health education programs, and Thakur (2021) provided theoretical foundations for health education and promotion.

Links with parents and the school community are vital for creating a supportive network for students. Epstein (2019) discussed how school and family partnerships lead to school improvement and student success. Kelty and Wakabayashi (2020) provided perspectives on family engagement in schools, while Herrera, Porter, and Barko-Alva (2020) focused on cultivating trust in culturally diverse classrooms.

Access to school health services is crucial for addressing students' mental and physical health needs. Moroz, Moroz, and D'Angelo (2020) discussed barriers and solutions to increasing access to mental health services in Canada, while Duong et al. (2021) conducted a systematic review and meta-analysis on rates of mental health service utilization by children and adolescents in schools and other common service settings.

Previous studies have shown that health-promoting interventions in schools can result in improved attendance, better concentration, enhanced academic performance, and a reduction in health-related issues among students (McHugh et al., 2022). However, there is a need for more specific and localized research to understand the contextual challenges and benefits of such policies in diverse educational settings.

This research aims to fill this gap by investigating the specific effects of a healthy school policy on academic performance and well-being among learners in a selected educational setting. Examining each of the six pillars, this study seeks to provide a detailed analysis of how comprehensive health-promoting strategies can be effectively implemented and sustained, ultimately contributing to the academic and personal development of students.

Research Questions

This study aims to investigate the impact of implementing a healthy school policy on learners' academic performance and well-being, focusing on the six pillars of Health-Promoting Schools. Specifically, it sought the following questions :

1. How does the implementation of a healthy school policy influence learners' academic performance?
2. Is there a significant difference in test scores before and after the policy implementation?
3. What is the impact of a healthy school policy on learners' physical health?
4. How does the implementation of a healthy school policy affect learners' mental health and well-being?
5. What role do the six pillars of Health-Promoting Schools?
6. What are the challenges in implementing the healthy school policy of Health-Promoting Schools?

METHODOLOGY

The study was conducted at Yugno Elementary School to evaluate the impact of implementing a healthy school policy on learners' academic performance and well-being. A total enumeration technique was used, involving 65 parents and 89 learners. Data was collected through test questionnaire and survey, with a 5-point Likert scale designed to measure the policy's implementation and impact. Pilot testing was conducted to ensure validity and reliability. Descriptive quantitative methods were used to analysed the collected data. Although the findings may not be generalizable to other schools, the study provides a comprehensive analysis of the impact of a healthy school policy on learners' academic performance and well-being within the defined scope.

RESULTS AND DISCUSSION

Table 1

Implementation of a Healthy School Policy Influence Learners' Academic Performance

Indicators	**WM**	**VI**
1. A healthy school policy helps my child concentrate better in class, leading to improved academic performance.	4.76	*SA*
2. With a healthier school environment, my child gets sick less often and misses fewer days of school, which positively impacts their learning.	4.54	*SA*
3. Access to nutritious meals at school ensures my child has the energy needed for learning and participating actively in class.	4.74	*SA*
4. Regular physical education and activity breaks provided by the school keep my child physically fit and mentally alert, boosting their academic performance.	4.59	*SA*
5. Programs that address mental health and well-being reduce my child's stress levels, allowing them to focus more on their studies.	4.50	*SA*
6. A healthy school environment promotes positive behavior, which translates into a better learning atmosphere and improved academic outcomes for my child.	4.78	*SA*
7. Activities and lessons that promote health also enhance my child's cognitive skills such as memory, problem-solving, and critical thinking.	4.80	*SA*
8. Learning about healthy habits at school encourages my child to adopt these practices, which support their overall academic success.	4.74	*SA*
9. Health-promoting initiatives make school a more enjoyable place for my child, increasing their motivation to participate and succeed academically.	4.80	*SA*
10. A comprehensive health policy creates a supportive environment that helps my child feel safe and valued, contributing to better academic performance.	4.74	*SA*
Overall Weighted Mean	**4.69**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

The table shows the influence of implementing a healthy school policy on learners' academic performance, with various indicators reflecting different aspects of the policy. The weighted mean (WM) and verbal interpretation (VI) indicate the level of agreement among respondents for each statement. The indicators with the highest mean (WM = 4.80) are Indicator 7 “Enhancement of Cognitive Skills” this statement posits that activities and lessons promoting health also enhance cognitive skills such as memory, problem-solving, and critical thinking. Respondents strongly agree that these health-promoting activities significantly benefit their children's cognitive development, thus improving their academic performance.

Moreover, Indicator 9 “Increased Enjoyment and Motivation (Indicator 9) this statement asserts that health-promoting initiatives make school a more enjoyable place for children, thereby increasing their motivation to participate and succeed academically. Respondents strongly agree that creating a pleasant and health-focused school environment boosts their children's enthusiasm and drive for academic success. These highest-rated indicators emphasize the critical role of cognitive and motivational enhancements stemming from a healthy school policy, underscoring how such initiatives can lead to notable improvements in academic outcomes.

Conversely, the indicator with the lowest mean (WM = 4.50) is indicator 5, “Mental Health and Stress Reduction” this statement suggests that programs addressing mental health and well-being reduce stress levels, allowing children to focus more on their studies. While respondents still strongly agree, this aspect received the lowest weighted mean among the indicators. This indicates that although mental health programs are deemed beneficial, they may be perceived as slightly less impactful on academic performance compared to other health-related initiatives.

Overall, the table highlights that implementing a comprehensive healthy school policy is strongly associated with improved academic performance across various dimensions, from cognitive skills and physical health to emotional well-being and overall enjoyment of the school environment.

These findings align with the efforts by the Department of Health (DOH) to ensure schools are designated as healthy settings based on established standards (Oseña, Gonzales, & Jorda, 2024). Creating environments that prioritize health, these standards support the overall well-being and academic performance of students. Additionally, the Legal Education Reform Act (R.A. No. 7662) emphasizes the importance of uplifting educational standards, which includes the promotion of health within educational settings (Saniel, Parcutilo, & Mariquit, 2022). The act recognizes that fostering a healthy school environment is integral to enhancing academic performance, thus reinforcing the necessity of integrating health-promoting initiatives into the educational framework.

Table 2

Testing of Significant Difference in Test Scores before and after the Policy Implementation.

Grade Level	Pre-test		Post-test		Difference (Posttest-Pretest)
	Mean Percentage Score	Descriptive Interpretation	Mean Percentage Score	Descriptive Interpretation	
Kindergarten	65.00	DNME	80.50	Satisfactory	15.5
Grade 1	72.00	DNME	88.79	Very Satisfactory	16.79
Grade 2	67.00	DNME	85.70	Very Satisfactory	18.7
Grade 3	71.00	DNME	87.80	Very Satisfactory	16.8
Grade 4	69.00	DNME	84.80	Satisfactory	15.8
Grade 5	74.00	DNME	89.40	Very Satisfactory	15.4
Grade 6	66.00	DNME	86.70	Very Satisfactory	20.7
Grand Mean	**69.14**	DNME	**86.24**	**Very Satisfactory**	**17.1**

Legend: *90%-100% -Outstanding (O) , 85%-89%- Very Satisfactory (VS), 80%-84%- Satisfactory (S), 75%-79%-Fairly Satisfactory (FS), 74% Below -Did Not Meet Expectations (DNME)*

Table 2 highlights the significant differences in test scores before and after the implementation of the healthy school policy across various grade levels. The data presents the pre-test and post-test mean percentage scores, along with their descriptive interpretations and the differences between post-test and pre-test scores.

The highest mean difference is observed in Grade 6, where the pre-test mean percentage score was 66.00 (Did Not Meet Expectations), and the post-test mean percentage score increased to 86.70 (Very Satisfactory), resulting in a substantial improvement of 20.7 points. This notable increase suggests that Grade 6 students greatly benefited from the policy, likely due to enhanced health initiatives and a more supportive learning environment.

Conversely, the lowest mean difference is found in Grade 5, where the pre-test mean percentage score was 74.00 (Did Not Meet Expectations), and the post-test mean percentage score rose to 89.40 (Very Satisfactory), with a difference of 15.4 points. While this still represents a positive change, the improvement is the smallest among the grade levels. Despite this, the transition from "Did Not Meet Expectations" to "Very Satisfactory" demonstrates a significant impact, reflecting the overall effectiveness of the healthy school policy.

The grand mean scores reveal that, on average, students' scores improved from 69.14 (Did Not Meet Expectations) in the pre-test to 86.24 (Very Satisfactory) in the post-test, with an average difference of 17.1 points. These findings align with the standards set by the Department of Health (DOH) for healthy settings in schools (Oseña, Gonzales, & Jorda, 2024), emphasizing the importance of a health-focused school environment in

enhancing academic performance. The pilot implementation of the Healthy Learning Institution highlighted in the study demonstrates the positive impact of such policies on learners' academic outcomes.

Table 3

Impact of a Healthy School Policy on Learners' Physical Health.

Indicators	**WM**	**VI**
1. The healthy school policy has led to fewer illnesses for my child, as they are exposed to a cleaner and safer environment.	4.45	*SA*
2. Regular physical activities and structured PE classes at school have significantly improved my child's physical fitness.	4.34	*SA*
3. Access to balanced and nutritious meals at school ensures my child receives the essential nutrients needed for their growth and development.	4.74	*SA*
4. With better dietary options and regular exercise, my child maintains a healthy weight, reducing the risk of obesity and related health issues.	4.70	*SA*
5. The focus on health and wellness at school has strengthened my child's immune system, making them more resilient to common illnesses.	4.50	*SA*
6. Initiatives like regular dental check-ups and oral health education at school have improved my child's dental hygiene and overall oral health.	4.76	*SA*
7. The emphasis on physical activity and well-being at school has helped regulate my child's sleep patterns, contributing to their overall health.	4.54	*SA*
8. The education on health and wellness has encouraged my child to make healthier lifestyle choices, such as choosing water over sugary drinks.	4.84	*SA*
9. The school's efforts to promote physical safety and teach proper techniques in sports and activities have reduced the risk of injuries for my child.	4.60	*SA*
10. A holistic approach to health at school ensures my child's mental well-being is supported alongside their physical health, creating a balanced and healthy lifestyle.	4.55	*SA*
Overall Weighted Mean	**4.60**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 3 evaluates the impact of a healthy school policy on learners' physical health through various indicators. Each indicator's weighted mean (WM) and verbal interpretation (VI) reflect the level of agreement among respondents regarding the policy's effectiveness.

The highest mean in Table 3 is observed for the indicator on encouraging healthier lifestyle choices (Indicator 8), with a weighted mean (WM) of 4.84 (Strongly Agree). This

suggests that the education on health and wellness provided at school has significantly encouraged children to make healthier lifestyle choices, such as choosing water over sugary drinks. Respondents strongly agree that this aspect of the policy has had a substantial positive impact on their children's health. This high rating underscores the effectiveness of health education in promoting long-term healthy habits among students.

Conversely, the lowest mean is found for the indicator on improving physical fitness through regular physical activities and structured PE classes (Indicator 2), with a WM of 4.34 (Strongly Agree). Although respondents still strongly agree that regular physical activities and PE classes have significantly improved their children's physical fitness, this indicator received the lowest rating among the set. This suggests that while physical fitness improvements are recognized, they may be perceived as slightly less impactful compared to other health benefits facilitated by the policy.

The overall weighted mean of 4.60 indicates that respondents strongly agree with the positive impact of the healthy school policy on various aspects of their children's physical health. These findings align with the research by Paraguya-Agang (2023, 2024), which highlights the importance of creating supportive physical environments in schools to promote student health and well-being. A holistic approach that integrates health education, physical activities, nutritious meals, and mental well-being support contributes to a balanced and healthy lifestyle for students.

Table 4

Implementation of a healthy school policy affects learners' mental health and well-being.

Indicators	**WM**	**VI**
1. The healthy school policy has helped reduce my child's stress levels by promoting a balanced and supportive school environment.	4.55	*SA*
2. Through mental health education and resources, my child has developed better emotional resilience and coping skills.	4.45	*SA*
3. With a focus on mental well-being, my child is more focused and better able to concentrate on their studies.	4.70	*SA*
4. The healthy school policy has created a positive school atmosphere, leading to increased happiness and satisfaction for my child.	4.86	*SA*
5. Programs that promote mental health have helped my child develop better social skills and relationships with peers.	4.66	*SA*
6. Access to counseling and psychological services at school has significantly decreased my child's anxiety levels.	4.55	*SA*
7. The emphasis on mental health and well-being has boosted my child's self-esteem and confidence.	4.59	*SA*
8. The policy has fostered a supportive peer environment where my child feels understood and accepted.	4.78	*SA*
9. My child has learned healthy coping mechanisms to deal with life's challenges, thanks to the mental health programs at school.	4.70	*SA*

10. The holistic approach to health in the school policy ensures that my child's overall well-being, both mental and physical, is prioritized and nurtured.	4.59	*SA*
Overall Weighted Mean	**4.64**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 4 provides insights into the impact of a healthy school policy on learners' mental health and well-being through various indicators, each assessed by its weighted mean (WM) and verbal interpretation (VI) based on respondent feedback.

The indicator with the highest mean, related to creating a positive school atmosphere (Indicator 4), received a WM of 4.86 (Strongly Agree). This indicator underscores that the implementation of the healthy school policy has successfully fostered a positive school environment, significantly enhancing children's happiness and satisfaction. Respondents strongly agree that this aspect of the policy has profoundly influenced their children's well-being, highlighting the critical role of a supportive and uplifting school atmosphere in promoting mental health.

Conversely, the indicator focusing on mental health education and resources for developing emotional resilience (Indicator 2) received the lowest mean with a WM of 4.45 (Strongly Agree). While respondents still strongly agree that these resources have contributed to their children's emotional resilience and coping skills, this indicator's slightly lower rating suggests that its impact may be perceived as slightly less pronounced compared to other aspects of the policy. This does not diminish its effectiveness but indicates that direct environmental factors such as a positive school atmosphere may be seen as having a more immediate and tangible influence on students' well-being.

Overall, the data from Table 4 underscores the positive effects of implementing comprehensive health policies in schools, particularly in fostering supportive environments that enhance mental health and well-being. These findings align with research emphasizing the importance of school environments in shaping students' emotional health and resilience, supporting broader educational goals (Lee et al., 2022; McHugh et al., 2022).

Table 5

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 1-Healthy School Policies

Indicators	**WM**	**VI**
1. These services ensure that students have access to basic health care, promoting early intervention and supporting students' overall well-being.	4.70	*SA*
2. Creating a safe and supportive physical environment that includes clean air, water, and adequate sanitation contributes to students' health and academic performance.	4.80	*SA*

3. Providing comprehensive health education equips students with knowledge and skills to make informed decisions about their health behaviors and lifestyles.	4.89	*SA*
4. Regular physical activity through structured PE classes and extracurricular sports promotes physical fitness, reduces sedentary behavior, and enhances learning readiness.	4.75	*SA*
5. Offering nutritious meals and snacks helps students maintain healthy eating habits, supporting their growth, development, and academic performance.	4.80	*SA*
6. These services provide mental health support, counseling, and social-emotional learning opportunities, fostering resilience and emotional well-being among students.	4.75	*SA*
7. The integration of these pillars ensures a holistic approach to student health, addressing physical, mental, and social aspects simultaneously.	4.65	*SA*
8. Engaging parents in promoting health behaviors at home and supporting school initiatives strengthens the impact of health-promoting strategies.	4.90	*SA*
9. Collaborating with community organizations enhances resources and support for health-promoting activities, extending the benefits beyond the school environment.	4.85	*SA*
10. Implementing these pillars establishes a foundation for lifelong health habits, preparing students to thrive academically and lead healthy lives into adulthood.	4.60	*SA*
Overall Weighted Mean	**4.76**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 5 presents a comprehensive overview of the impact of health-promoting school policies, focusing on various indicators related to the Six Pillars of Health-Promoting Schools. Among these indicators, the highest mean score (WM = 4.89) is attributed to providing comprehensive health education (Indicator 3). This indicator underscores the critical role of education in equipping students with essential knowledge and skills necessary to make informed decisions about their health behaviors and lifestyles. Respondents strongly agree that such education significantly enhances health literacy among students, emphasizing its pivotal role in promoting overall well-being and academic success. The high rating reflects the widespread recognition of educational initiatives as pivotal in empowering students to take proactive steps towards maintaining their health.

Conversely, the indicator with the lowest mean score (WM = 4.60) concerns establishing a foundation for lifelong health habits (Indicator 10). While still strongly endorsed, this indicator received the lowest rating among the set, suggesting that its perceived impact on long-term health outcomes may be viewed as slightly less immediate compared to other pillars. This does not diminish its significance; rather, it indicates that the establishment of lifelong health habits, aimed at preparing students for healthy lives into adulthood, may require more time to manifest observable effects compared to more direct interventions like health education or mental health support. The rating highlights the complexity and long-term nature of fostering sustained health behaviors among students,

underscoring the ongoing efforts needed in promoting health-promoting strategies within school environments.

Overall, the weighted mean of 4.76 (Strongly Agree) across all indicators in Table 5 reflects broad consensus among respondents regarding the effectiveness of health-promoting school policies. These findings align with Lee et al., (2022) indicating that such policies not only enhance students' health behaviors but also contribute significantly to their academic achievements and social well-being. Integrating the Six Pillars of Health-Promoting Schools, educational institutions can create nurturing environments that support students' holistic development and equip them with lifelong skills for maintaining optimal health throughout their lives.

Table 6

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 2-Healthy Physical School Environments

Indicators	**WM**	**VI**
1. Health-Promoting Schools ensure that school buildings and facilities are structurally sound, safe, and conducive to learning and physical activity.	4.65	*SA*
2. Providing clean air ventilation systems and safe drinking water sources contributes to a healthier learning environment, reducing the risk of respiratory issues and dehydration.	4.67	*SA*
3. Properly maintained restrooms and hygiene facilities promote good sanitation practices among students, reducing the spread of illnesses and fostering a clean environment.	4.65	*SA*
4. Implementing safety protocols and equipment, such as fire exits, emergency drills, and playground safety guidelines, ensures the physical safety of students during school hours.	4.45	*SA*
5. Designating and maintaining green spaces, playgrounds, and sports fields encourage physical activity and outdoor play among students, promoting fitness and overall health.	4.55	*SA*
6. Maximizing natural light exposure and regulating indoor temperatures create a comfortable and stimulating environment that supports students' physical and mental well-being.	4.59	*SA*
7. Providing ergonomic desks, chairs, and equipment supports proper posture and reduces physical strain among students, enhancing comfort and focus during learning activities.	4.60	*SA*
8. Promoting eco-friendly practices, such as recycling programs and energy-efficient initiatives, teaches students the importance of environmental stewardship and sustainability.	4.67	*SA*
9. Regular maintenance schedules for school facilities ensure that they remain in optimal condition, promoting longevity and safety for students and staff.	4.67	*SA*
10. Engaging parents and local communities in maintaining and improving school environments fosters a sense of ownership and pride, ensuring ongoing support for healthy physical school environments.	4.67	*SA*
Overall Weighted Mean	**4.61**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

The findings from Table 6 highlight the effectiveness of health-promoting strategies in creating healthy physical school environments. The indicators with the highest mean scores emphasize crucial aspects such as clean air ventilation, safe drinking water, eco-friendly practices, and regular facility maintenance. These measures not only contribute to a healthier learning environment but also support students' overall well-being by ensuring safety, sustainability, and comfort.Conversely, while still strongly supported, the indicator focusing on implementing safety protocols and equipment received a slightly lower rating. This suggests that while safety measures are essential, their perceived impact on creating a healthy physical school environment may be considered marginally less influential compared to other pillars like environmental sustainability and facility maintenance.

Overall, the weighted mean score of 4.61 (Strongly Agree) across all indicators underscores a broad consensus on the importance of structurally sound and supportive physical environments in schools. These findings align with the notion that creating such environments is essential for promoting student health and well-being, as emphasized by Paraguya-Agang's exploration of child-friendly school-health environments. This research underscores the critical role of supportive physical conditions in schools, advocating for environments that prioritize both physical health and conducive learning atmospheres (Paraguya-Agang, 2023).

Table 7

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 3-Healthy School Social Environments

Indicators	**WM**	**VI**
1. Health-Promoting Schools emphasize building positive relationships among students, teachers, and parents, creating a supportive and inclusive social atmosphere.	4.56	*SA*
2. Implementing anti-bullying policies and peer support programs ensures a safe and respectful environment where all students feel valued and accepted.	4.50	*SA*
3. Teaching students conflict resolution skills and promoting open communication channels help in resolving conflicts peacefully, fostering a harmonious school community.	4.59	*SA*
4. Celebrating cultural diversity through events, activities, and inclusive curriculum promotes understanding, empathy, and respect among students from different backgrounds.	4.55	*SA*
5. Establishing peer mentoring and support groups helps students develop social skills, resilience, and emotional well-being through positive peer interactions.	4.50	*SA*
6. Encouraging parent involvement in school activities, decision-making processes, and parent-teacher associations strengthens the school community and supports student success.	4.55	*SA*

7. Providing opportunities for teamwork, collaboration, and leadership roles helps students develop essential social skills and enhances their sense of belonging.	4.75	*SA*
8. Creating inclusive policies and practices ensures that all students, including those with disabilities or special needs, feel included and supported in the school environment.	4.60	*SA*
9. Teaching and modeling respectful communication among students, teachers, and parents fosters a culture of trust, empathy, and effective interpersonal relationships.	4.45	*SA*
10. Designating safe and welcoming social spaces within the school encourages positive interactions and friendships among students, promoting a supportive social environment.	4.45	*SA*
Overall Weighted Mean	**4.55**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 7 provides an insightful analysis of the Six Pillars of Health-Promoting Schools with a focus on fostering healthy social environments. Among the indicators, the highest mean score (WM = 4.75) is attributed to providing opportunities for teamwork, collaboration, and leadership roles (Indicator 7). This indicator suggests that encouraging such activities is highly effective in helping students develop essential social skills and enhancing their sense of belonging. Respondents strongly agree that these opportunities are crucial for promoting a cohesive and supportive social atmosphere within schools.

Conversely, the indicators with the lowest mean scores (WM = 4.45) pertain to teaching and modeling respectful communication (Indicator 9) and designating safe and welcoming social spaces (Indicator 10). Although still strongly agreed upon, these indicators received slightly lower ratings. This suggests that while these aspects are important, their perceived impact on creating a healthy social school environment might be viewed as marginally less significant compared to the opportunities for teamwork and collaboration. These indicators emphasize the necessity of fostering trust, empathy, and effective interpersonal relationships through respectful communication and providing spaces that encourage positive interactions and friendships among students.

Overall, the weighted mean score of 4.55 (Strongly Agree) indicates a strong consensus on the effectiveness of health-promoting strategies in fostering healthy social environments within schools. These findings align with Herrera, Porter, and Barko-Alva's (2020) focus on cultivating trust in culturally diverse classrooms, underscoring the importance of building inclusive and supportive social atmospheres. Promoting teamwork, collaboration, and leadership roles not only enhances students' social skills but also reinforces their sense of community and belonging, which are critical for their overall well-being and academic success.

Table 8

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 4-Links with Parents and School Community

Indicators	**WM**	**VI**
1. Health-Promoting Schools establish effective communication channels to keep parents informed about health-related activities, policies, and resources available at the school.	4.76	*SA*
2. Schools encourage parents to actively participate in health-related events, workshops, and committees to foster collaboration between home and school in promoting student well-being.	4.78	*SA*
3. Health-Promoting Schools offer family education programs that provide parents with information and skills to support their child's physical, emotional, and social health at home.	4.90	*SA*
4. Schools facilitate regular communication between parents and teachers to discuss students' health needs, progress, and any concerns related to their well-being.	4.78	*SA*
5. Schools engage the broader community, including local businesses, organizations, and health professionals, to support health initiatives and provide additional resources for students and families.	4.87	*SA*
6. Health-Promoting Schools establish parent advisory groups or councils where parents can provide input on health policies, programs, and initiatives to ensure they meet the needs of the school community.	4.67	*SA*
7. Schools organize health promotion campaigns that involve parents and the community, promoting collective responsibility for creating a healthy school environment.	4.70	*SA*
8. Schools involve parents in decision-making processes related to health policies, curriculum development, and school environment improvements to ensure inclusivity and transparency.	4.45	*SA*
9. Health-Promoting Schools foster supportive networks among parents, encouraging peer support and sharing of resources related to health and well-being.	4.58	*SA*
10. Schools celebrate cultural diversity and family traditions within the school community, recognizing that health promotion strategies should be inclusive and respectful of different backgrounds and beliefs.	4.65	*SA*
Overall Weighted Mean	**4.71**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 8 assesses the role of the Six Pillars of Health-Promoting Schools in fostering links with parents and the school community. The highest mean score (WM = 4.90) is attributed to Indicator 3, which focuses on offering family education programs that provide parents with the information and skills needed to support their child's physical, emotional, and social health at home. This indicator underscores the critical role of equipping parents with knowledge and resources, which respondents strongly agree is essential for

promoting comprehensive student well-being. The high rating reflects the importance of empowering parents to actively contribute to their children's health and development.

Conversely, the lowest mean score (WM = 4.45) pertains to Indicator 8, which involves involving parents in decision-making processes related to health policies, curriculum development, and school environment improvements. While still strongly agreed upon, this indicator received a slightly lower rating compared to others. This suggests that while parental involvement in decision-making is valued, its perceived impact on fostering a healthy school environment may be viewed as marginally less critical compared to direct family education programs or effective communication channels. This does not diminish its significance but indicates that its effects may be perceived as less immediate compared to other initiatives.

Overall, the weighted mean score of 4.71 (Strongly Agree) indicates a strong consensus on the importance of establishing robust links between schools, parents, and the broader community to support student health. These findings align with the works of Epstein (2019), Kelty and Wakabayashi (2020), and Herrera, Porter, and Barko-Alva (2020), who highlight the importance of school-family partnerships, family engagement, and cultivating trust in diverse school environments. By integrating effective communication channels, family education programs, and community involvement, schools can create a supportive network that enhances student well-being and academic success. The high ratings across most indicators highlight the critical role of engaging parents and the community in promoting a holistic and inclusive approach to health education and support

Table 9

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 5-Health Skills and Education

Indicators	WM	VI
1. Health-Promoting Schools provide structured health education programs that cover topics such as nutrition, physical activity, mental health, and hygiene to equip students with essential health knowledge.	4.68	*SA*
2. Through health education, students learn practical life skills such as decision-making, problem-solving, communication, and stress management, which are crucial for maintaining overall well-being.	4.67	*SA*
3. Schools conduct regular health assessments to monitor students' physical, emotional, and social well-being, identifying areas where additional support may be needed.	4.70	*SA*
4. The curriculum encourages healthy behaviors such as regular physical activity, balanced nutrition, adequate sleep, and substance abuse prevention to promote lifelong wellness.	4.68	*SA*
5. Peer-led initiatives empower students to educate their peers on health topics, promoting a peer-to-peer learning environment that enhances understanding and acceptance of health-related issues.	4.56	*SA*
6. Health-Promoting Schools emphasize the importance of health literacy, equipping students with the skills to access, understand, evaluate, and apply health information to make informed decisions.	4.67	*SA*

7. Health concepts are integrated into various academic subjects, demonstrating the interconnectedness of health with other areas of learning and reinforcing the importance of holistic education.	4.69	*SA*
8. Schools collaborate with community health organizations and professionals to provide students with access to resources, workshops, and guest speakers that enhance health education and skills development.	4.78	*SA*
9. Students learn to set health-related goals and develop action plans to achieve them, fostering self-efficacy and motivation towards maintaining and improving their health.	4.90	*SA*
10. Health-Promoting Schools support ongoing learning about health issues through workshops, seminars, and ongoing communication with parents, ensuring that health education remains a priority throughout a student's education journey.	4.78	*SA*
Overall Weighted Mean	**4.71**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 9 assesses the role of the Six Pillars of Health-Promoting Schools in enhancing health skills and education. The highest mean score (WM = 4.90) is attributed to Indicator 9, which focuses on teaching students to set health-related goals and develop action plans to achieve them. This indicator underscores the effectiveness of fostering self-efficacy and motivation in students, empowering them to take proactive steps towards maintaining and improving their health. Respondents strongly agree that goal setting and action planning are crucial components of health education, as they help students build practical skills for lifelong wellness.

Conversely, the lowest mean score (WM = 4.56) pertains to Indicator 5, which involves peer-led initiatives that empower students to educate their peers on health topics. Although still strongly agreed upon, this indicator received a slightly lower rating compared to others. This suggests that while peer-led initiatives are valued, their perceived impact may be slightly less pronounced than more structured health education programs or direct goal-setting activities. This does not diminish the importance of peer-to-peer learning environments, which play a significant role in enhancing understanding and acceptance of health-related issues among students.

Overall, the weighted mean score of 4.71 (Strongly Agree) indicates a strong consensus on the effectiveness of health-promoting strategies in equipping students with essential health knowledge and skills. These findings align with the works of Tolentino et al. (2020), Tiwari et al. (2020), and Thakur (2021), emphasizing the importance of culturally relevant and practical health education. Integrating comprehensive health education programs, practical life skills training, and community collaborations, schools can create a holistic learning environment that supports students' physical, mental, and social well-being. The high ratings across most indicators highlight the critical role of structured health education in promoting lifelong wellness and fostering a supportive school community.

Table 10

The Role of the Six Pillars of Health-Promoting Schools in terms of Pillar 6-Access to School Health Services

Indicators	WM	VI
1. Health-Promoting Schools ensure access to a range of health services within the school, including preventive care, screenings, vaccinations, and treatment for common health issues.	4.82	*SA*
2. Schools promote regular health check-ups and screenings for students, ensuring early detection and intervention for health concerns.	4.71	*SA*
3. Schools provide health education programs that inform parents about available health services, empowering them to utilize these resources effectively for their child's well-being.	4.72	*SA*
4. Health-Promoting Schools have protocols in place for emergency health situations, ensuring quick and efficient responses to medical emergencies on campus.	4.67	*SA*
5. Schools collaborate with health professionals, including nurses, doctors, and counselors, to provide specialized health services and support tailored to students' needs.	4.56	*SA*
6. Schools ensure access to mental health services, including counseling and support programs, to address emotional and psychological well-being issues among students.	4.49	*SA*
7. Schools maintain accurate health records for students, ensuring confidentiality and accessibility of information to authorized personnel and parents as needed.	4.50	*SA*
8. Schools promote healthy lifestyles and behaviors among students and families through workshops, seminars, and resources on nutrition, physical activity, and mental wellness.	4.44	*SA*
9. Schools establish partnerships with community health providers to extend health services beyond the campus, facilitating continuity of care and access to specialized treatments.	4.78	*SA*
10. Health-Promoting Schools advocate for policies that support access to comprehensive health services, advocating for resources and funding to enhance health outcomes for students.	4.67	*SA*
Overall Weighted Mean	**4.63**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 10 assesses the role of the Six Pillars of Health-Promoting Schools in ensuring access to school health services. The highest mean score (WM = 4.82) is attributed to Indicator 1, which focuses on ensuring access to a range of health services within the

school, including preventive care, screenings, vaccinations, and treatment for common health issues. This high rating highlights the critical importance placed on providing comprehensive health services directly within the school environment. Respondents strongly agree that access to these services is essential for maintaining student health and supporting their overall well-being.

Conversely, the lowest mean score (WM = 4.44) pertains to Indicator 8, which involves promoting healthy lifestyles and behaviors among students and families through workshops, seminars, and resources on nutrition, physical activity, and mental wellness. While respondents still strongly agree on the importance of these initiatives, this indicator received a slightly lower rating compared to others. This suggests that while promoting healthy behaviors is valued, its perceived impact may be seen as slightly less immediate or direct compared to the provision of health services and emergency protocols.

Overall, the weighted mean score of 4.63 (Strongly Agree) indicates a strong consensus on the importance of access to school health services. These findings align with the research of Moroz, Moroz, and D'Angelo (2020) and Duong et al. (2021), which emphasize the need to address barriers to accessing mental and physical health services in school settings. By ensuring a comprehensive range of health services, promoting regular health check-ups, and establishing partnerships with community health providers, schools can significantly enhance health outcomes for students. The high ratings across most indicators underscore the essential role of accessible health services in fostering a supportive and healthy school environment.

Table 11

Challenges in Implementing the Healthy School Policy of Health-Promoting Schools

Indicators	**WM**	**VI**
1. Ensuring adequate funding and resources for implementing health-promoting initiatives in schools can be a significant challenge.	4.50	*SA*
2. Some stakeholders may resist changes to existing policies and practices, hindering the adoption of new health-promoting measures.	4.20	*SA*
3. Providing comprehensive training and raising awareness among school staff about the importance of health-promoting practices can be challenging.	4.85	*SA*
4. Maintaining momentum and sustaining health-promoting efforts over the long term requires ongoing commitment and support.	4.60	*SA*
5. Encouraging active participation and engagement from parents in supporting health initiatives at school can be difficult.	4.90	*SA*
6. Integrating health-promoting policies with existing academic and administrative policies within the school framework poses challenges.	4.70	*SA*

7. Adapting health-promoting strategies to fit diverse cultural backgrounds and community contexts requires careful consideration and sensitivity.	4.70	*SA*
8. Inadequate physical facilities or infrastructure within schools may impede the effective implementation of health-promoting initiatives.	4.55	*SA*
9. Establishing strong systems for monitoring progress and evaluating the impact of health-promoting policies can be complex.	4.50	*SA*
10. Ensuring adherence to health-promoting guidelines and policies among all stakeholders, including students, staff, and parents, presents ongoing challenges.	4.55	*SA*
Overall Weighted Mean	**4.60**	***SA***

Legend: *4.20 - 5.00-Strongly Agree (SA), 3.40 - 4.19-Agree(A), 2.60 - 3.39- Neutral(N) -1.80 - 2.59 Disagree(DA) , 1.00 - 1.79 -Strongly Disagree(SD)*

Table 11 highlights various challenges in implementing the Healthy School Policy of Health-Promoting Schools. The indicator with the highest mean score (WM = 4.90) pertains to encouraging active participation and engagement from parents in supporting health initiatives at school (Indicator 5). This high rating underscores the critical importance and difficulty of gaining parental involvement, which is essential for the successful implementation of health-promoting activities. Respondents strongly agree that without active parent participation, it can be challenging to foster a comprehensive and effective health-promoting school environment.

Conversely, the indicator with the lowest mean score (WM = 4.20) relates to some stakeholders resisting changes to existing policies and practices, hindering the adoption of new health-promoting measures (Indicator 2). While still strongly agreed upon, this indicator received the lowest rating, suggesting that stakeholder resistance is perceived as a challenge, but possibly less so compared to other logistical and engagement-related issues. This indicates that while change resistance exists, it may be more manageable than the ongoing need for resources, training, and sustained efforts.

The overall weighted mean score of 4.60 (Strongly Agree) reflects a strong consensus on the significant challenges faced in implementing health-promoting policies. These findings align with the research of McHugh et al. (2022), which emphasizes the positive outcomes of health-promoting interventions in schools, such as improved attendance, better concentration, enhanced academic performance, and a reduction in health-related issues among students. However, the challenges highlighted in Table 11 underscore the need for more specific and localized research to address the contextual hurdles and optimize the benefits of these policies in diverse educational settings.

In summary, ensuring active parental engagement and overcoming resistance to change are among the key challenges in implementing health-promoting school policies. Addressing these issues, along with securing adequate resources, providing

comprehensive staff training, and adapting strategies to fit diverse cultural contexts, are crucial for the successful and sustained implementation of health-promoting initiatives in schools.

Conclusions

1. The findings in implementing a healthy school policy significantly enhances learners' academic performance, with a strong emphasis on cognitive skill enhancement and increased enjoyment and motivation as key contributors. While all indicators are positively rated, the emphasis on mental health and stress reduction, though important, is perceived as slightly less impactful compared to other health-promoting initiatives.

2. The implementation of a healthy school policy significantly improved students' academic performance across all grade levels, with the most substantial gain observed in Grade 6. The overall improvement from "Did Not Meet Expectations" to "Very Satisfactory" underscores the critical role of a health-focused school environment in fostering better academic outcomes.

3. The healthy school policy has significantly improved various aspects of learners' physical health, with the most notable impact on encouraging healthier lifestyle choices. Despite the slightly lower rating for physical fitness improvements, the overall strong agreement among respondents emphasizes the policy's effectiveness in fostering a healthier and balanced lifestyle for students.

4. The implementation of a healthy school policy has significantly enhanced learners' mental health and well-being, with the creation of a positive school atmosphere being the most impactful. Despite the slightly lower rating for mental health education and resources, the overall strong agreement highlights the policy's effectiveness in fostering a supportive and nurturing environment for students.

5. The comprehensive analysis across Tables 5 to 10 highlights the multifaceted impact of health-promoting school policies on student well-being. Consistently high weighted mean scores, often surpassing 4.70 (Strongly Agree), underscore broad agreement on the effectiveness of these policies in various domains, from physical environments and social dynamics to health education and access to services. These findings reinforce the critical role of schools in not only educating students but also fostering environments that support their physical, mental, and social health. Integrating the Six Pillars of Health-Promoting Schools, educational institutions can continue to enhance student outcomes and cultivate lifelong health habits essential for thriving in academic and personal pursuits.

6. In conclusion, the challenges identified in Table 11 underscore the complex landscape of implementing health-promoting school policies, with active parental engagement and stakeholder resistance posing significant hurdles. Addressing these challenges alongside securing resources, providing training, and adapting

strategies to diverse contexts is crucial for effectively fostering healthy school environments that benefit student well-being and academic outcomes.

Recommendations

Recommendations for further enhancing the implementation and impact of health-promoting school policies:

1. Develop targeted strategies to increase parental involvement in health initiatives, recognizing its pivotal role in sustaining and amplifying the benefits of these policies. This could include workshops, outreach programs, and integrating health education into parent-teacher communications.

2. Implement proactive communication strategies to address concerns and build consensus among stakeholders, emphasizing the evidence-based benefits of health-promoting initiatives on academic performance and overall student well-being.

3. Provide professional development for school staff to ensure they are equipped to implement and sustain health-promoting practices effectively. This should encompass training on health education, creating supportive environments, and utilizing resources efficiently.

4. Tailor health-promoting policies to fit the cultural backgrounds and community contexts of individual schools, fostering inclusivity and relevance. This adaptation can enhance engagement and compliance among students, staff, and parents.

5. Conduct longitudinal studies to track the long-term impact of health-promoting school policies on student outcomes, including academic performance, mental health, and lifestyle choices. Such research can provide deeper insights into the sustained benefits and areas needing refinement.

6. Identify and disseminate best practices from schools that have successfully implemented health-promoting policies, facilitating peer learning and replication across educational settings. This approach can accelerate the adoption and effectiveness of these initiatives on a broader scale.

7. Foster collaboration between educators, health professionals, policymakers, and community stakeholders to leverage resources and expertise in designing and implementing holistic health-promoting strategies. This interdisciplinary approach can enrich program development and sustainability.

8. Explore additional samples or larger-scale studies to validate the current findings and investigate factors influencing the differential impacts of health-promoting policies across diverse student populations and school environments. This could

include comparative studies across different regions or educational systems to capture broader insights

Compliance with Ethical Standards

In conducting this study, the authors affirm their adherence to rigorous ethical standards. Prior to data collection, informed consent was obtained from all participants, ensuring they were fully informed about the study's objectives, procedures, and their rights, including the freedom to withdraw at any stage without penalty. Anonymity of respondents was strictly maintained throughout the research process, safeguarding their privacy and confidentiality. Measures were implemented to ensure the well-being of participants, with protocols in place to minimize any potential risks associated with participation.

The authors declare no conflicts of interest that could influence the conduct or outcomes of this study. All efforts were made to prevent plagiarism, with proper citations and acknowledgments given for all sources used. The interpretation of findings was conducted objectively, without bias or undue influence, to accurately reflect the data collected. The results of this study are intended solely for research purposes, contributing to the scholarly understanding of health-promoting school policies and their impacts. These ethical considerations underscore our commitment to conducting responsible research and upholding the integrity of scientific inquiry in all phases of this study.

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THE IMPACT OF SOCIAL MEDIA PLATFORMS ON SCHOOL-AGED CHILDREN'S LIFESTYLE AND HEALTH BEHAVIOR IN A SELECTED SCHOOL IN SAN JUAN CITY

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ABSTRACT

Most children who were ardent users of social media sites were of school-age (6 to 12 years old) and considered to be in their formative years. With that, this paper aims to explore the strength of social media's influence on health behaviors and the lifestyle of school-aged children in a selected school in San Juan, with sleep, nutrition/diet, activity, and mental health being the main factors focused on. This quantitative research utilized the stratified random sampling method to collect data. It has been noted that among sleep, activity, nutrition/diet, and mental health, activity has been impacted by the use of social media (weighted mean of 2.52), and it did not obstruct the children from having a fulfilling social life outside of their homes; the rest have been less impacted — Impact to sleep (weighted mean of 2.22), Impact to Nutrition/diet (weighted mean of 2.37), and Impact to Mental health (weighted mean of 2.49). In terms of significance, only the impacts of activity and nutrition/diet had no correlation to each other while the rest of the factors were correlated. Therefore, school-aged children's lifestyles and behaviors were not affected by social media platforms, however, appropriate advice and education should still be provided to support the child's optimal overall growth and development and to prevent any dangers that could be harmful to their health. Furthermore, future researchers are encouraged to engage in this kind of studies so as to further elucidate on how too much exposure to social media could alter one's health.

Keywords: *Social Media, Lifestyle, Behavior, and School-age Children*

INTRODUCTION

Children experience different effects in using social media with the positive effects outweighing the negative one (Bizieff, 2021). It has shown to enhance communication, engagement, and in improving learning experience (Chassiakos et al, 2016). However, the longer-term impacts of social media on growing children's brains have been found to be more detrimental with violence and aggression, sexual content, low body image and self-esteem, physical health, and poor academic achievement to name a few (Bizieff, 2021).

Social media is used significantly more by younger people than older people. The utilization of these platforms became rampant in the pediatric population especially by school-aged children; social media platforms namely Facebook, YouTube, and Tiktok are commonly utilized by this age group. In this modern age, the convenience of social media and the internet has been widely incorporated in daily lives. Since the brains of school-aged children are still developing, they are more receptive to their environment including data coming from these social media sites. This eventually influences brain activity including their behavioral patterns and responses as they get used to these social media's dopamine-like effects on their brain. Prioritizing social media use over healthy practices like getting enough sleep, exercising, and eating right could lead to compromising a child's overall development and growth. Filipino pediatricians acknowledge the negative effects of social media use, however, these are not often discussed during consultations. Therefore, enhanced media training in residency programs is necessary through addressing obstacles and social media education during anticipatory guidance to improve counseling. (Orduna et al., 2019).

This study aims to determine if social media platforms have an influence on the health behavior and lifestyle of school-aged children in a selected school in San Juan City. The results of this study, titled "The Impact of Social Media Platforms on School-Aged Children's Lifestyle and Health Behavior in a Selected School in San Juan City," will be shared with the selected school with the aim of informing the administration and faculty of the impacts of social media to their elementary student's behaviors and lifestyle. With the rampant use of social media by school-aged children, knowing the degree of strength social media has on these children may serve as a stepping stone for better behavioral and lifestyle management with the help of their guardians and enhanced nursing care, especially that of nurses whose line of work directly affects children.

Research Questions

Nowadays, social media usage is significantly high by younger people than older people. The utilization of these platforms became rampant in the pediatric population especially by school-aged children. In this modern age, the convenience of social media and the internet has been widely incorporated in daily lives. Thus, this research aims to determine the Impact of Social Media Platforms on School-age Children's Lifestyle and Health Behavior. This also sought to find the answers to these questions:

1. What is the profile of the respondents in terms of:
    - 1.1 Sex of the parent/guardian
    - 1.2 Sex of the child
    - 1.3 Age of the child
    - 1.4 Grade level of the child

2. What are the Children Social Media Platforms involvement in the following:
    - 2.1 Own gadget
    - 2.2 Type of gadget being used
    - 2.3 Social Media account
    - 2.4 Access to social media platform
    - 2.5 Type/s of social media platforms

3. What is the frequency of the Children's usage of Social Media Platforms on a daily basis in terms of:
    - 3.1 Time
    - 3.2 Hours

4. What exposure to social media platforms affect the lifestyle of those school age children in a selected school in San Juan City in terms of:
    - 4.1 Impact to sleep
    - 4.2 Impact to activity

5. What effect does daily use of social media platforms like Facebook, YouTube, and Tiktok on the health behavior of school-age children in a selected school in San Juan City in terms of:
    - 5.1 Nutrition/Diet
    - 5.2 Mental Health

6. Is there a significant relationship between the impact of social media platforms on school-age children's lifestyle and health behavior in a selected school in San Juan City?

METHODOLOGY

The Quantitative research method was used to investigate this study. Quantitative approach collects quantifiable information from a larger number of participants to be used for statistical analysis. This method was delivered through survey and questionnaire. This research was based on the analysis and findings of gathered data in this area. Therefore, a descriptive research methodology was used to gain accurate and factual profiling.

The population were parents of School-age Children in a selected School in San Juan, both male and female. The used sampling method in this study was stratified random sampling due to the respondents being divided into a smaller scope which were based on a specific age-range and grade level which was 6 to 12 years old, grades 1 to 6 children.

The respondents who answered our google form surveys were the parents or guardians of the school-age children in San Juan City. The said respondents should meet the criteria in order for their answers to be valid and accepted. First, parents/ guardians should be 18 - 59 years old. Should be able to read and understand English. Should be able to give informed consent and must be living with the child. However, those who have serious physical and mental disabilities were excluded.

The researchers constructed a 24-item questionnaire entitled "The Impact of Social Media Platforms on School-Aged Children's Lifestyle and Health Behavior in a Selected School in San Juan". It contained one cover letter with a consent form and guidelines explaining to the respondents the importance of their response to the study. The questionnaire was designed with a scale format, with a rating of 1 being no impact and a rating of 4 with high impact. It was further validated by a pediatrician and then distributed once approval had been granted. To test the reliability of the study, Cronbach alpha was utilized and had a value of 0.76 which is interpreted as acceptable. The questionnaire divided in profile of the respondents, information on the types of social media platforms the school-age children were engaged into, exposure to social media platforms which affected the lifestyle those school-aged children in a selected school in San Juan City in terms of impact to sleep and activity and effect of daily use of social media platforms on the health behavior of school-age children in a selected school in San Juan City in terms of impact to nutrition/diet and mental health. It was transferred to google forms to have easy access to the respondents. It used an arbitrary scale to help interpret and determine the impact

of social media platforms on school-age children's lifestyle and health behavior in a selected school in San Juan City.

Arbitrary Scale used to interpret the gathered data:

Scale	Range	Verbal Interpretations	Adjectival Description
4	3.26 - 4.00	Strongly Agree	With High Impact
3	2.51 – 3.25	Agree	With Impact
2	1.76 – 2.50	Disagree	With Less Impact
1	1.00 – 1.75	Strongly Disagree	With No Impact

RESULTS

A formal permission coursed through a letter was secured to the selected school in San Juan City. The researchers then constructed a 24-item questionnaire checklist entitled "The Impact of Social Media Platforms on School-Aged Children's Lifestyle and Health Behavior in a Selected School in San Juan", and had it validated by an expert. Upon distribution, all of the participants were informed of the purpose, expectations and research methodology, and they were asked to sign consent forms explaining that the survey was strictly confidential and voluntary. The questionnaire was disseminated via Google Form. The data gathered were then collected, tallied and tabulated.

Table 1: Profile of the Parents / Guardian in terms of sex

Sex	Frequency	Percentage
Male	12	24
Female	38	76
Total	**50**	**100%**

Table 1 shows that most of the guardians/parents of the school-aged children who answered the questionnaire were 38 females (76%) followed by 12 males (24%).

Table 2: Profile of the Child in terms of sex

Sex	Frequency	Percentage
Male	39	58
Female	21	42
Total	**50**	**100%**

Table 2 shows the sex of school-age children; respondents were 39 boys (58%) and 21 girls (42%).

Table 3: Profile of the Child in terms of Age

Age	Frequency	Percentage
12	11	22
11	4	8
10	7	14
9	2	4
8	9	18
6	17	34
Total	**50**	**100%**

Table 3 indicates the Age of School-age Children; respondents include 17 children under 6 years old (34%), 9 children under 8 years old (18%), 2 children under 9 years old (4%), 7 children under 10 years old (14%), 4 children under 11 years old (8%), and 11 children under 12 years old (22%).

Table 4: Profile of the Child in terms of Grade Level

Grade Level	Frequency	Percentage
6	13	26
5	4	8
4	6	12
3	8	16
2	3	6
1	16	32
Total	**50**	**100%**

Table 4 shows the Grade level of School-aged Children; respondents included 16 children from Grade 1 (32%), 3 children were in Grade 2 (6%), 8 children were in Grade 3 (16%), 6 children were in Grade 4 (12%), 4 children were in Grade 5 (8%) and 13 children were in Grade 6 (26%).

Table 5: School-age Children own a gadget/s

Children	Frequency	Percentage
Yes	44	88
No	6	12
Total	**50**	**100%**

As shown in table 5, 88% of the school-age children owned a gadget/s and 12% did not own any gadget/s.

Table 6: School-age Children Type of Gadget/s

Gadgets	Frequency	Percentage
Mobile Phone	26	52
Tablet/Ipad	19	38
Laptop	2.5	5
Laptop/tablet	2.5	5
Total	**50**	**100%**

Table 6 described the types of gadgets used by the school-age children to access social media platforms. Majority which was 52% respondents used Mobile Phones to access social media. Followed by 38% respondents who used Tablet/Ipad, 5% respondents used Laptop and 5% respondents used both Laptop/Tablet and Cellphone/Ipad.

Table 7: School-aged Children have Social Media Account

Children	Frequency	Percentage
Yes	32	64
No	18	36
Total	**50**	**100%**

Table 7 shows that about 64% of the parents/guardians answered that their children had social media accounts and 36% had answered that their children did not have any social media accounts.

Table 8: School-age Children have access to Social Media Account

Children	Frequency	Percentage
Have access	43	86
Do not have access	7	14
Total	**50**	**100%**

Table 8 shows 86% percent responded that their children do not have their own gadget/s but still had access to any social media platforms. While 14% responded that they did not have neither their own gadget nor access to any social media platforms.

Table 9: School-age Children Type Social Media Platforms

Gadgets	Frequency	Percentage
Youtube	35	43
Tiktok	24	29
Facebook	23	28
Total	**82**	**100%**

Table 9 indicates that *YouTube* was found to be the most frequent social media platform among the school-aged children based on their parents/guardians (70%), followed by *Tiktok* (48%), and *Facebook* (46%) respectively. This shows that the simultaneous oral-based interactions made possible by platforms like YouTube and Tiktok were more prevalent on the social media sites frequented by school-age children.

Table 10: School-age Children Daily usage of Social Media Platforms in terms of times

Times	Frequency	Percentage
more than 5	15	30
4-5	6	12
3-4	16	32
1-2	13	26
Total	**50**	**100%**

Table 10 shows how related to the daily frequency usage of social media platforms. Almost 32% of the respondents acknowledged that they used these platforms at least 3 to 4 times daily. In particular, 30% of them reported that they used it more than 5 times daily, 26% of them used it 1 to 2 times daily and 12% used it 4 to 5 times daily.

Table 11: School-aged Children Daily usage of Social Media Platforms in terms of Hours

Hours	Frequency	Percentage
more than 5	10	20
4-5	6	12
3-4	16	32
1-2	18	36
Total	**50**	**100%**

Table 11 shows the hours' children spent in a day in using social media platforms. Around 36% responded that their children used social media in a day for about 1 to 2 hours. While 32% answered that their usage of social media lasted for about 3 to 4 hours. 12% of them

voted for 4 to 5 hours. Lastly, 20% had more than 5 hours of usage of social media in a day.

Table 12: Exposure to Social Media Platforms Affect the Lifestyle those School aged Children in a Selected School in San Juan City in terms of Impact to Sleep

Impact to Sleep	Weighted Mean	Verbal Interpretation
1. My child has had a hard time sleeping after consistently using social media before bedtime.	2.46	Agree
2. Social media use before bedtime helps my child relax better.	2.20	Disagree
3. My child prefers to stay up all night to use social media than to rest.	2.24	Disagree
4. My child uses social media to help him/her sleep.	2.18	Disagree
5. My child's energy levels are low the morning after using social media.	2.14	Disagree
6. My child wakes up refreshed when he/she uses social media before bedtime.	2.10	Disagree
Overall Weighted Mean	**2.22**	**Disagree (With Less Impact)**
Standard Deviation	**.12712**	

Table 12 shows the exposure to social media platforms affect the lifestyle of those school-age children in a selected school in San Juan City in terms of Impact to Sleep. The highest computed weighted mean of 2.46 was found in the statement number 1, "My child has had a hard time sleeping after consistently using social media before bedtime" with verbal interpretation. This implied that the parents agreed that their child had a hard time sleeping after using social media like Facebook before going to bed.

Based on the finding of Arora et al. (2013) using cell phones, playing video games, watching TV, or browsing the internet all shorten or worsen sleep. While it could be noticed that the lowest computed weighted mean of 2.10 was found in statement number 6, "My child wakes up refreshed when he/she uses social media before bedtime". This meant that parents disagreed with this statement. This implies that even if their child used social media before going to bed, parents still observed their child woke up refreshed and rested.

The over-all computed weighted mean was 2.22 with verbal interpretation of disagree. This meant that the exposure to social media platforms affected the lifestyle of those school-aged children in a selected school in San Juan City in terms of Impact to sleep had ***Less Impact.***

Table 13: Exposure to Social Media Platforms Affect the Lifestyle those School-aged Children in a Selected School in San Juan City in terms of Impact to Activity

Impact to Activity	Weighted Mean	Verbal Interpretation
1. My child still has the time to go outside and play with friends.	3.22	Agree
2. My child prefers to stay at home rather than engaging in social activities.	2.06	Disagree
3. Social media platforms help my child to perform exercises (watching videos about exercise)	2.30	Disagree
4. Utilization of social media platforms persuades my child to become lazy.	2.40	Disagree
5. He/She still has the time to engage in exercising activities.	2.66	Agree
6. My child prefers to play/use gadgets rather than playing outside.	2.50	Disagree
Overall Weighted Mean	**2.52**	**Agree (With Impact)**
Standard Deviation	**.39606**	

Table 13 shows exposure to social media platforms affected the lifestyle of those school-age children in a selected school in San Juan City in terms of Impact to Activity. The highest computed weighted mean of 3.22 was found in the statement number 1, “My child still has time to go outside and play with friends” with verbal interpretation, agree. This meant that even when kids were into social media platforms they still found time to mingle with their friends as observed by the parents especially during the pandemic when they were not allowed to go out with their friends.

While the lowest computed mean of 2.06 was found in statement number 2, “My child prefers to stay at home rather than engaging in social activities. This validated the

response of the parents that their children still would like to go out with their friend instead of just staying at home.

The over-all computed weighted mean was 2.52 with verbal interpretation, agree. This meant that exposure to social media platforms affected the lifestyle of those school-age children in a selected school in San Juan City in terms of impact to activity ***With Impact*.**

Promoting smart media use, technology could become a beneficial aspect of childhood. On public television, preschoolers could learn the alphabet, grade schoolers could use educational apps and games, and teenagers could conduct online research (Ben-Joseph, 2022).

Table 14: Effect of Daily use of Social Media Platforms on the Health Behavior of School-aged Children in a Selected School in San Juan City in terms of Impact to Nutrition/Diet

Impact to Nutrition /Diet	Weighted Mean	Verbal Interpretation
1. My child focuses on eating without the distraction of social media platforms.	2.76	Agree
2. Social media influences my child to eat unhealthy foods.	2.38	Disagree
3. Social media positively affects my child's food choices.	2.30	Disagree
4. My child refuses to eat while watching social media platforms.	2.26	Disagree
5. Social media influences my child to eat healthy foods.	2.32	Disagree
6. My child loses his/her appetite due to usage of social media platforms.	2.22	Disagree
Overall Weighted Mean	**2.37**	**Disagree (With Less Impact)**
Standard Deviation	**.19704**	

Table 14 shows the effect of daily use of social media platforms on the health behavior of school-aged children in a selected school in San Juan City in terms of Impact to Nutrition/Diet. The highest computed weighted mean of 2.76 was found in the statement number 1, "My child focuses on eating without the distraction of social media platforms"

verbally interpreted, agree. This implied that guidance of the parents was an important factor to discipline their child when it comes to eating time.

Parents sitting together with their children at the dining table was a positive implication. The lowest computed weighted mean of 2.22 was found in the statement number 6, “My child loses his/her appetite due to usage of social media platforms” with verbal interpretation disagree. This validated the highest computed weighted mean. This implied the discipline/rules had to be communicated in terms of breakfast/lunch/dinner. This would be a great help so nutrition/diet would not be affected.

The overall weighted mean of 2.37 with verbal interpretation disagree This implied that there was ***Less Impact*** on the daily use of social media platforms on the health behavior of school-age children in a selected school in San Juan City in terms of Impact to Nutrition/Diet.

Stamatiou et al. (2021), study on social media constructs opportunities and challenges for public health promotion. Social media users habitually come up with nutrition and body-related information shared by health and non-health professionals. In this study, social media were found to be the preferred nutrition information source; Instagram, YouTube and Facebook were said to be the most used platforms. Healthcare professionals like Dieticians’ social media accounts were said to be the most trusted source. However, user’s dietary options appeared affected by social media; in terms of their feeling about food consumption and seeing delicious images of food yet less nutritious food.

Table 15 shows the effect of daily use of social media platforms on the health behavior of school-age children in a selected school in San Juan City in terms of impact to mental health. The highest computed weighted mean of 3.12 was found in the statement number 3, "Social Media platforms have helped my child in his/her schoolworks” with verbal interpretation, agree. This implied that social media helped students in finding resources in their schoolworks. This meant social media had positive uses in the studies of children. There are available applications that can be helpful.

While the lowest computed weighted mean of 2.08 was found in the statement number 2, “My child prefers to stay at home rather than socializing with other kids outside our house” with verbal interpretation, disagree. This meant kids still wanted to play outside with their friends.

Table 15: Effect of Daily use of Social Media Platforms on the Health Behavior of School-aged Children in a Selected School in San Juan City in terms of Impact to Mental Health

Impact to Mental Health	Weighted Mean	Verbal Interpretation
1. Social media has helped in boosting my child's confidence.	2.64	Agree
2. My child prefers to stay at home rather than socializing with other kids outside our house.	2.08	Disagree
3. Social media platforms have helped my child in his/her schoolworks.	3.12	Agree
4. Social media has decreased my child's confidence and self-esteem.	2.14	Disagree
5. My child remains calm and attentive while using social media platforms.	2.62	Agree
6. My child has been more aggressive since his/her exposure to social media.	2.32	Disagree
Overall Weighted Mean	**2.49**	**Disagree (With Less Impact)**
Standard Deviation	**.38878**	

The over-all computed weighted mean was 2.49 verbally interpreted disagree. This implied that there was ***Less Impact*** on the effect of daily use of social media platforms on the health behavior of school-age children in a selected school in San Juan City in terms of impact to mental health.

Excessive use of social media indeed affects one's health like being addicted to smartphones because of the fear of missing out. Social media usage has been correlated with anxiety, loneliness, depression and social isolation (Ostic et al, 2021).

Bizieff (2021) discovered that while social media can have a variety of effects on kids, the bad effects much exceed the good ones. It has been discovered that social media and its long-term effects on children's developing brains have a greater impact.

Table 16: Test of Relationship between Impact of Social Media Platforms on School-aged Children's Lifestyle and Health Behavior in a Selected School in San Juan City in terms of Impact to Sleep

Health Behavior	Pearson r Value	Sig-Value	Decision	Verbal Interpretation
Nutrition/Diet	0.272	0.028	Reject	Significant
Mental Health	0.673	0.000	Reject	Significant

Table 16 shows the relationship between the impact of social media platforms on school-age children's lifestyle and health behavior in a selected school in San Juan City in terms of impact to sleep. The computed Pearson r value for health behavior in terms of nutrition was 0.272 with a significant value of 0.028 which was less than the level of significance 0.05. Therefore, the decision was to reject the hypothesis, there was a significant relationship between the impact of social media platforms on the school-age children's lifestyle and health behavior in terms of impact to sleep. This implied that children's sleeping habits affected their nutrition/diet since most of their time was spent on social media platforms.

While in terms of impact of sleep and mental health the computed Pearson r value was 0.673 with significant value of 0.000 which was less than the level of significance 0.05. Therefore, the decision hypothesis was rejected. Khare et al. (2021) stated in his study that half of the population of the respondents claimed that they encountered sleep problems during the pandemic and that their screen time using electronic gadgets have also increased, putting them at risk of sleep deprivation and other sleeping problems.

Table 17: Test of Relationship between Impact of Social Media Platforms on School-aged Children's Lifestyle and Health Behavior in a Selected School in San Juan City in terms of Impact to Activity

Health Behavior	Pearson r Value	Sig-Value	Decision	Verbal Interpretation
Nutrition/Diet	0.108	0.229	Accept	Not Significant
Mental Health	0.410	0.002	Reject	Significant

Table 17 shows the test of relationship between impact of social media platforms on School-age Children's Lifestyle and Health Behavior in a Selected School in San Juan City in terms of Impact to Activity. The computed Pearson r value in terms of nutrition/diet was 0.108 with significant value of 0.229 which was greater than 0.05, therefore there was no significant relationship between the impact of activity and nutrition/diet. The decision was to accept the hypothesis not significant.

This implied that in terms of the impact of activity in social media platforms of children did not affect their nutrition/diet.

While the computed Pearson r value in terms of impact of activity and mental was 0.410 with significant value of 0.002 which was less than the level of significance 0.05, therefore the hypothesis was rejected there was significant relationship between the impact of activity and mental health.

HelpGuide.com (2022) pointed out that social media plays a huge role in one's mental health. Being able to connect with others through social media can ease stress, anxiety, depression, boost self-worth, provide comfort and joy, prevent loneliness, and even add years to one's life. However, on the other hand, everything that is too much can lead to serious risk to one's mental and emotional health. Indicators that social media adversely affects one's health include; spending more time on social media than with real world friends.

DISCUSSION

The aim of this study is to identify the Impact of Social Media platforms on School-aged Children's Lifestyle and Health Behavior in selected School in San Juan City, by considering their personal background profiles, lifestyles, involvement in social media, and knowledge in utilizing these platforms. The researchers utilized a questionnaire validated by an expert and utilized it as the main instrument for data collection.

In promoting smart media use, technology can become a beneficial aspect of childhood. Preschoolers can gain the understanding of the alphabet through public television, grade schoolers can utilize educational apps and games, and teenagers can conduct online research on the internet. However, there are some disadvantages to media use as well such as the obesity link, watching violence, sleep & mental health disorders, and exposure to commercials. Children who engage in social media use in their bedrooms frequently have trouble falling asleep at night. Those exposed to cyberbullying through media may develop depression and consider suicide, and those who excessively use media are more likely to be overweight. The inactivity of the children will increase their

likelihood of snacking when glued to screens. They are also exposed to a number of advertisements that promote the intake of commercial foods like potato chips and sugary drinks, which immediately become their snacks of convenience. It has also been recommended that parents encourage children to moderately use smart media by controlling their screen time. (Ben-Joseph, 2022).

The first research question focuses on the profile of the respondent. Most of the guardians/parents of the school-age children who answered the questionnaire were female, which ended up to 38 participants or 76% of the respondents. The sex of school-aged children; respondents were boys, resulting in 39 boys (58%). Age of School-age Children were mostly 6 years old (34%) and in terms of Grade level, 32% of the population came from Grade 1.

Although social media use is demonstrated to be of utility, an excessive or non-correct use may be a risk factor for mental health, including depression, anxiety, and addiction. Excessive use can also increase physical problems due to sedentary lifestyle and may also correlate to inadequate nutrition leading to weight gain, obesity, dental caries and unhealthy eating behavior. Social media can also cause problems with body image and acceptance especially with younger girls with lower self-esteem. Children and adolescents who use social media for several hours a day are also at higher risk of developing behavioral problems, cyberbullying, online grooming, sleep difficulties, eye problems (ex are blurry vision, irritation, burning sensation, conjunctival infection and dry eye disease), headache. Moreover, uncontrolled social media use can also lead to sexting and exposure to pornography, unwanted sexual material online and early sexual activity. The public and medical awareness must rise above this topic. There should be new prevention that must be developed. The Pediatricians should be reminded to have a screening for social media exposure including the amount of time and content, during visits. They can also advise parents on how to steer their children towards suitable content and warn them about the possibility that digital commerce could encourage the consumption of junk food, unhealthy diets and sweetened foods, contributing to obesity and overweight. On the other hand, it is necessary to advise in favor of a good diet, enough exercise, and sleep. Additionally, they want to encourage face-to face interaction and restrict social media use for online conversation. Pediatricians may advise parents to establish guidelines and plans for social media and media device use at home and during the day. (Bozzola et al. 2022)

The second research question highlights the social media platforms involvement. 44 children or 88% of the population owns a gadget. The types of gadgets used by the school-age children to access social media platforms, majority of them used Mobile Phones resulting in 52% of the respondents. In terms of social media accounts, 32 of

them or 64% responded that their children have their own account. In connection, 86% responded that their children did not have their own gadget/s but still had access to any social media platforms. Lastly, YouTube was found to be the most frequently used social media platform among school-aged children, having 43% of the population.

Gagalang (2022) explored the social media use of Filipino learners and its impact on their reading attitudes and competence. He also mentioned that social media use in the Philippines was highly active with an average time of 3 hours and 53 minutes while the country ranked last among the 79 participating countries in reading comprehension in the 2018 Program for International Student Assessment (PISA). This has led to the discovery that university students' reading skills are negatively impacted by the widespread usage of social media. And although social media platforms do occasionally disseminate information, pique students' interest and analytical capacity, and offer a space for information dissemination and outputs submission, but they typically perform less educational functions.

The third research question features the frequency of the Children's usage of Social Media Platforms on a daily basis in terms of time and hours. The daily frequency usage of social media platforms of the respondents acknowledged that they used these platforms at least 3 to 4 times daily (32%) and around 36% responded that their children used social media in a day for about 1 to 2 hours.

The fourth research question explains the impact of social media platforms in Sleep and Activity of the School-age Children. In terms of Impact to activity, the exposure to social media platforms resulted in having ***Less Impact*** compared to Impact to Sleep which ended up having ***More Impact***.

Rote et al. (2015) conducted a randomized trial to examine the efficacy of walking intervention using social media to increase physical activity. Social media platforms facilitate social networks. The most popular of which is Facebook and can be an effective way to increase physical activity among the users. The final result of the study demonstrated the potential effectiveness of using Facebook to offer a social support group to increase physical activity, specifically in young women. According to them “women in the Facebook Social Support Group increased walking by approximately 1.5 miles/day more than women in the Standard Walking Intervention which, if maintained, could have a profound impact on their future health.” Also, users who are friends or a part of the same group can have common grounds/interest which makes it easier to promote such healthy behavior. These physical activities include walking, exercising and running. Summing this up, the use of social media can also be beneficial to several aspects of health (eg, weight loss, healthy eating habits, and reproductive health).

The fifth research question pointed out the effect of social media platforms on the health behavior of school-age children in a selected school in San Juan City in terms of Nutrition/ Diet which resulted in ***Less Impact*** and in Mental Health with ***Less Impact*** as well.

Utilization of these platforms has escalated in the past few years. Websites and other online tools that facilitate user interactions by allowing users to exchange information, opinions, and interests are referred to as social media. People use these for various reasons such as enjoyment, creating connections, and for further knowledge. Above all, the study found out that adolescent and young adults allocate increased time on online platforms. Moreover, the study mentioned that there are increased concerns with regards to potential adverse effects connected with excessive usage of these platforms especially on cognitive health. Excessive utilization indeed affects one's health like being addicted to smartphones because of the fear of missing out. Social media usage has been correlated with worry, depression and social isolation. (Ostic et al, 2021).

The sixth research question emphasizes the significant relationship between the impact of social media platforms on school-age children's lifestyle and health behavior in a selected school in San Juan City. Tests of the relationship between impact to sleep and nutrition/diet ended up to have a significant relationship. In terms of impact to sleep and mental health also have a significant relationship. Test of relationship between impact to activity and nutrition/diet was brought to not have a significant relationship. Lastly, the impact to activity and mental health was caused to have a significant relationship.

You et al. (2021) reported that the study's findings indicated that a sizable portion of kids utilize social media by the time they are nine years old. Their findings indicate that kids from families with one parent and kids whose moms have little formal schooling spend longer on the internet. Children who had fathers with low levels of education or from low-income backgrounds were more likely to be exposed to social networking sites. It is important for health practitioners to understand how often youngsters access social media. The results of this study provide evidence in favor of the necessity for intervention designers to create strategies for responsible social media use. Future studies in young children are advised to assess their exposure to instant messaging and social networking sites, factors influencing usage, and correlations with relevant health outcomes.

Conclusions

Children in school had experienced several changes as an outcome of the internet. Based on the gathered data. In the questionnaire, many female parents responded. Boys who were six years old and in grade one were more active on social media platforms. Even those without their own gadgets, most school-aged children had access to social media

networks. On the online applications that school-aged children frequent most, YouTube, Tiktok, and Facebook were more prevalent. The respondents stated that their children utilized these platforms for 1- 2 hours every day, at least three to four times per day. Even though the parents acknowledged that their child struggled to sleep after using social media before bedtime, such as Facebook, it did not have an impact on the child's behavior in general. In addition, parents had noticed that even when children were using social media platforms, they still found time to interact with their friends. This showed that even though school-age children used social media platforms, it did not obstruct them from having a fulfilling social life outside of their homes. The parents also confirmed that rules and regulations must be explained in terms of breakfast, lunch, and dinner. In addition, research on children has shown useful applications for social media. The fact that the parents and guardians said that social media had aided their kids in completing their homework and academics suggested that social media might offer some advantages to school-age kids, but excessive usage of the platform could still harm kids' mental health. Despite spending a greater amount of their time on online platforms while eating, the children's use of these platforms had no impact on how they eat. Sometimes kids might feel anxious, worn out, or unhappy, but what they really needed was adequate sleep. School-age children's lifestyles and behaviors were not affected by social media platforms, but appropriate advice and education should still be provided to support the child's optimal overall growth and development and to prevent any dangers that could be harmful to their health.

Recommendations

In particular, with other research studies, there is still need to improve in terms of data, design, and interpretation. To further improve this study, the researchers recommend the future researchers and nursing students;

1. Encourage the parents/ guardians to have a healthy media use like limitation in engaging with social media platforms.
2. Conduct a seminar with parents / guardians educating them about having a family media use plan for their children.
3. Research for other aspects or situations that prolonged exposure in social media could affect one’s health.
4. Encourage more students to engage with this kind of studies and elucidate further how too much exposure to social media could alter health.
5. Explore other social media platforms that can influence and further improve one’s health, lifestyle, and behavior.
6.

Compliance with Ethical Standards

In conducting the study, ensuring the protection, rights, dignity, and welfare of the respondents were prioritized. A formal permission was submitted to the selected school in San Juan City for approval. The researchers then constructed a 50-item questionnaire checklist entitled “The Impact of Social Media Platforms on School-Aged Children’s Lifestyle and Health Behavior in a Selected School in San Juan”, and had it validated by experts. Upon distribution, all of the participants were informed of the purpose, expectations and research methodology, and they will be asked to sign consent forms explaining that the survey is strictly confidential and voluntary. The questionnaires will be disseminated via Google Forms. The data gathered will then be collected, tallied and tabulated. Confidentiality and Right to Decline were proposed to all the respondents; they were informed that all personal information gathered will be used only for the purpose of acquiring details useful for the research.

Moreover, by participating in our nursing research as a respondent, any information given to us will be used for the purposes of nursing research and any other healthcare related things.

The personal data provided relating to the child will be retained by the researchers for the purposes of school related activities and be able to provide such interventions relating to this kind of problem. This may also require the personal data as well as your child’s data including relevant details in their daily lives to be shared with the researchers. The researchers assured its respondents that confidential information would not be discussed to anyone unless they authorize the researchers to do so.

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THE LEARNING LANDSCAPE: MAPPING EMERGING PEDAGOGIES TO DIVERSE STUDENT STYLES FOR ENHANCED ACHIEVEMENT

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ABSTRACT

Effective education hinges on aligning teaching methods (pedagogies) with students' preferred learning styles. This dynamic interplay between diverse teaching styles and student learning preferences ultimately impacts academic performance. This study determined the teaching pedagogies and students' learning styles: their emerging realities to the academic performance of the District of Daram II, Schools Division of Samar, during the school year 2022-2023. Utilizing a quantitative approach and a survey questionnaire, it was revealed that some students learn best by doing, others by seeing, and some through reading or listening; thus, they seem aware of what helps them learn best. Meanwhile, teachers who use lots of different teaching methods will help most students succeed. Teachers who know how their students learn best can tailor how they teach. Students should think about how they learn best and let their teachers know. Teachers need support to learn lots of different ways to teach. It was concluded that students demonstrate unique learning style preferences, highlighting the need for teachers to differentiate their instruction. Most students show adaptability and awareness of how they learn best. This self-knowledge can be a powerful tool if students are empowered to use it. Varied teaching approaches and awareness of students' learning styles seem positively correlated with academic performance. This underscores the importance of teacher adaptability and diverse instructional methods and recognize the complexity of student achievement. Factors like motivation, engagement, undiagnosed learning challenges, and access to support systems all play a role and need to be considered along with learning styles.

Keywords: *Learning Styles, Teaching Pedagogy, Auditory, Tactile, Visual*

INTRODUCTION

Teaching pedagogies and learning styles play a crucial role in this academic world. Diverse styles of teaching and learning occur due to the reaction among students in relation to the teaching styles that are demonstrated by the teachers in the classroom, and this could affect the students' learning styles preferences that lead to their academic performance in school. Moreover, the diversity in teaching and learning styles preferences would result in matches and mismatches between the teachers' teaching pedagogies and students' learning styles. Teachers know that no two students are the same and that there is a spectrum of different learning styles. Teaching styles, therefore, have great impact to students' ability to learn and comprehend. This is why knowledge of different students' learning styles is essential for teachers.

Individuals learn in different ways using several learning styles, but lecturers may not always share material and learning experiences that match students' learning preferences. Mismatches between learning and teaching styles can lead to disappointment with students are taking, and lead to underperformance among them (Subramaniam,2019). Teaching profession requires intelligence, skills, insights, and diligence in succeeding different way to fulfill the challenge of classrooms (Kardia & Wright, 2004). Teaching style is a multitask phenomenon that illuminates how teachers teach knowledge; accomplish classroom work, and supervision of students (Sheikh & Mahmood, 2014). However, learning style refers to an individual's preferred way of processing new information for efficient learning. Rita Dunn described the concept of learning style as "a unique way developed by students when he was learning new and difficult knowledge. Learning style is about how students learn rather than what they learn. The learning process is different for each individual; even in the same educational environment, learning does not occur in all students at the same level and quality (İlçin,2018).

According to Ariola (2012), "Learning style is the composite of characteristics of cognitive, affective and psychological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment." According to Stewart and Felicetti (1992), learning is influenced by the educational conditions under which a student learns. Therefore, learning style is not just concerned about what students need to learn but rather how they want to learn in the most effective way. One of the most significant challenges in learning is for individuals to take responsibility for their own learning. When learners take responsibility for their own learning, they attribute meaning to the process of learning, leading to effective learning (Nzesei, 2015).

Teachers need to understand the process of individual learning. In the learning process, individuals are interacting with the environment uniquely processing the information and requiring a unique environment for learning. Thus, addressing the challenge in facilitating learning conditions while organizing such interactions should

be taken into consideration to help individuals to optimize their learning (Sighn, 2017). In the past decades, many educators widely applied teacher-centered strategies to impart knowledge to learners' comparative to student-centered strategies. Until today, questions about the effectiveness of teaching strategies on student learning have consistently raised considerable interest in the thematic field of educational research (Hightower et al., 2011).

Moreover, research on teaching and learning constantly endeavor to examine the extent to which different teaching strategies enhance growth in student learning. Effective teaching requires flexibility, creativity, and responsibility to provide an instructional environment able to respond to the learner's individual needs. Tomlinson (2001) puts it beyond the experiential evidence that pervasive uniformity in teaching fails many learners. There is a reason in both theory and research to support a movement towards an instruction attentive to students' variance manifested in at least three areas: the student's readiness, interest, and learning profile. Nowadays, one of the challenges in teaching-learning process is knowing the most effective teaching approach and strategies that are also in line with the learning styles of the students.

Furthermore, aside from learning styles and teaching strategies, academic achievement is also considered as the center of interest in educational research. Studying the issue of achievement has extended beyond simple to complex issues of intelligence and prior academic achievement into how learners interact with the learning material and teaching strategies.

A good teacher must change his behavior towards or the development of skills and good character that help obtain their purpose for themselves and the community as well. The students will obtain more information, retain more knowledge and perform better when students' learning styles are aligned with teachers' teaching styles. Damavandi (2011) stated that students understand and recall better when the teachers' teaching styles match the learning styles of the students. To do this, the faculty members need to review continuously their teaching styles based on learning styles of the students to ensure that students are actively participating in class to further improve their students' academic performance. Good academic performance can also be obtained based on the learning styles of the students. Several recent studies stated that learning styles of the students influence their academic performance and in relation to that, several authors assert that it is important to understand their learning styles so as to improve students' academic performance.

Staiger and Rockoff (2010) discovered large differences in student achievement in different teachers' classrooms, even after controlling for students' prior achievement and characteristics. Especially following the No Child Left Behind (NCLB) Act which ensures that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach proficiency in academic achievement standards. This approach is likewise consistent with DepEd's mission to protect and promote the right of every Filipino to quality, equitable, culture-based, and complete basic education.

The law emphasizes that educational institutions must acknowledge, appreciate, and respect the students' differences in intelligence, talents, skills, interest, and background. Thus. researchers believe that by understanding the influence of learning styles and teaching strategies, educators will find effective ways to improve academic performance. This also tried to fill in the gap in terms of the research that look closely into the contribution of these key variables on the students' performance (Cardino,2020).

In the District of Daram II, Schools Division of Samar, teachers experience the same plight with the foregoing situation in other countries. In fact, they are confronted with the issue on how to be effective in the delivery of education. Despite exerting efforts in utilizing and devising teaching pedagogies, still the academic performance of the students is not at par. Based on the trends in the grade ranges in the past three school years, the students posted 77 percent untransmuted grade range during the School Year 2019-2020 while during the School Year 2020-2021, the untransmuted grade range is posted 77.8 percent and during the School Year 2021-2022, the untransmuted grade range is posted at 78 percent, which may redound to the students' learning styles.

The foregoing served as a challenge for the teachers in as much as the demand for an exemplary performance is expected from them by the DepEd. Thus, the researcher was motivated to conduct the study to determine the teaching pedagogies and students' learning styles in the District of Daram II, Schools Division of Samar during the School Year 2022-2023.

Research Questions

This study determined the teaching pedagogies and students' learning styles in the District of Daram II, Schools Division of Samar during the School Year 2022-2023. Specifically, it sought answers to the following questions:

1. What is the profile of the teacher-respondents in terms of the following personal characteristics:
    - 1.1 age and sex;
    - 1.2 civil status;
    - 1.3 highest educational attainment;
    - 1.4 number of years in teaching;
    - 1.5 gross monthly family income;
    - 1.6 performance rating based on the latest IPCRF;
    - 1.7 relevant in-service training; and
    - 1.8 attitude toward teaching?

2. What is the profile of the student-respondents in terms of the following personal characteristics:
    - 2.1 age and sex;

2.2 nutritional status;
2.3 parents' highest educational attainment;
2.4 parents' occupation;
2.5 gross monthly family income; and
2.6 attitude toward schooling?

3. What are the teaching pedagogies adapted by the teacher-respondents in teaching the subjects to the students?

4. Is there a significant relationship between the teaching pedagogies adapted by the teacher-respondents in teaching and their profile variates?

5. What are the learning styles of the student-respondents in assimilating the lessons taught to them?

6. Is there a significant relationship between the student-respondents' learning styles and their profile variates?

7. What is the academic performance of the student-respondents based on the mean grade during the first and second quarters?

8. Is there a significant relationship between the academic performance of the student-respondents and the following:
8.1 student-related profile variates;
8.2 teacher-related variates;
8.3 teachers' teaching pedagogies; and
8.4 students' learning styles?

9. What intervention program may be developed based on the findings of the study?

METHODOLOGY

This research employed a quantitative approach to investigate teaching methods and student learning styles in the District of Daram II, Schools Division of Samar, during the 2022-2023 school year. The study involved all 168 teachers and a sample of 226 grade 5 and 6 students from the public elementary schools in the district. Questionnaires were used to collect data from both teachers and students, and these questionnaires were validated by experts in education. Researcher collected data on teacher-respondents' profiles, including age, sex, education, teaching experience, income, performance ratings, training, and attitude towards teaching. Student-respondents' profiles included age, sex, nutritional status, parents' education and occupations, family income, and attitude towards schooling. Moreover, the study examined the teaching methods used by teachers and the learning styles of the students. Additionally, researchers looked at student academic performance based on their first and second quarter grades. Furthermore, the researcher used a mix of descriptive and inferential statistics to analyze

the data, including measures like frequency, percentages, and means. They also employed statistical tests like chi-square and Spearman's rank correlation. The study employed correlation analysis to explore the relationships between student academic performance and various factors, including student characteristics, teacher characteristics, teaching methods, and student learning styles. Before collecting data, the researchers obtained approval from the appropriate authorities in the school district. Data collection faced challenges due to geographical factors, but the researcher enlisted the help of school personnel to overcome these obstacles.

RESULTS AND DISCUSSION

This chapter presents the findings of this study through the presentation, analysis, and interpretation of the data gathered. The following were the salient findings of the study:

1. Some kids learn best by doing, others by seeing, and some through reading or listening.

2. They seem aware of what helps them learn best, which is a great advantage.

3. Whether a student is a boy or girl, comes from a rich or poor family, or is in any situation, it does not strongly affect how they learn or how well they do in school.

4. Having a good attitude toward school helps, but it does not automatically lead to better grades.

5. Teachers who used lots of different teaching methods (doing activities, showing pictures, explaining things, having discussions) would help most students succeed.

6. Teachers who know how their students learn best can tailor how to teach individual students or groups.

7. Surprisingly, teachers with higher ratings seemed to have students with slightly lower grades; this needs more investigation.

8. Students should think about how they learn best and let their teachers know.

9. Teachers need support to learn lots of different ways to teach.

10. Maybe the current rating system does not measure how well teachers help students learn.

11. Interviews and watching classrooms can give us better insights into why this happens.

12. Lots of other things affect how well a student does in school, like how motivated they are or if they have any learning difficulties.

13. Students show preferences for various learning styles. Some indicators were stronger (e.g., hands-on activities, visual aids, reading or written explanations, skill with charts and graphs), but no single style dominated. Most students are adaptable, indicating awareness of their preferences.

14. Teachers should use a variety of approaches (hands-on, visual, lectures, discussions, reading, and writing) to meet the diverse learning styles in the classroom.

15. Unsurprisingly, even a slightly positive attitude towards school doesn't directly translate to better academic performance.

16. Teachers with higher performance ratings seem to be slightly associated with lower student academic performance. This warrants further investigation.

17. Both pedagogies and learning styles showed a positive correlation with academic performance. This indicates that varying teaching methods and understanding students' learning styles can positively influence academic outcomes.

18. Encourage students to recognize their strengths in various learning styles to advocate for their needs and maximize their potential.

19. Since some learning styles are less represented, help students identify their strongest styles for the best results. Consider sharing student preferences with teachers to personalize instruction.

20. Explore the surprising negative correlation between teacher performance ratings and student outcomes.

21. Help teachers expand their teaching toolkit to include varied approaches. Investigate which specific pedagogies correlate most strongly to improved student outcomes.

22. This study may have a limited sample size or scope. It's helpful, but it shouldn't be overgeneralized.

23. Statistical correlations give numbers, but interviews or observations could provide richer insights into why these connections exist and how to improve learning experiences.

24. There are many factors beyond the measured one’s impact on learning. Consider

also motivation, engagement, study habits, and individual learning challenges for a holistic approach.

25. These factors have a negligible or weak correlation to learning style preference or academic performance in this study. This suggests a potentially equitable environment where background plays a lesser role.

Pedagogies Adapted by Teachers in Teaching the Subject

There was a weak, but statistically significant, positive correlation between the teachers' use of diverse pedagogies and their students' academic performance.

Table 1

Relationship Between the Students' Academic Performance and Their Pedagogies Adapted by the Teachers in Teaching the Subject

Variate	Association		Fisher's t-Value	p-Value @ α=.05	Evaluation/ Decision
	Coefficient	Degree			
Pedagogies	Spearman's Rho = 0.241	Weak	2.765	0.009	S / Reject Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm S = Significant
Fisher's t-Critical = ±1.982, df = 124 NS = Not Significant

This suggests that teachers who incorporate a variety of teaching approaches (constructivist, collaborative, etc.) tend to have students who perform somewhat better academically. Diverse pedagogies might better cater to different learning styles, making learning more engaging and effective for more students, leading to improved outcomes. While the correlation is weak, it's encouraging because it indicates that teachers' pedagogical choices do have a measurable impact on student performance. It cannot be definitively said that using more pedagogies causes better performance. Other factors were likely at play. Specific pedagogies that were most beneficial were not known. Further research on the impact of individual teaching approaches might be valuable. Successfully implementing a range of pedagogies requires skill and effort. This variable might also be influencing student success.

Support teachers in learning about and experimenting with different teaching approaches. Professional development in this area could be beneficial. Help teachers identify suitable pedagogies based on their subject area, specific student needs, and their teaching styles. Investigate: which specific pedagogies have the strongest association with improved academic outcomes and how teachers' skills in implementing those pedagogies influence the relationship.

Learning Styles Adapted by Students.

There was a moderate, statistically significant relationship between students' learning styles and their academic performance.

This finding suggests that students who are aware of and utilize their preferred learning styles (visual, auditory, kinesthetic, etc.) tend to demonstrate better academic outcomes. Understanding students' learning styles provides a potential avenue for teachers to personalize their instruction, potentially leading to improved performance for many students. Encouraging students to reflect on how they learn best could empower them to take ownership of their learning process and advocate for their needs.

Table 2

Relationship Between the Students' Academic Performance and Their Learning Styles

Variate	Association		Fisher's t-Value	p-Value @ α=.05	Evaluation/ Decision
	Coefficient	Degree			
Learning Styles	Spearman's Rho = 0.461	Very Weak	6.813	0.000	S / Reject Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm S = Significant
Fisher's t-Critical = ±1.982, df = 224 NS = Not Significant

In summary, the correlation is not extremely strong. This indicates that learning styles are one influential factor among many in determining academic performance. Learning is complex. Over-reliance on the concept of learning styles alone risks oversimplifying the factors that contribute to academic success.

Conclusions

The following were the conclusions drawn from the findings of the study:

1. Students demonstrated unique learning style preferences, highlighting the need for teachers to differentiate their instruction.

2. Most students showed adaptability and awareness of how they learned best. This self-knowledge can be a powerful tool if students are empowered to use it.

3. The negligible impact of factors like age, sex, and socioeconomic background on learning style and performance suggested a potentially equitable learning environment. This is a positive finding to build upon.

4. Varied teaching approaches and awareness of students' learning styles seemed positively correlated with academic performance. This underscores the importance of teacher adaptability and diverse instructional methods.

5. The surprising negative correlation between teacher performance ratings and student outcomes required further investigation. Current evaluation systems (like IPCRF) might need revision to ensure they holistically measure true teaching effectiveness.

Recommendations

Anchored on the conclusions drawn from the findings of the study, the following recommendations are offered:

1. Use formal or informal assessments to help students identify their preferred learning styles. Adapt instruction accordingly (provide choices, offer materials in different formats, and vary activity types).

2. Participate in professional development to learn new teaching strategies that cater to different learning styles (hands-on activities, collaborative projects, multimedia presentations, etc.).

3. Regularly consider the variety of methods teachers' use. Create lessons that cater to a wider range of learners.

4. Openly discuss learning styles with the class. Invite students to share what helps them learn best and involve them in designing activities that support their preferences.

5. Budget for and actively encourage teachers to expand their knowledge of learning styles and diverse teaching strategies. Offer workshops, conferences, and collaborative mentoring opportunities.

6. Review teacher performance metrics. Develop a more holistic evaluation system that includes observations, student feedback, and measures of student growth over time.

7. Create mechanisms for students to share their learning preferences with teachers and administrators. Provide resources and training to help students understand and advocate for their learning styles.

8. Encourage a balanced use of quantitative and qualitative research within the school. Support teachers with collecting classroom data about student learning styles and preferences to enhance personalized instruction.

9. Parents share insights about their children's learning preferences with their teachers. Encourage open communication to support a collaborative approach to the child's education.

10. Reinforce learning styles discovered at school. If they're a visual learner, provide colorful study aids. If they're hands-on, turn homework into interactive activities.

11. Conduct in-depth research to understand why higher teacher ratings were associated with slightly lower student performance. Use a mixed-methods approach (quantitative and qualitative) to uncover potential reasons.

12. Study which specific teaching strategies have the strongest positive impact on student outcomes, particularly in relation to diverse learning styles.

13. Investigate how students' self-awareness of their learning styles and their belief in their ability to learn (growth mindset) influences their academic performance and motivation.

14. Encourage students to reflect on their learning styles and communicate them to teachers. This can foster better student-teacher collaboration and self-advocacy for personalized learning.

15. Provide opportunities for teachers to expand their repertoire of teaching strategies (visuals, hands-on, discussion-based, etc.) and learn how to identify and support different learning styles.

16. Explore alternative evaluation models that go beyond standardized test scores and encompass student growth, classroom environment, and diverse measures of teaching excellence.

17. Supplement statistical findings with interviews and classroom observations. This will provide a richer understanding of why learning environments are equitable, and how students and teachers utilize this to their advantage.

18. Recognize the complexity of student achievement. Factors like motivation, engagement, undiagnosed learning challenges, and access to support systems all play a role and need to be considered along with learning styles.

19. Design lessons that cater to a variety of learning styles (visual aids, discussions, hands-on activities) to benefit a broader range of students.

20. Consider using informal or formal assessments to help students identify their learning preferences.

21. Encourage students to communicate their preferred learning styles to their teachers to facilitate better personalization of instruction. Remember that learning

styles are just one piece of the puzzle. Combine this knowledge with other strategies that promote motivation, engagement, and effective study habits.

22. Strengthen the conduct of SLAC to improve teaching pedagogies.

23. Conduct reward and recognition to deserving teachers and students during the quarterly Portfolio Day.

24. Further study may be conducted focusing on other areas on pedagogies adopted by teachers and the learning styles of students.

Compliance with Ethical Standards

Ethical approval for the study was obtained before the conduct of this study. All respondents received written and oral information about the aim of the study and the possibility of withdrawing their participation at any time without the need to give reasons for doing so. Confidentiality was assured according to ethical research guidelines. Moreover, informed consent was obtained from all participants.

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THE LEVEL OF UNDERSTANDING AND COMPLIANCE OF SCHOOL OFFICIALS ON CAMPUS JOURNALISM PROGRAM OF PUBLIC ELEMENTARY SCHOOLS IN THE DISTRICT OF BUENAVISTA I, DIVISION OF QUEZON: BASIS FOR MANAGEMENT IMPLEMENTATION STRATEGIES

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ABSTRACT

This study is intended to determine the level of understanding and compliance of school officials on campus journalism program of public elementary schools in the district of Buenavista I, Division of Quezon in terms of DepEd roles in campus journalism, student publication, school paper adviser, and press conferences/trainings/seminars. The study utilized a descriptive-correlational research design. The data were statistically analyzed using percentage, frequency, mean, and ranking. The significant relationship between the level of understanding and compliance of school officials with the campus journalism program was statistically analyzed using the Pearson correlation coefficient (Pearson's r). The study has a total of 53 respondents: (1) public school district supervisor, 11 school heads, and 41 school paper advisers who answered the multiple-choice test and questionnaire. Findings revealed that in the level of understanding of school officials on campus journalism programs, they highly understood the indicators, with an overall mean frequency of correct answers of 33.52 and a percentage of 75.85. When it comes to compliance, it was found that the four (4) indicators were all moderately complied. Furthermore, the correlation analysis between the level of understanding and compliance of school officials revealed that there is no significant relationship, and the null hypothesis is accepted. Lastly, the proposed implementation strategies for the campus journalism program cater all the least understood and least complied indicators regarding the level of understanding and compliance of school officials with the said program.

Keywords: *Campus Journalism, Student Publication, Press Conference, School Paper Adviser*

INTRODUCTION

Campus journalism has been practiced in schools for decades, and it has had a tremendous impact on students' lives. Campus publications are considered essential since they have a big impact on students' opinions, behavior, and political status—especially in light of the shifting social landscape (Asperga, 2017). Journalism, in the opinion of Harcup (2015), fills in the gaps in society's knowledge by defining public interest and educating the public about itself. Campus journalists are empowered by RA 7079 to defend press freedom at the academic level while simultaneously growing as individuals and fostering moral development, critical thinking, and self-discipline (Destacamento, 2012). Campus Journalism Act of 1991 focuses on oral and written communication skills coupled with the principles of truth, fairness, and patriotism. Campus journalism is an integral key in nation- building. The campus press is the concrete manifestation of the students' democratic rights and a tangible expression of press freedom. Some well-known and noteworthy people in Philippine politics, media, art, and literature that have made substantial contributions to their respective disciplines in one way, or another were brought to light by the university press. The campus press instilled in many of them the higher for truth and social change that was the first stirring of their nationalist consciousness (Senate S. No. 1204).

The Buenavista I, one of the well-known districts to compete in Division Schools Press Conferences and Regional Schools Press Conferences has already lost its spotlight. The researcher, who is serving as school paper adviser of Buenavista I, expressed concern on the understanding and compliance of the schools in the implementation of campus journalism program. The inactive status of Buenavista I in school publication, schools should make an emphasis on the implementation of campus journalism program. Some schools comply to the said program but lack of understanding and compliance. The researcher believes that to have an operative campus journalism program, there should be a strong connection between understanding and compliance with campus journalism program. Hence, this study determined the level of understanding and compliance of school officials (school heads, school paper advisers, and public schools district supervisor) on campus journalism program of public elementary schools in the District of Buenavista I, Division of Quezon. The findings of this study were used as a basis to introduce management implementation strategies on campus journalism program.

Research Questions

This study determined the level of understanding and compliance on campus journalism program of school officials of public elementary schools in the District of Buenavista I, Division of Quezon as basis for management implementation strategies.

Specifically, this study attempted to answer the following questions:

1. What is the level of understanding on campus journalism program of school officials of public elementary schools in terms of:
    1.1. DepEd Roles in Campus Journalism;
    1.2. Student Publication;
    1.3. School Paper Adviser;
    1.4. Student Publication Funds; and
    1.5. Press Conferences/Trainings/Seminars?
2. What is the level of compliance on campus journalism program of school officials of public elementary schools in terms of:
    1.1. DepEd Roles in Campus Journalism;
    1.2. Student Publication;
    1.3. School Paper Adviser;
    1.4. Student Publication Funds; and
    1.5. Press Conferences/Trainings/Seminars?
3. Is there a significant relationship between the level of understanding and compliance of school officials of selected public elementary schools in the District of Buenavista I, Division of Quezon?
4. Based on the findings of the study, what management implementation strategies may be developed?

METHODOLOGY

This chapter elucidated the methodologies and protocols that enable the researcher to carry out the study effectively. This chapter focused on various aspects of the research study, including the research design, research locale, research population and sampling, research instrument, data gathering procedure, and statistical treatment.

Research Design

This study utilized descriptive-correlational research design to determine the correlation between the level of understanding and compliance of school officials with the campus journalism program of public elementary schools in the District of Buenavista I, Division of Quezon. Descriptive-correlational research design is used in research studies that aim to present still images of scenarios and demonstrate how certain variables relate to one another (McBurney and White, 2009). This design is appropriate for the study since the goal is to determine how participant variables can influence one another.

Research Locale

This study was conducted in the District of Buenavista I, Division of Quezon. The District of Buenavista I is composed of 11 public elementary schools, namely: Bagong Silang Elementary School, Buenavista Central Elementary School, Batabat Elementary School, Cabong Elementary School, Dela Paz Elementary School, Del Rosario Elementary School, Mabutag Elementary School, Magallanes Elementary School, Sabang Elementary School, San Isidro Elementary School, and San Vicente Elementary School. The District of Buenavista I is headed by the public schools district supervisor and 11 school heads. There are -133 public elementary school teachers in total as of writing this study. This location was chosen in order to gauge school officials' understanding and compliance with the campus journalism program and, subsequently, to carry out management implementation strategies throughout the district's public primary schools.

Population and Sampling

A total of 53 respondents, (one (1) public schools district supervisor, 11 school heads, and 41 school paper advisers) were the respondents in this study, as shown in Table 1.

These public schools district supervisor, school heads, and school paper advisers were taken from the public elementary schools in the District of Buenavista I, Division of Quezon.

Respondents	Frequency
I. Public Schools District Supervisor of the District of Buenavista 1	1
II. School Heads of Public Elementary Schools in the District of Buenavista 1	
Bagong Silang Elementary School	1
Buenavista Central Elementary School	1
Batabat Elementary School	1
Cabong Elementary School	1
Dela Paz Elementary School	1
Del Rosario Elementary School	1
Mabutag Elementary School	1
Magallanes Elementary School	1
Sabang Elementary School	1
San Isidro Elementary School	1
San Vicente Elementary School	1
III. School Paper Advisers of Public Elementary Schools in the District of Buenavista 1	
Bagong Silang Elementary School	7
Buenavista Central Elementary School	7

Batabat Elementary School	3
Cabong Elementary School	3
Dela Paz Elementary School	3
Del Rosario Elementary School	3
Mabutag Elementary School	3
Magallanes Elementary School	3
Sabang Elementary School	3
San Isidro Elementary School	3
San Vicente Elementary School	3
Total	**53**

Research Instrument

The researcher used a researcher-made questionnaire and test as data gathering tools for the study. The two parts of the instrument are the following: (1) level of understanding on campus journalism of school officials and (2) level of compliance on campus journalism of school officials. The researcher will use a test to measure the level of understanding and questionnaire for compliance of schools district supervisor, school heads, and school paper advisers in the campus journalism program. The test is consisted of 25 items, and the questionnaire is consisted of 50 items. These are the parts of the test and questionnaire (Part 1: DepEd Roles in Campus Journalism, Part 2: Student Publication, Part 3: School Paper Advisers, Part 4: School Publication Funds, and Part 5: Press Conferences, Trainings, and Seminars). The researcher used the following scales in the test and questionnaire as shown in the tables below.

Frequency	Percentage	Verbal Interpretation
45-50	81-100%	Very Highly Understood
36-44	61-80%	Highly Understood
23-33	41-60%	Moderately Understood
12-22	21-40%	Less Understood
1-11	1-20%	Misunderstood

The researcher used the measurement scales above to interpret the numerical scores of the respondents in the given test.

Scale	Weigh Assigned	Verbal Interpretation
5	4.50-5.00	Very Highly Complied
4	3.50-4.49	Highly Complied
3	2.50-3.49	Moderately Complied
2	1.50-2.49	Less Complied
1	1.00-1.49	Not Complied

The researcher used the measurement scales above to interpret the numerical scores of the respondents in the questionnaire.

Data Gathering Procedures

The instrument underwent validation to ensure that the test and questionnaire contained statements and questions that truly measure the issues of importance in the study. In this regard, the researcher asked for validation from her school head and research adviser. The researcher-made questionnaire also underwent face validation, which included the comments, suggestions, and approvals of the school head, district campus publication coordinator, and school paper adviser from the university.

Final copies of the test and questionnaire were distributed to the respondents after the pilot testing. To ensure that the research instrument was given to the target respondents of the study, the researcher personally distributed test and questionnaire. The respondents were reminded that participating in the study is voluntary, and withdrawal from the study on any grounds will be allowed. Five days were given to the respondents to finalize their responses.

After the given time for the respondents to finalize their responses, the researcher ensured that the test and questionnaire were retrieved. The responses of the participants were confidential, test and questionnaire, the researcher analyzed and interpreted the information gathered from the respondents.

Statistical Treatment of Data

The researcher used percentage, frequency, ranking, mean, and Pearson correlation coefficient (Pearson's r) as statistical tools in analyzing the gathered data in this study.

The statements in the multiple-choice test were analyzed using frequency and ranking, while the questionnaire was analyzed using mean and ranking.

The consolidated result of the multiple-choice test on the level of understanding of school officials on campus journalism was statistically treated using the average frequency of correct answers, the average frequency of percentages, and verbally interpreted. Lastly, the significant relationship between the level of understanding and compliance of school officials with campus journalism was analyzed using the Pearson Correlation Coefficient (Pearson's r).

RESULTS

Part 1. The Level of Understanding on Campus Journalism Program of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

Table 1. *The Level of Understanding of School Officials on Campus Journalism Program in terms of DepEd Roles in Campus Journalism*

Statements	Frequency of Correct Answers	Percentage of Correct Answers	Verbal Interpretation	Rank
1. Best description of campus journalism.	7	13.2	Misunderstood	5
2. Offered trainings of DepEd on campus journalism.	49	92.5	Very Highly Understood	1
3. Main objective of campus journalism.	32	60.4	Moderately Understood	4
4. Memorandum that aims to promulgate the rules and regulations necessary for the effective implementation of RA 7079 otherwise known as the "Campus Journalism Act of 1991".	36	67.9	Highly Understood	3
5. Effects of the new normal education in the role of campus journalism.	42	79.2	Highly Understood	2
OVERALL MEAN	**33.2**	**62.64**	**Highly Understood**	

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 1 presents the level of understanding of school officials on campus journalism program in terms of DepEd roles in campus journalism. It shows the overall mean frequency of correct answers, which is 33.2 with a percentage of 62.64, and is verbally interpreted as highly understood. The majority of respondents got the correct answer in statement 2, which has a frequency of 49 and a percentage of 92.5. On the other hand, the respondents' lowest score and ranking 5th reflect statement 1, which has a frequency of 7 and a percentage of 13.2.

It can be seen from the table that the respondents very highly understood the offer trainings of DepEd on campus journalism which include the district, division, regional, and national schools press conferences. However, the respondents were somehow confused

with the accurate meaning of campus journalism which is to enables campus journalists to exercise their press freedom. T

The notion above is contrary to the study of Estella (2015), in which it was asserted that most of the teachers who act as school paper advisers lack preparedness. The study proved that most of the teachers are not qualified to act as advisers due to a lack of knowledge about journalism. Teachers assigned to handle journalism are clearly under-skilled. Estella's study found that "the primary factors for the current state of teachers are a lack of formal training, as journalism is not incorporated into the basic education curriculum.".

Table 2. *The Level of Understanding of School Officials on Campus Journalism Program in terms of Student Publication*

Statements	Frequency of Correct Answers	Percentage of Correct Answers	Verbal Interpretation	Rank
6. Publishing of student publication.	36	66.0	Highly Understood	3.5
7. Meaning of student publication.	18	34.0	Less Understood	5
8. Relevance of school publication.	36	66.0	Highly Moderately Understood	3.5
9. Best time to publish a school publication.	47	88.7	Very Highly Understood	2
10. Responsible in editing all articles preparatory to submission to the adviser for final editing and approval for publication.	48	90.6	Very Highly Understood	1
OVERALL MEAN	**37**	**69.06**	**Highly Understood**	

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 2 presents the level of understanding of school officials about the campus journalism program in terms of student publication. It shows the overall mean frequency of correct answers, which is 37 with a percentage of 69.06 and is verbally interpreted as highly understood. The respondents answered statement 10 correctly with a frequency of 48 and a percentage of 90.6 and ranked first. Statement 7 has the lowest frequency of 18 with a percentage of 34.0 and is ranked 5th. Meanwhile, statements 6 and 8 were ranked 3rd; they have the same frequency of 36 with a percentage of 66.0.

In the published blog of Yellowbrick (2023), it emphasized the essential duties of the editor-in-chief in campus journalism. It is said that the editor-in-chief is the highest-ranking editorial position within a news organization, responsible for overseeing the entire editorial process, ensuring the quality and integrity of the content, and shaping the overall direction of the publication.

The result shows that the respondent highly understood the indicator. They understood that school publications serve as 'boundary objects' which can potentially help teachers achieve and develop their professionalism by disseminating individual knowledge into the public knowledge domain with transformative learning. Students serve as a watchdog to uncover problems at the respective institution.

Table 3. *The Level of Understanding of School Officials on Campus Journalism Program in terms of School Paper Adviser*

Statements	Frequency of Correct Answers	Percentage of Correct Answers	Verbal Interpretation	Rank
11. Process in selecting school paper adviser.	47	88.7	Highly Understood	2
12. Functions of school paper adviser.	38	71.7	Highly Understood	3
13. Difficult role of school paper adviser.	48	90.6	Very Highly Understood	1
14. School paper advisers need to make sure in writing articles for school publication.	32	60.4	Moderately Understood	4
15. Impact of journalistic competence of the school paper advisers on the overall success of the school publication.	31	58.5	Moderately Understood	5
OVERALL MEAN	**39.2**	**73.98**	**Highly Understood**	

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 3 presents the level of understanding of school officials on the campus journalism program in terms of the school paper adviser. It shows the overall mean frequency of correct answers, which is 39.02 with a percentage of 73.98, and is verbally interpreted as highly understood. Statement 13 is ranked first; it has a frequency of 48

and a percentage of 88.7. Statement 5 is ranked 5th with a frequency of 31 and a percentage of 58.5.

In the study conducted by Hester, Bridges, and Rollins (2020), when teachers are stressed and overworked, they may struggle to maintain their focus and motivation. This can negatively impact their efficiency and their ability to provide quality education to their students.

Furthermore, a high workload can also lead to teacher burnout, which can have long-term effects on their health and well-being. When teachers are burned out, they may become disengaged from their work, leading to lower levels of job satisfaction and increased turnover (Mullen, Backer, Chae, & Li, 2020).

The studies above are connected to the result of the table because they point out that teachers who have a heavy workload can affect their teaching performance. This also applies to the role of school paper adviser; their duties and responsibilities may be affected by a heavy workload, which can lead to poor management of school publications and the coaching of student journalists.

Table 4. *The Level of Understanding of School Officials on Campus Journalism Program in terms of Student Publication Funds*

Statements	Frequency of Correct Answers	Percentage of Correct Answers	Verbal Interpretation	Rank
16. School publication source of funds.	6	11.3	Highly Understood	5
17. Responsible in preparing the budget of school publication.	39	73.6	Highly Understood	1
18. Things to remember about collecting the publication fee.	26	49.1	Very Highly Understood	3.5
19. Inclusion of student publication funds.	32	60.4	Moderately Understood	2
20. Monitoring of financial report of campus journalism expenses.	26	49.1	Moderately Understood	3.5
OVERALL MEAN	**25.8**	**48.7**	**Highly Understood**	

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 4 presents the level of understanding of school officials on campus journalism program in terms of student publication funds. It shows the overall mean frequency of correct answers, which is 25.8 with a percentage of 48.7. The majority of respondents got the correct answer in statement 17 with a frequency of 39 and a percentage of 73.6. Statement 16 is ranked 5th with a frequency of 6 and a percentage of 11.3. Meanwhile, statements 18 and 20 were ranked 3rd with a frequency of 26 and a percentage of 49.1.

According to RA 7079 Section 4, which is relevant to the table's outcome, a student publication is produced by the student body via an editorial board and publication staff made up of students chosen through open and competitive tests. After the journal is founded, its editorial board will independently decide on its editorial stance and oversee its financial operations.

In every school's project and program implementation, source of fund is always considered as hindrance. Likewise, in campus journalism program implementation, problems regarding with school publication funding can't be deny. Though it is important to have a school publication, the school still need to look for ways on how to maximize the source of funds for campus journalism program.

Table 5. *The Level of Understanding of School Officials on Campus Journalism Program in terms of Press Conferences/Trainings/Seminars*

Statements	Frequency of Correct Answers	Percentage of Correct Answers	Verbal Interpretation	Rank
21. Main objective of the press conferences on campus journalism.	40	75.5	Highly Understood	1.5
22. Highest level of competition in campus journalism.	40	75.5	Highly Understood	1.5
23. People allowed to attend the trainings and seminars on campus journalism.	39	73.6	Highly Understood	3
24. Source of funds for trainings and seminars.	20	37.7	Less Understood	4
25. Common topics on campus journalism seminars.	24	45.3	Moderately Understood	5
OVERALL MEAN	**32.6**	**61.52**	**Highly Understood**	

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 5 presents the level of understanding of school officials on campus journalism program in terms of press conferences, trainings, and seminars. It shows the overall mean frequency of correct answers, which is 32.6 with a percentage of 61.52, and is verbally interpreted as highly understood. Statements 21 and 22 got the same frequency of 40 and percentage of 75.5, both ranked first. On the other hand, statement 25 ranked 5th with a frequency of 24 and a percentage of 45.3.

Press conferences/trainings/seminars on campus journalism mainly focus on the implementation of campus journalism programs, whether they are at the district, division, regional, or national level. Based on the results of the table, school paper advisers were aware that attending press conferences, trainings, and seminars together with student journalists will enhance their knowledge not only in the implementation of the program but also their journalistic writing skills.

However, in the study conducted by Cabaniza (2023), she revealed that budget is not enough in terms of attendance at seminars and trainings; administration determines the budget; there is no budget hearing conducted; there is a lack of scholarship grants; there is a lack of training and seminars for the improvement of writing skills; and there is a lack of attendance at budget management seminars and workshops

Likewise, Cervantes (2017) noted that because of the dearth of funds, pupil-journalists and even their advisers struggle to financially support their participation in activities such as trainings, workshops, and seminars.

Table 6. *The Consolidated Result the Level of Understanding of School Officials on Campus Journalism Program (Multiple-Choice Test)*

Indicators	Average Frequency of Correct Answers	Average Percentage of Correct Answers	Verbal Interpretation
1. DepEd Roles in Campus Journalism	33.02	62.64	Highly Understood
2. Student Publication	37	69.06	Highly Understood
3. School Paper Adviser	39.2	73.98	Highly Understood
4. Student Publication Fund	25.8	48.7	Understood
5. Press Conferences/ Trainings/Seminars	32.6	61.52	Highly Understood
OVERALL MEAN	**33.52**	**75.85**	**Highly Understood**

Legend:

45-50	*81-100%*	*Very Highly Understood*
36-44	*61-80%*	*Highly Understood*
23-33	*41-60%*	*Moderately Understood*
12-22	*21-40%*	*Less Understood*
1-11	*1-20%*	*Misunderstood*

Table 6 shows the consolidated result of the level of understanding of school officials about the campus journalism program. It registered an overall mean of average frequency of correct answers, which is 33.52, with an average percentage of correct answers of 75.85, and was verbally interpreted as highly understood.

The result of the table clearly shows that the school officials of the district of Buenavista I are well-equipped with the knowledge and skills of the campus journalism program. This also proves that they can train the campus journalists with the fundamentals of writing journalistic articles. Though it can be observed that the school paper advisers came from elementary schools, they have background in campus journalism and have undergone different trainings, workshops, and seminars that have updated their awareness and understanding of the campus journalism program.

Part 2. The Level of Compliance on Campus Journalism Program of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

Table 7. *The Level of Compliance of School Officials on Campus Journalism Program in terms of DepEd Roles in Campus Journalism*

Statements	Weighted Mean	Verbal Interpretation	Rank
1. The school is obediently complying on the DepEd/Division/Regional/National Memorandum on campus journalism program.	2.51	Moderately Complied	8
2. The school is regularly competing in press conferences offered by DepEd.	2.45	Less Complied	9
3. The school complies to DepEd's implementation of campus journalism program policies.	2.49	Less Complied	10
4. The school complies with the objectives on campus journalism implementation under the RA 7079 (Campus Journalism Act of 1991).	2.68	Moderately Complied	1
5. The school paper adviser of the school attends seminars and training offered by DepEd.	2.55	Moderately Complied	7
6. The school conducts school-based trainings for student journalists.	2.62	Moderately Complied	4
7. The school selects the editorial board based in the provisions of RA 7079 (Campus Journalism Act of 1991).	2.60	Moderately Complied	5

8. The school provides learners opportunities to use the skills learned in campus journalism for their future careers.	2.58	Moderately Complied	6
9. The school recognizes the role of journalism in advocating for social consciousness and environmental awareness.	2.66	Moderately Complied	2.5
10. The school teaches the student journalists to enrich learning experiences through healthy and friendly competitions.	2.66	Moderately Complied	2.5
AVERAGE	**2.58**	**Moderately Complied**	

Legend:

4.50-5.00	*Very Highly Complied*	*1.50-2.49*	*Less Complied*
3.50-4.49	*Highly Complied*	*1.00-1.49*	*Not Complied*
2.50-3.49	*Moderately Complied*		

Table 7 shows the level of compliance of school officials on campus journalism program in terms of DepEd roles in campus journalism. The result from the table revealed that the school officials moderately complied with the DepEd roles in campus journalism, as it registered an average weighted mean of 2.58.

Statements 1 and 4-6 have a verbal interpretation of moderately complied. Meanwhile, statement 2 (The school is regularly competing in press conferences offered by DepEd.) has a weighted mean of 2.45, and statement 3 (The school complies with DepEd's implementation of campus journalism program policies.) has a weighted mean of 2.49, and they are verbally interpreted as less complied.

Joining or competing regularly in press conferences offered by DepEd enables campus journalists to develop their journalistic writing skills. Likewise, the coaches developed their interpersonal skills by conducting small interactions with other coaches they met during the competition. Further, competitions set a framework for practicing and facilitating a growth mindset (Paguirigan, 2023).

Nonetheless, problems with competing regularly in press conferences offered by DepEd are still a big hindrance to schools, especially given the limited resources and funding of the said activity. This notion is supported by the study of Cervantes (2017), where he revealed that, because of the dearth of funds, pupil-journalists and even their advisers struggle to financially support their participation in activities such as trainings, workshops, and seminars.

Table 8. *The Level of Compliance of School Officials on Campus Journalism Program in terms of Student Publication*

Statements	Weighted Mean	Verbal Interpretation	Rank
11. The school has student publication that published by the student body through editorial board.	2.74	Moderately Complied	4.5
12. The school has publication staff composed of students selected by fair and competitive examinations.	2.77	Moderately Complied	3
13. The editorial policies and publication funds were determined once the student publication is published.	2.85	Moderately Complied	1.5
14. The student publication informs students about campus events.	2.85	Moderately Complied	1.5
15. The school practices freedom of the press to deliver relevant information	2.74	Moderately Complied	4.5
16. The school uses the student publication as an avenue for students' self-expression.	2.47	Less Complied	7
17. The school publication serves as an opportunity in harnessing students' talents in creative and literary writing.	2.55	Moderately Complied	6
18. The school publication applies communication arts in journalism.	1.83	Less Complied	10
19. The school publication develops students' journalistic investigation.	2.28	Less Complied	9
20. The student publication provides an avenue for ethical use of thoughts.	2.43	Less Complied	8
AVERAGE	**2.55**	**Moderately Complied**	

Legend:

4.50-5.00	*Very Highly Complied*	*1.50-2.49*	*Less Complied*
3.50-4.49	*Highly Complied*	*1.00-1.49*	*Not Complied*
2.50-3.49	*Moderately Complied*		

Table 8 shows the level of compliance of school officials with the campus journalism program in terms of student publication. It also revealed that the school officials also complied with the implementation of student publication, as it registered an average weighted mean of 2.55 and was verbally interpreted as moderately complied.

As seen from the table, the less complied indicators are statement 16 (The school uses the student publication as an avenue for students' self-expression.) with a weighted mean of 2.55, statement 18 (The school publication applies communication arts in journalism.) with a weighted mean of 1.83, statement 19 (The school publication develops students' journalistic investigation.) with a weighted mean of 2.28, and statement 20 (The

student publication provides an avenue for ethical use of thoughts.) with a weighted mean of 2.43. The result from the table shows that the application of communication arts ranked 10th (statement 14). Communication arts are vital in making student publications engaging to audiences. It has a wide scope for designing information as well as the use of multimedia.

Mangompit, Flores, and Jaca (2023) concluded in their study that there were five identified themes that affect the implementation of student publication, such as health-related issues, ICT-related issues, connectivity-related issues, adaptability-related issues, and journalism-related issues.

Also, considering the Knowledge Gap Theory, mass media information in a society increases; those with higher socio-economic status acquire this information faster than those with lower socio-economic status. Since most of the schools in the District of Buenavista have students of low socioeconomic status, they cannot adapt quickly to the new means of communication and the delivery of information in student publications. In this challenge, it can be inferred that the socio-economic status of the student journalists is one of the reasons why they acquire the information slowly since they do not have the resources to access it (Qi, An, Zhang, & Wang, 2020).

Table 9. *The Level of Compliance of School Officials on Campus Journalism Program in terms of School Paper Adviser*

Statements	Weighted Mean	Verbal Interpretation	Rank
21. The school paper advisers of the school are selected by the administration from the list of recommendees submitted by the publication staff.	2.53	Moderately Complied	9.5
22. The school paper advisers of the school know the purpose of a student newspaper which is to deliver fair and unbiased information.	2.53	Moderately Complied	9.5
23. The school paper advisers of the school teach responsible journalism.	2.55	Moderately Complied	8
24. The school paper advisers of the schools provide effective technical assistance to student publication.	2.68	Moderately Complied	3
25. The school paper advisers of the school teach journalistic writing competence on student journalists.	2.64	Complied	5.5
26. The school paper advisers of the school set a journalistically professional	2.58	Moderately Complied	7

learning atmosphere and experience for the students.			
27. The school paper advisers of the school discern and analyze the newsworthy news and issues.	2.64	Moderately Complied	5.5
28. The school paper advisers of the school practice the freedom of the press.	2.66	Moderately Complied	4
29. The school paper advisers of the school serve as the motivator and catalyst for ideas.	2.72	Moderately Complied	2
30. The school paper advisers of the school display special parental authority.	2.85	Moderately Complied	1
AVERAGE	**2.67**	**Moderately Complied**	

Legend:

4.50-5.00	*Very Highly Complied*	*1.50-2.49*	*Less Complied*
3.50-4.49	*Highly Complied*	*1.00-1.49*	*Not Complied*
2.50-3.49	*Moderately Complied*		

Table 9 presents the level of compliance of school officials on campus journalism program in terms of the school paper adviser. The result shows an average weighted mean of 2.67 and is verbally interpreted as moderately complied.

Aside from that, the table shows that all indicators were met by the respondents. Statement 30 (The school paper advisers of the school display special parentals.) with a weighted mean of 2.85 ranked first. Statement 21 (The school paper advisers of the school are selected by the administration from the list of recommendees submitted by the publication staff.) and Statement 22 (The school paper advisers of the school know the purpose of a student newspaper, which is to deliver fair and unbiased information.) have the same weighted mean of 2.53 and rank 9th.

In connection with the result of statement 21, the study of Espadero (2022) revealed in her findings that issues regarding qualifications, relevant training, security, and tenure surfaced in the selection of school paper advisers. As teachers were, from time to time, transferred from one coordinatorship to another, this was supported by the issue of the transfer of accountability from one school head to the next school head, and that reorganization of teaching staff happened as well. This means that some schools qualified a school paper adviser without considering the set of standards in RA 7079.

Additionally, he stated that administrators need to realize that assigning advisers to handle the task undermines the goal of student media and is bad for students' education. Teachers of journalism need to be able to concentrate more on the learners and their process of learning than on the final output.

Table 10. *The Level of Compliance of School Officials on Campus Journalism Program in terms of Student Publication Funds*

Statements	Weighted Mean	Verbal Interpretation	Rank
21. The school funding for the student publication includes the savings of the respective school's appropriations.	2.51	Moderately Complied	6
22. The school funding for the student publication includes the student subscriptions.	2.64	Moderately Complied	2
23. The school funding for the student publication includes the donations.	2.70	Moderately Complied	1
24. The editorial board of the school provides mechanism in collecting publication fees from students.	2.60	Moderately Complied	4
25. The school legalizes the non-mandatory collection of public fees for school publication as stated in the Section 7 of the RA 7079 (Campus Journalism Act of 1991).	2.62	Moderately Complied	3
26. The school provides a transparency of funding of student publication.	2.36	Less Complied	8
27. The school budget supports the funding of student publication.	2.28	Less Complied	9
28. The budget of school publication is posted in school's bulletin board.	2.09	Less Complied	10
29. The budget of school publication is prepared year-round.	2.49	Less Complied	7
30. The editorial board of the school manages the budget of school publication.	2.58	Moderately Complied	5
AVERAGE	**2.48**	**Less Complied**	

Legend:

4.50-5.00	*Very Highly Complied*	*1.50-2.49*	*Less Complied*
3.50-4.49	*Highly Complied*	*1.00-1.49*	*Not Complied*
2.50-3.49	*Moderately Complied*		

Table 10 shows the level of compliance of school officials with the campus journalism program in terms of student publication funds. The result indicates an average weighted mean of 2.48 and is verbally interpreted as less complied.

Statement 33 was supported by RA 7079 Section 7; it is stated that funding for the student publication shall be sourced primarily from student publication fees collected by the school administration. It shall be mandatory for the school administration to collect reasonable student publication and subscription fees during the enrollment period. For public schools, publication funds shall be included in the budgets of the institutions. Secondary sources of publication funds shall include the savings of the respective school's appropriations and donations.

On the other hand, the table shows statement 10 (The budget of school publication is posted on the school's bulletin board.) is the least complied indicator. In the study of Talikan (2021), it was concluded that if the schools want to improve the quality of

education, then posting the liquidation report on the transparency board is necessary. This also attracts investors, philanthropists, and other stakeholders to extend services to the school.

Table 11. *The Level of Compliance of School Officials on Campus Journalism Program in terms of Press Conferences/Trainings/Seminars*

Statements	Weighted Mean	Verbal Interpretation	Rank
21. The school trains the student writers to be responsible writers in the exercise of press freedom.	2.75	Moderately Complied	1
22. The school paper advisers of the school give effective and efficient technical assistance for student writers.	2.57	Moderately Complied	8
23. Advancing the school paper advisers and student writers' knowledge about the new trends on campus journalism.	2.64	Moderately Complied	2
24. Attend seminars/press conferences/trainings that upskills the school paper advisers and student writers' journalistic competence.	2.57	Moderately Complied	8
25. The school ensures the student writers to write information that is fair, balanced, and truthful.	2.57	Moderately Complied	8
26. Expenses of school paper advisers and student writers in seminars/trainings/workshops/and press conferences attended is covered by the student publication funds.	2.53	Moderately Complied	10
27. Attend seminars/trainings/workshops/and press conferences that provoke student writers' curiosity.	2.60	Moderately Complied	4.5
28. Attend seminars/trainings/workshops/and press conferences that provoke student writers' communication skills.	2.58	Moderately Complied	6
29. Attend seminars/trainings/workshops/and press conferences that strengthen school paper advisers and student writers' journalistic values.	2.60	Moderately Complied	4.5
30. Attend seminars/trainings/workshops/and press conferences on campus journalism implementation.	2.62	Moderately Complied	3
AVERAGE	**2.60**	**Moderately Complied**	

Legend:

4.50-5.00	*Very Highly Complied*	*1.50-2.49*	*Less Complied*
3.50-4.49	*Highly Complied*	*1.00-1.49*	*Not Complied*
2.50-3.49	*Moderately Complied*		

Table 11 shows the level of compliance of school officials with the campus journalism program in terms of press conferences/trainings/seminars. The result revealed an average weighted mean of 2.60 and was verbally interpreted as moderately complied.

Based on the result, all the indicators were met by the respondents. Statement 41 (The school trains the student writers to be responsible writers in the exercise of press freedom.) ranked 1st with a weighted mean of 2.75, and Statement 46 (Expenses of school paper advisers and student writers in seminars, trainings, workshops, and press conferences attended are covered by the student publication funds) ranked 10th with a weighted mean of 2.53. RA 7079 was established for several reasons, one of which is to protect press freedom on college campuses and to encourage the growth of campus journalism as a way to reinforce moral principles, foster critical and creative thinking, and help young Filipinos develop their moral character and self-discipline.

As mentioned in the news written by Caling (2020), one of the interviewees said that the workshops and training for campus journalism were funded by themselves a lot of the time, the school is under budget, and their school paper advisers pay for the remaining balances, which they directly source from their own income.

In addition, in the study of Natividad and Gapasin (2021), it was revealed that there is no budget allotted for press conferences, trainings, or seminars for campus journalists and teachers. SPAs stated that if there are DepEd-offered trainings, only the big schools can attend because they have the budget.

Since the law (RA 7079) mandates no mandatory collection of publication fees, this leaves the schools to rely solely on voluntary contributions, donations, and the school's local funds.

Part 3. The Test of Significant Relationship between the Level of Understanding and Compliance of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

Table 12. *Correlation Analysis between the Level of Understanding and Compliance of School Officials on Campus Journalism Program*

Indicators	R-value	P-value	Decision	Verbal Interpretation
DepEd Roles in Campus Journalism	-0.02	2.73E-05	Accept Ho	Not Significant
Student Publication	0.15	4.54E-07	Accept Ho	Not Significant
School Paper Adviser	-0.81	1.43E-09	Accept Ho	Not Significant
School Publication Fund	0.69	3.03E-05	Reject Ho	Significant
Press Conferences/ Trainings/Seminars	0.58	1.63E-07	Reject Ho	Significant
OVERALL TOTAL	**0.236**	**2.21E-30**	**Accept Ho**	**Not Significant**

Table 12 shows the correlation analysis between the level of understanding and compliance of school officials on campus journalism program, with an overall total of an R-value of 0.236 and a P-value of 2.21E-30. It can be gleaned from the data that there is no significant relationship between the level of understanding and compliance of school officials with the campus journalism program. Thus, the null hypothesis is accepted. The result implies that the high understanding of school officials on different indicators of the campus journalism program doesn't affect the level of compliance of school officials on different indicators of the campus journalism program, and vice versa. This suggests that there is no linear relationship between the level of understanding and the level of compliance of school officials with the campus journalism program.

Part 4. The Proposed Management Implementation Strategies

The proposed management implementation strategies were based on the findings of the study. All the least understood, misunderstood, least complied, and not complied indicators from statement of the problem 1 and 2 were highlighted. Its primary objectives are to elevate the management implementation strategies of public elementary schools in the district of Buenavista I, Division of Quezon on campus journalism program, to develop instructional skills of school paper advisers in coaching campus journalists, and to address the problems of the schools in understanding and compliance with campus journalism program. The researcher crafted an action plan for the proposed management implementation strategies. The priorities of action, objectives, strategies, actions to be taken, time frame, person/s involved, source of funds, and expected outcomes were the contents of the action plan. Furthermore, the researcher believed that through the research output, the implementation of campus journalism program will have clear direction and set appropriate and achievable objectives.

DISCUSSION

Summary of Findings

The significant findings of the study are summarized below:

1. The Level of Understanding on Campus Journalism Program of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

1.1. The level of understanding of school officials on campus journalism programs in terms of DepEd roles in campus journalism shows that the majority of respondents answered statement 2 (Not included in the offer of training for DepEd on campus journalism).

1.2. In terms of student publication, the level of understanding of school officials in the campus journalism program shows that the respondents correctly answered statement 10 (Responsible for editing all articles preparatory for submission to the adviser for final editing and approval for publication).

1.3. The level of understanding of school officials on campus journalism program in terms of school paper advisers shows that the majority of respondents correctly answered statement 13 (Difficult roles of school paper adviser).

1.4. In terms of student publication, the level of understanding of school officials in the campus journalism program shows that the respondents correctly answered statement 17 (Responsible for preparing the budget for school publication).

1.5. In terms of press conferences/trainings/seminars, the level of understanding of school officials on the campus journalism program showed that most respondents correctly answered statement 21 (Main objective of the press conferences on campus journalism) and 22 (Highest level of competition in campus journalism).

Consolidated Result of the Level of Understanding of School Officials on Campus Journalism Program (Multiple-Choice Test)

The result revealed that the respondents highly understood the campus journalism program and its four (4) indicators (DepEd Roles in Campus Journalism, Student Publication, School Paper Advisers, Student Publication Funds, and Press Conferences/ Trainings/Seminars).

2. The Level of Compliance on Campus Journalism Program of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

2.1. The school officials moderately complied with the campus journalism program in terms of DepEd roles in campus journalism.

2.2. The school officials moderately complied on campus journalism program in terms of student publication.

2.3. The school officials moderately complied on campus journalism program in terms of school paper advisers.

2.4. The school officials lowly complied on campus journalism program in terms of student publication funds.

2.5. The school officials moderately complied on campus journalism program in terms of press conferences, trainings, and seminars.

3. The Test of Significant Relationship between the Level of Understanding and Compliance of School Officials of Public Elementary Schools in the District of Buenavista I, Division of Quezon

3.1. The result of the correlation analysis between the level of understanding and compliance of school officials with the on-campus journalism program shows no significant relationship.

4. The Proposed Management Intervention Strategies

4.1. The proposed management implementation strategies were based on the indicators of multiple-choice test and questionnaire with the least understood and complied indicators.

Conclusions

Based on the findings of the study, the following conclusions are presented:

1. Based on the result of the multiple-choice test on the level of understanding of school officials on campus journalism program, it was found that the indicator DepEd Roles in Campus Journalism got the highest frequency of correct answers.

2. Based on the result of the survey questionnaire on the level of compliance of school officials with the campus journalism program, it was found that the four (4) indicators (DepEd Roles in Campus Journalism, Student Publication, School Paper Advisers, Student Publication Funds, and Press Conferences/Trainings/ Seminars) were all moderately complied except for the Student Publication Funds, wherein it was verbally interpreted as less complied.

3. Based on the consolidated result of the multiple-choice test on the level of understanding of school officials in the campus journalism program, it was found that the respondent highly understood the indicators.

4. The result of the correlation analysis between the level of understanding and compliance of school officials revealed that there is no significant relationship between the level of understanding and compliance of school officials with the campus journalism program. Thus, the null hypothesis is accepted.

Recommendations

Based on the conclusions, the following recommendations are suggested:

1. Since the result of the level of understanding of school officials on campus journalism programs in terms of DepEd roles in campus journalism shows a low frequency of correct answers in statement 1 (Best describes campus journalism), school officials may reconsider RA 7079, (Section 1) and review the meaning of campus journalism.

2. Because the result of the level of understanding of school officials on campus journalism programs in terms of student publication shows a low average frequency of correct answers in statement 7 (Meaning of school publication), school officials may also revisit RA 7079, specifically Section 4 of the law where the meaning of school publication was explained.

3. Because the result of the level of understanding of school officials on campus journalism program in terms of school paper adviser shows a low frequency of correct answers in statement 15 (Impact of journalistic competence of school paper advisers on the overall success of the school publication.) school officials may reflect on their performance as school paper advisers and how it affects the success of school publication.

4. Since the result of the level of understanding of school officials on campus journalism programs in terms of student publication funds shows a low frequency of correct answers in statement 6 (Source of funds for school publication.) school officials should assess the source of funds for school publication, e.g., savings of the respective school's appropriations, student subscriptions, donations, and other sources of funds.

5. Since the result of the level of understanding of school officials on campus journalism program in terms of press conferences, trainings, and seminars shows a low frequency of correct answers in statement 25 (Common topics on campus journalism seminars.), we may review DepEd memoranda that issued press conferences, trainings, and seminars for school paper advisers and campus journalists and analyze the objectives.

6. Based on the results of the level of compliance of school officials with the campus journalism program in terms of DepEd roles in campus journalism, it shows that the schools' compliance with DepEd's implementation of campus journalism program policies is the least complied statement: therefore, the school officials must consider the implementation of RA 7079 since it serves as the mother law of campus journalism.

7. The result of the level of compliance of school officials with the campus journalism program in terms of student publication shows that the least complied statement is the application of communication arts in journalism. The school officials may start to integrate the use of multimedia in delivering newsworthy articles.

8. The result of the level of compliance of school officials on campus journalism program in terms of school paper advisers shows that the least complied statement are the selection of school paper advisers and the awareness of the school paper advisers with the purpose of student newspaper which is to deliver fair and unbiased information, the school administrators may refrain from selecting school paper advisers which are solely based on the length of teaching experience and not by their teaching performance specially those teachers with journalism background, and lastly, school paper advisers should always give effective technical assistance to campus journalists to make sure that they publish fair and unbiased information.

9. Since the result of the level of compliance of school officials on campus journalism program in terms of student publication funds shows least compliance in posting of school publication budget in school's bulletin board, school officials should always uphold transparency and accountability, they need to post in school's bulletin board all the expenses and sources of funds for student publication.

10. Because the results of the level of compliance of school officials with the campus journalism program in terms of press conferences, trainings, and seminars show the least compliance with the expenses of school paper advisers and student

writers in seminars, trainings, workshops, and press conferences covered by publication funds, the school may raise funds by being open to donations, maximizing the school's local funds, and funding support from LGU.

11. Since the result of the correlation analysis between the level of understanding and compliance of school officials with the campus journalism program shows no significant relationship, the school officials should align the high level of understanding with how they comply with the different aspects of campus journalism.

12. Since the limitation only concerns the understanding and compliance of school officials on campus journalism program, future researchers may also conduct study about the school paper advisers and campus journalists' journalistic competence. This study may also serve as their reference into further studying the implementation of campus journalism program in public elementary schools.

Compliance with Ethical Standards

The study ensured the informed consent was given to the following respondents. Freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents well-being was safeguarded, no conflict of interests exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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THE LIVED EXPERIENCES OF TEACHERS USING ENGLISH AS A MEDIUM OF INSTRUCTIONS

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ABSTRACT

This study investigated the lived experiences of teachers using English as a medium of instruction. It specifically explored the perceptions, challenges encountered, and benefits of using English as a medium of instruction in the classroom. T his study employed a phenomenological research design. A semi-structured interview was used to gather the phenomenological data from the ten (10) purposively chosen Pangutaran National High School Main teacher participants. The 8-item open-ended interview question was modified to fit in the context of the present study and was validated by the expert. The study's findings revealed that English as a medium of instruction is defined as a way of communication. It is used to aid the teaching and learning processes. It is also revealed that teachers have encountered many challenges in a class wherein English is used to communicate. However, the study found that even though using English as a medium of instruction is very challenging, many benefits can be gained from its utilization.

Keywords: *English as Medium of Instruction, English language, Lived experiences, Perceptions, Challenges, Phenomenological research design*

INTRODUCTION

The increasing interest in English as a medium of instruction has heightened the need to study teachers' lived experiences. English as a medium of instruction is the use of the English language in all learning areas except Filipino, Araling Panlipunan, and Edukasyon sa Pagpapakatao. This is following the DepEd Order No. 36. S. 2006,

"Implementing Rules and Regulations on Executive Order No. 210," stated that the English language shall be used as the primary medium of instruction in all public and private schools at the secondary level. The purpose of Executive Order No. 210 is to strengthen the use of the English Language as a Medium of Instruction in the Educational System. However, teachers need to be better equipped with using the English language or the students. Thus, it is essential to consider this when implementing the rules.

As observed, teachers need help using English as a medium of instruction. Some students need help understanding them whenever they speak English inside the classroom. The content explained in the English language may seem impractical to the student. Conversely, students find it very advantageous when their teacher uses L1 in the explanation of the content. Using English as a medium of instruction requires considerable effort from teachers and students. Therefore, both teacher and student must work together for the success of EMI in the teaching-learning process.

The notion of English as a Medium of instruction refers to the use of the English language in classroom instruction where the content of various subjects is taught and delivered in English (Khatri, 2019). Dearden (2014) defines EMI as "the use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English."

A study on English as a Medium of Instruction focuses on the teachers' attitudes. Khatri (2019) conducted a study entitled Teacher's Attitudes Towards English as a Medium of Instruction. This is where the current researcher adapts the instrument. The result of the study revealed that teachers at public schools were found to be aware of the basic concept of the notion of English as a Medium of Instruction. The study also showed that teachers at the secondary level have faced different challenges in adopting EMI in the classroom, such as students' weak exposure to English, mother tongue interference, inadequate school resources, and linguistic diversity in the class. Using EMI is quite arduous.

Another study, entitled English as a Medium of Instruction: A Survey on Lecturers' Attitudes, was conducted and authored by Allo et al. (2023). This study aimed to investigate the lecturers' attitudes towards English as a medium of instruction. The findings confirmed that the younger lecturers and the lecturers with a higher teaching load in English are more positive towards the increase in English as a Medium of Instruction. This study showed that individual attitudes regarding EMI are different from each other

.

Research Questions

Given that the authority stipulates that the English language should be used as a medium of instruction, teachers should promptly adhere to this rule. This instance aroused the curiosity of the researcher to conduct the study. Hence, this recent study aims to explore the lived experiences of teachers using English as a medium of instruction. In this study, the researcher is sought to address the following research questions:

1. What is English as a medium of instruction for teachers handling subjects using EMI?
2. What are the challenges teachers encounter when using English as a medium of instruction? And.
3. What are the benefits of using English as a medium of instruction?

METHODOLOGY

Research Design

This study employed a qualitative research design, specifically the phenomenological research design, to explore the teachers' lived experiences using English as a medium of instruction in Pangutaran National High School. Creswell (2009) defined phenomenological research design as a qualitative strategy in which the researcher identifies the essence of human experiences about a phenomenon described by participants in a study. Moustakas (1994) posited that the respondents' responses should focus on the wholeness of experiences and a search for the essence of experiences. He viewed experience and behavior as an integrated and inseparable relationship of phenomenology with the person experiencing it.

Participants

The study participants were 10 teachers of Pangutaran National High School who were handling a subject that used English as a medium of instruction. Purposive sampling was used to select participants. Only those teachers who used English as a medium of instruction served as participants in the study. Purposively select means that qualitative researchers select individuals who will best help them understand the research problem and questions (Creswell, 2009).

Data Gathering Procedures

The researcher followed the proper protocol when gathering the data. The researcher also asked permission from the school principal before the conduct of the study. Then, the researcher met with the participants and discussed their participation in the study. During the discussion, the researcher reiterated that their data would be treated with utmost confidentiality. After the discussion, the researcher began with the interview. Due to the hectic schedule of some of the participants, the researcher was asked to give the participants a copy of the interview questionnaire. This made the data a combination of spoken and written interviews. Afterward, the data gathered from the participants were analyzed.

Instruments

This study utilized semi-structured interviews. Few questions are often followed by why or how questions. According to Adams (2015), as cited by Hongsa et al. (2023), semi-

structured interviews are appropriate for various tasks, especially where a further probe is needed. Moreover, semi-structured interviews help gain in-depth information from the participants and permit the researcher to gather unstructured information and investigate participants' thoughts, feelings, and beliefs regarding a specific subject (Hongsa et al., 2023). Thus, the researcher used semi-structured interviews, which included eight questions to explore the lived experiences of the teachers using English as a medium of instruction in Pangutaran National High School. This instrument was adapted from Khatri (2019) with minor revisions to fit the context of the present study. It was validated by the experts.

Limitations and Scope of the Study

This study focused on exploring the teachers' lived experiences using English as a medium of instruction. A phenomenological research design was used at Pangutaran National High School, Simbahan, Pangutaran Sulu. Semi-structured interviews were used to collect the data needed for the study. This SSI comprises Five (8) combinations of open-ended and closed-ended adapted questions. However, this study has limited to ten (10) teachers handling subjects with English as a medium. The researcher was only able to include some teachers in that school.

Data Analysis

The phenomenological data were analyzed using thematic analysis. It is defined as identifying patterns within qualitative data (Maguire & Delahunt, 2017). Braun and Clarke (2006) suggest that it is the first qualitative method to be learned as '…it provides core skills that will be useful for conducting many other kinds of analysis' (p.78). The qualitative data gathered from the interview were analyzed using semantic thematic analysis. In this manner, the themes were concluded from the explicit or surface meanings of the data. The researcher was not looking for anything beyond what a participant had said.

RESULTS AND DISCUSSION

To explore the teacher-participant's definition of English as a medium of instruction, an open-ended question was asked to them. The question was, "What is English as a medium of instruction?" In response to this question, teacher-participants came up with different answers based on their daily English language encounters. However, about sixty percent of the participants responded with the same perspective, pointing to the English language being used in teaching-learning processes. To validate their responses to the question, careful analysis was done to develop significant data.

Regarding the definition of English as a medium of instruction, six participants shared their definitions as a way of communication, and they stressed that the English language is being used in the classroom with subject areas taught in English to give instructions and explain the lesson's content. Moreover, some participants defined

English as a medium of instruction to help enhance learners' communication skills and develop learners' critical thinking skills. On the contrary, two participants defined it as challenging to use since learners are not native speakers of the English language, which makes it difficult for them to interact or participate in the class discussion.

Based on the discussion above, though participants defined English as a medium of instruction differently, it can be concluded that the English language is used as a way of communication. This, in return, will guide the students to be proficient and effective. However, not all of them defined it positively.

According to Yessenbekova (2023), participants had a positive LI towards EMI, which is helpful for language development, although many of them encountered challenges during LP due to their low mastery of English.

On the use of English language in the classroom

To learn about using the English language in the classroom, the participants were asked: "Do you use the English language in your class? The follow-up question, "Why or why not?" justified whether they employed the English language in their class. All the participants responded yes to the question, meaning the English language is utilized in their class. The utilization of this language, based on their responses, has different purposes. One participant who is teaching Mathematics found it appropriate to use the language as it was described as a practical approach to explaining the concept in Mathematics.

Moreover, another participant highlighted that using English encourages the students to learn the language and enhance their grammar and pronunciation. However, participants contextualized the use of English in their class, mixing it with the student's first language and often having to translate the terms into their mother tongue to avoid confusion and misinterpretation. To sum up, the utilization of English language in the classroom depends on the level of students we are teaching.

Similarly, Karim et al. (2023) strongly suggest a bilingual curriculum in which instruction is delivered in both English and Bangla to impart knowledge to the students and to produce knowledgeable and skilled graduates.

On the students' reactions to using English language in the classroom

To determine the students' reactions to using the English language in the classroom, the teacher-participants were asked this question: "How do students react to you when you are using the English language in the classroom?" In response to this question, varied answers were drawn from the participants. Confusion is one of the distinguished answers given by some of the participants. Some students, especially those who came from the lower sections, found it challenging when their teachers spoke the English language. Though they appreciated it, they still felt they needed to be more relaxed and satisfied with their learning.

On the contrary, students in the pilot section are delighted to be in this class and eager to participate in class discussions as they can relate to their teacher's words. To conclude, using the English language in the classroom can sometimes be confusing to academically challenged students and attractive to more advanced students. So, the teachers must adjust their level to the students.

Teachers from Eastern Indonesia positively perceive English as a medium of instruction as they believe it could improve students' proficiency. However, some are hesitant and would rather have classes taught in a blend of their native language and English (Nur et al., 2022).

On the students' participation in the class using English as a medium of Instructions

To disclose the students' participation in the class using English as a medium of instruction. Continuing the previous question, the participants were asked, "How about the student's participation in the class using English as a medium of instruction?" Almost all the participants answered similarly. Based on their responses, most students needed to be more participative, and some of them needed to familiarize themselves with the language.

Additionally, some students need more confidence in speaking the language because they are afraid of making mistakes and anxious about being discriminated against by their classmates. Only a few students participated sufficiently in the classroom discussion. These more advanced students felt that speaking English in the classroom challenged them to improve. In summary, using English as a medium of instruction hinders the students' participation; though some students are accustomed to it, the majority became less participative.

Similarly, Lai (2023) revealed that students were inclined to produce extensive and substantial verbal output and expressed the importance of teacher-student interaction for learning the course content.

On the students' learning outcome in the class using English as a medium of instructions

This section of the paper will uncover the learning outcome of the students in the class using English as a medium of instruction. About fifty percent of participants responded that they needed improvement or were very low on it. One of the participants said that when she used purely English language in her explanation, only a few students passed the written evaluation. These students must be translated into English to comprehend the words and phrases well. Another participant concluded that most of the students needed to meet expectations. He stated that fast learners can meet the learning competencies. However, slow learners obtain only a small proportion of the learning outcome. He further concluded that only about a quarter of learning competencies exist, with approximately twenty-five percent of the learners combined from all the sections who can cope with the learning competencies. These conclude that the student's learning outcome could be more encouraging in a class using English as a medium of instruction.

In consonance, inadequate language proficiency among learners has been found to impact them in different ways, including difficulties in understanding lectures, problems communicating disciplinary content and requiring more time to complete a course (Galloway et al. 2017).

Using the English language to boost Students' confidence

This part of the paper deals with the benefits of using English. The open-ended question was used to collect the phenomenon. The question was, "How can using) English language boosts students' confidence?" Most participants answered that it depends on the level of students and their persistence in enhancing their confidence in speaking the language. Accordingly, some students can boost their confidence if motivated and try to imitate their teacher.

Moreover, being familiar with and knowing enough about the language will significantly influence their confidence. Furthermore, practicing the English language in the classroom can normalize the students' anxiety. Hence, if we want to enhance our students' communication skills, we should train them to speak English confidently.

This result is supported by Miranda and Wahyudin (2023), who stated that there are factors that contribute to neither success nor failure in the process of acquiring language, which the teachers must understand if they are to assist their students in learning English more successfully. Further, teachers must provide numerous turns in communication to improve students' abilities to communicate more fluently, ask, respond to, and answer questions, and change their thoughts about topics.

On using the English language to enhance students' learning performance

In this part, the participants were asked: Can English language enhance students' learning performance?" In response to this, participants responded differently. Despite the differences, using the English language in the classroom can enhance the student's learning performance. This was exemplified in the statements of the participants, such as using the English language helped the students express and organize their ideas, made them actively participate, developed their critical thinking skills, and served as an opportunity for the students to practice and apply their English language skills in various activities. In addition to that, one of the participants said that it is convenient. Since it would be easy for them to read, comprehend, analyze, synthesize, and evaluate the reading texts. In this regard, their learning performance is enhanced as they understand everything in the reading texts. However, one participant said that using English can only enhance learning performance if the students can understand the sentences or phrases they have read; if not, it can only discourage the students and affect their learning performance. Using the English language in the classroom will not always affect performance positively but also negatively.

Alhamami (2023) stated that using students' mother tongue is related to robust IC, leading to better cognition, positive effects, and more robust performance in the learning environment.

On using the English language to help students become globally competitive

To investigate whether using the English language can help students become globally competitive, the participants were asked to share their perceptions on this question: "How can using) English language help students become globally competitive?" Mostly, they answered that it helped students become globally competitive learners. One participant stated that if the students learned to speak English effectively, they could globally communicate with other people. Considering that English is an international language, it will be easy for students to cope with everything concerning the English language. Moreover, using the English language in the classroom can develop a creative and potential student who can utilize their higher thinking skills since they have the potential to do it in English. In summary, to be globally competitive, we should train our students to speak the language, as speaking English is one of the characteristics of being a globally competitive individual.

According to Ly (2023), English is regarded as a prevalent international language. He further stated that the two main reasons Vietnamese students learn English are better job opportunities and gaining competitive advantages. Although participants experienced different emotional reactions to EMI, including frustration over teaching practices, anxiety about the quality of their learning, and pride at their accomplishment, it contributes to the role of EMI on students' well-being and graduate outcomes (Sahan & Sahan, 2023)

Conclusions

The results of this study explored the lived experiences of the teachers using English as a medium of instruction at Pangutaran National High School. Specifically, it investigated the teachers' insight, challenges encountered, and benefits of using English as a medium of instruction. The study's findings revealed that English as a medium of instruction is defined as a way of communication. It is used to aid the teaching and learning processes. It has also been revealed that teachers have encountered many challenges in a class where English is used to communicate. However, the study found that even though using English as a medium of instruction is very challenging, many benefits can be gained from its utilization.

Recommendations

Based on the findings and conclusions of this study, it is recommended that.

1. The school administration should strengthen the use of English in the classroom to develop and train students to be globally competitive.
2. The teachers concerned should continue to develop student English language communication skills by utilizing the language as much as possible in class discussions and encouraging the students to be more participative.

3. The students should cooperate and work hard in developing their speaking skills. They should change their mentality about the English language.
4. Future researchers may undertake and replicate similar studies involving all English teachers in the school (main) and annex to further validate the study's results.

Compliance with Ethical Standards

The researcher informed the participants about the purpose and nature of the research. Also, the processes to be executed, the data utilization, and the benefits they might have. The participants were free to choose whether or not they would participate in the study. No names were mentioned in the study to protect the participants' privacy. In addition, the participants were not forcibly asked to answer positively, which means they could answer the interview questions based on their interpretations and feelings.
Moreover, the data collected were treated confidentially, and only the researcher had access to them. The data collection and analysis were appropriate and valid, which helped the researcher complete the data needed for the research. Finally, the researcher ensured that the study's findings were exclusive and would not affect institutions.

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THE PERCEIVED SERVANT LEADERSHIP STYLE OF MANUFACTURING COMPANY Z IN MANAGING EMPLOYEE PERFORMANCE

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ABSTRACT

This study examined the level of perceived servant leadership dimensions such as love, service, empowerment, trust, and altruism on the employee performance of Company Z. A quantitative research method was used on a sample of 250 regular employees from various departments for Company Z. A structured Likert scale questionnaire consists of several statements measuring scales was used and administered to the respondents. A follow-up questionnaire for key informant interviews was done to support the proposed programs that Company Z may adopt in managing employee performance and turnover. The data were analyzed using descriptive statistics (mean), Cronbach's alpha (reliability), and Spearman correlation for testing the hypothesis. The results of descriptive analysis on the servant leadership variable exhibited that generally, respondents agreed that the dimensions of servant leadership influenced their performance. Specifically, the higher the mean, the more employees perceived that their leaders foster servant leadership style and made them feel empowered and eager to perform and deliver what is expected of them at work. Furthermore, the results of Spearman correlation through hypothesis testing revealed that servant leadership dimensions: love, service, empowerment, trust, and altruism had a low to moderate significant relationship with employee performance. Given the overall results, the researcher recommends that the programs or policies formulated be adopted by Company Z; conduct a study that focuses on how leaders perceived themselves as a servant leader and cover other dimensions or mediators as predictor variables for more extensive findings.

Keywords: *Servant Leadership, Love, Service, Empowerment, Trust, Altruism, and Employee Performance*

INTRODUCTION

Leadership plays a vital role in managing the people and the organization. Managers or leaders are responsible for ensuring the team's success, creating a positive and conducive environment, and solving complex problems while still encouraging employees to participate. However, once these responsibilities of leaders have been neglected and have drawn their attention away from the team members, then it can lead to a drop in productivity (Wilde, 2019), particularly in today's world that is constantly changing with a volatile, uncertain, complex, and ambiguous (VUCA) environment wherein things seem hard to understand and become unpredictable. It is important that today's leaders have the capability and willingness to serve their people while contributing not only to the success of the organization, but also to empowering. employees toward growth.

In addition, managing employee performance is an organizational effort to assist employees in achieving their goals in the context of increasing performance contributions to the organization especially in times of challenges or crisis. Managing performance requires quality management because quality management practices had a positive impact on quality performance (Sundar and Prabhu, 2019). Singh et al. (2019) revealed that top management support, workforce commitment, people management, and workplace organization are directly related to organizational (business) performance. One of the aspects of organizational management that plays an essential role in this process is the practice of organizational leadership. It is the key to organizational success since the leader is the entity that influences the performance of subordinates to achieve organizational goals. Leadership style influences the total quality management of an organization (Hermanto and Srimulyani, 2022) Further, many studies proved that leadership styles have an implication not only for organizational performance, but also for employees or individual performance. One of which is the study of Muzira et.al. (2020) which shows how servant leadership promotes team spirit; if workers know that their leaders care for their needs, they get a sense of belongingness that motivates them to work even more and produce high performance.

Research Objectives

This research aimed to determine the perceived level of the servant leadership style of Company Z in terms of the following dimensions such as love, service, empowerment, trust, and altruism; to evaluate the relationship between servant leadership dimensions and employee performance and to propose programs that will help Company Z in managing employee performance and turnover.

Research Framework

Servant leaders create a positive working environment which leads to increased employee engagement, active participation at work, and most importantly a higher level of performance (Karl & Jon 2016). For this study, figure 1 showed the independent and dependent variables which helped the researcher analyze and organize the results of the study. Anchored this study with the social exchange theory, the researcher assessed the impact of dimensions of servant leadership such as love, altruism, empowerment, trust, and service towards employee performance of Company Z. These dimensions of servant leadership may be used as a tool to offer to the whole organization in order to address turnover and manage employee performance towards achieving the organizational goals.

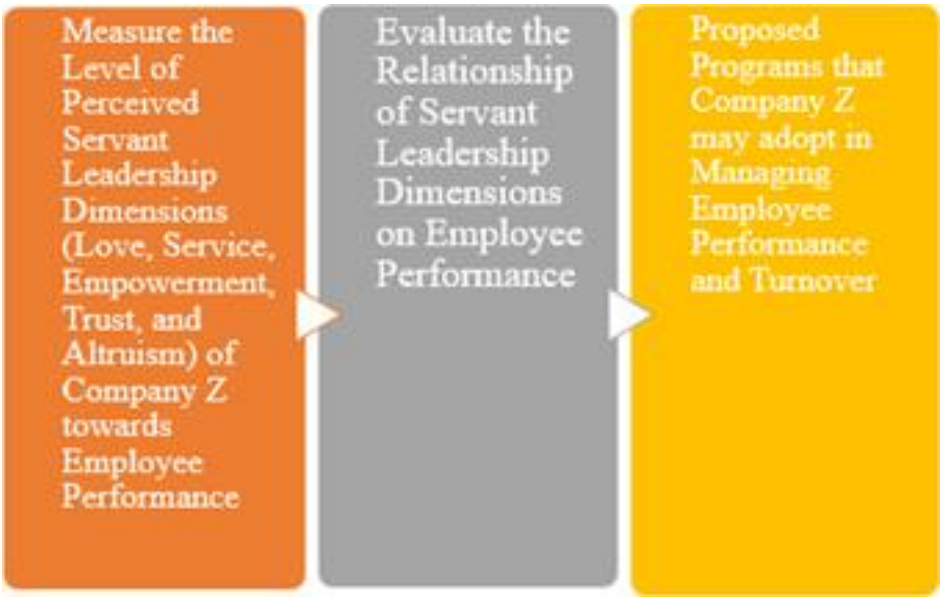


Figure 1. Conceptual Framework

Significance of the Study

The results of the study will be of great benefit to the following:

Theory

This research assessed the suitability of the Social Exchange Theory that was developed by George Homans in 1958 which explains how social interactions are determined by the benefits of service exchange or reciprocity (Tulane University, 2018). This research will help reveal the significance of this theory in unleashing the covert behavior of employees in delivering their performance at work. Also, to evaluate whether the servant leadership style of Company Z may affect how employees react or perform

using these dimensions: love, service, empowerment, trust, and altruism. It is said that people used to look at the potential reward before engaging in any activities or endeavor, hence, the result of this study may construe how leaders influence the employee's behavior or performance. Therefore, when employees display positive behavior or performance at work, the more satisfaction employees are getting from the company or their leaders.

Policy

This research will be beneficial to Company Z in its quest to increase employee performance and increase retention in the organization. While evaluating the dimensions of servant leadership, the management of Company Z may formulate programs to upskill and train its set of officers on how to be genuine servant leaders which is timely and useful in this time of uncertainty or crisis (Walker, 2020). The company may use the results of this study to influence and motivate the roster of officers to jump and adopt this leadership style which will help them realize how valuable and influential a management style is in delivering success to the individual and organizational goals.

Practice

With the results of this study, company Z may be able to attain its desired outcomes wherein employees will be encouraged to imbibe ownership and motivate to perform their duties without anyone coercing or forcing them to perform. This study will enlighten companies that are ready to take on the challenge of delivering performance by grooming their officers to be servant leaders. Also, to focus on hiring and developing leaders that possess better qualities of serving others and give value in cultivating employees' potential. Managers may establish a conducive and supportive environment promoting empowerment, learning opportunities, and personal development of employees which contributes to their level of engagement and performance. In this environment, managers can encourage their employees to learn through mistakes, practice blameless culture, and enhance their relationships with employees to influence organizational performance.

Social Action

This research study may be of use to some researchers or companies in their intentions to improve employee performance, provide empowerment, and alleviate the level of attrition by establishing policies, plans, and programs relevant to this study's results.

Scope and Limitation

This research study focused on examining the impact of servant leadership on the employee performance of Company Z. This study focused only on the five dimensions

of servant leadership such as love, service, empowerment, trust, and altruism to evaluate how these dimensions affect the employee's performance in Company Z. The researcher used quantitative research to analyze the data that were gathered in this study. The respondents for this study were the 250 regular employees randomly selected from various departments and divisions of Company Z to acquire their perspectives. The conduct of this study in Company Z limits the generalizability of the results as it focused only on the employee's perspective as to how they see their leaders observe the servant leadership behavior and cannot be generalized for other Japanese manufacturing companies.

Definition of Terms

The following terms were operationally defined as used in the study.

Altruism. This refers to a behavior of prioritizing and giving focus to other people's needs.

Employee Empowerment. This refers to the way how companies or management provide their employees with autonomy, opportunity, and motivation to contribute to decision-making activities.

Employee Engagement. This refers to the feeling of involvement and enthusiasm of employees towards their work and workplace.

Employee Performance. This refers to how employees behave and fulfill their assigned tasks or expectations in the workplace.

Employee Turnover. This refers to the total number or percentage of employees leaving the company in a certain period.

Leadership. This refers to the action of leading a group of people or an organization toward achieving individual and organizational goals.

Love. This refers to a genuine concern of the leaders to their employees in delivering and supporting their needs in the organization.

Organizational Commitment. This refers to the level of engagement and dedication team members feel toward their jobs and the organization.

Organizational Performance. This refers to the ability of the organization to achieve goals set forth by the management in a specific period.

Servant Leadership. This refers to serving others first and helping them to attain their maximum potential.

Review of Related Literature

As cited in the study of Liao and Zhu (2020), Greenleaf coined the term servant leadership in 1970 and believes that it is a leadership style that prioritizes other people's needs and emphasizes "serving others" and the interests of the employee. servant leadership is anchored in the human drive to bond with others and contribute to the betterment of society (Almutairi et al. 2020). An emphasis on service motivation, as demonstrated by empowering and developing employees with empathy and humility, differentiates servant leadership from other leadership frameworks (Harwiki, 2016). Kiker, Callahan, and Kiker (2019) indicated that servant leaders increase team potency and team effectiveness as servant leaders enhance the organization's goals. Servant leaders believe that it is their responsibility to assist others in learning and growing, feeling meaningful, inspired, energized, empowered, and contributing at their maximum level. People are encouraged to conduct good work that brings out the best in them when they are under the direction of servant leadership. Instead of teaching them how to do a better job, leaders are more likely to engage them by asking them how they can assist them in doing their jobs better. Leaders put the needs of their people ahead of their own. Establishing a supportive work atmosphere where employees feel valued and respected is a significant feature of servant leadership. Servant leadership can help create a more constructive professional atmosphere with a high level of enthusiasm and dedication. Businesses may develop, and workers can feel empowered if they show compassion, empathy, humility, and service. This, in turn, allows for more significant firm development (Khan et al., 2022b)

Farrington and Lillah (2019) studied the relationship between servant leadership and job satisfaction among healthcare workers. The findings showed a positive correlation between servant leadership and job satisfaction. In addition, Lee et al. (2018) also shared a positive correlation between the two constructs. Consequently, in every sector that researchers studied, the findings almost always showed a positive correlation between servant leadership and job satisfaction. Thus, these findings simply suggest that the application of servant leadership has a positive organizational outcome and improved job satisfaction among the employees working in the organization.

Here is the study by Bienkowska, et al. (2022) which showed the significance of servant leadership in influencing job performance. It is found that there is a direct relationship between servant leadership and employee turnover, where servant leadership supports the willingness of an employee to stay in the organization. A servant leader creates positive conditions for employee development and ensures employee autonomy, contributing to employee retention. There is also a relationship between servant leadership and job performance, which shows that a supporting leader can strengthen employee job performance. Furthermore, there is a direct relationship between employee turnover and job performance. The same results from the studies of Thakur and Verma (2020), Deconinck et al., (2017), Ng and Choi et al., (2016) also proved that servant leadership has a direct influence on the employee performance as well as the intention to leave the workplace. Therefore, if an employee is determined to leave the organization, their job performance is lower, and if the intention to stay in the organization is strong, their job performance is high.

METHODOLOGY

Research Design

A quantitative research design was selected in this study to determine the perceived level of servant leadership dimensions such as love, altruism, empowerment, trust, and service on employee performance. The response of the employees was measured through a validated survey questionnaire with a five-point Likert scale developed by the researcher. This survey questionnaire was the main tool for data collection and was distributed manually and online to investigate the impact of servant leadership dimensions on employee performance. The researcher sought expert advice from professionals to ensure the validity and reliability of the questionnaire.

Research Locale

The study was conducted in a Japanese manufacturing company engaged in the assembly and distribution of quality trucks, buses, and spare parts located at Laguna. In this research study, the researcher would be able to give aid to the challenges of company Z in managing employee performance and addressing its issues in turnover rate which impacted the operations and entails higher costs in hiring and training new employees onboard.

Population and Sampling Design

Company Z is a medium-sized manufacturing company; however, the focus of this research study was the 250 regular employees from various departments who had been with the company during the introduction of leadership training in 2018 up to 2021 implementation. The sampling design used was proportionate stratified sampling with employee category as a stratification variable (Manager, Supervisor, Rank & File), and the sample respondents for each employee category were determined by their number relative to the population.

Research Instrument

The data in the study were collected through a survey questionnaire with a 5-point Likert scale (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree). This survey questionnaire was a combination of self-constructed and modified statements generated from literature reviews which were tested by professionals to ensure validity and reliability.

Data Gathering Procedure

A 5-point Likert scale questionnaire was used in gathering the quantitative data for this research. Also, a key informant interview was facilitated with the selected employees to validate and support the results of this study. The data gathered were tabulated and analyzed to support and answer the research questions.

RESULTS AND DISCUSSION

This study revealed that the dimensions of servant leadership such as love, service, empowerment, trust, and altruism had an impact on employees' performance. Generally, all respondents conveyed their agreement on the impact of servant leadership on their performance. All these dimensions showed an acceptable weighted mean and were described as "Agree" with the following items: love (3.93), service (3.94), empowerment (4.12), trust (3.97), and altruism (3.92). As shown, empowerment received the highest weighted mean from the respondents while altruism had the lowest.

Table 1. Mean Ratings of Love on the Perceived Level Servant Leadership on Employee Performance

Indicators	Weighted Mean	Interpretation
1. My superior is genuinely interested in me as a person	3.82	Agree
2. My superior shows care/ concern for me through encouragement and affirmation.	3.98	Agree
3. My Superior shows compassion in his/her actions towards me.	3.95	Agree
4. My Superior accepts and appreciates me and my flaws as his/her member.	3.96	Agree
Overall Weighted Mean	**3.93**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

Table 1 presents the respondents' assessment on the level of impact of servant leadership dimensions on employee performance using weighted mean. Generally, the respondents agreed on all the items that pertain to love as a dimension of servant leadership with an overall weighted mean of 3.93. Specifically, the statement "My superior shows care/ concern for me through encouragement and affirmation" received the highest agreement level among the respondents with a weighted mean of 3.98. Meanwhile, the statement "My superior is genuinely interested in me as a person" obtained the lowest agreement level among the respondents with a weighted mean of 3.82.

Table 2. Mean Ratings of Service on the Perceived Level of Servant Leadership on Employee Performance

Indicators	Weighted Mean	Interpretation
1. My Superior makes my career development a priority.	3.86	Agree
2. My Superior is interested in making sure that I reach my career goals.	3.92	Agree
3. My Superior provides me with work experiences that enable me to develop new skills.	4.02	Agree
4. My Superior wants to know about my career goals and aspirations.	3.96	Agree
Overall Weighted Mean	**3.94**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

Table 2. shows that the statement "My Superior provides me with work experiences that enable me to develop new skills" had the highest weighted mean of 4.02 which described employee's agreement with this statement. On the other hand, the statement "My Superior makes my career development a priority" received the lowest response rate with a weighted mean of 3.86. However, the results presented a total of 3.94 weighted mean which respondents agreed to all its contents.

Table 3. Mean Ratings of Empowerment on the Perceived Level of Servant Leadership on Employee Performance

Indicators	Weighted Mean	Interpretation
1. My Superior encourages me to handle important work decisions on my own.	4.12	Agree
2. My Superior gives me freedom to handle difficult situations in the way they feel is best.	4.19	Agree
3. My Superior offers me abundant opportunities to learn new skills and competencies.	4.06	Agree
4. My Superior encourages me to come up and suggest innovative ideas.	4.12	Agree
Overall Weighted Mean	**4.12**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

Based on the results of the survey, respondents agreed on statements 1 and 4 "My Superior encourages me to handle important" and "My Superior encourages me to come up and suggest innovative ideas work decisions on my own" as both received a weighted mean of 4.12 which was the highest among the 4 statements. Meanwhile, the statement "My Superior offers me abundant opportunities to learn

new skills and competencies" got the lowest score or weighted mean of 4.06. However, in general, the results showed that employees agreed on empowerment as it received an overall weighted mean of 4.12.

Table 4. Mean Ratings of Trust on the Perceived Level of Servant Leadership on Employee Performance

Indicators	Weighted Mean	Interpretation
1. My manager shows his/her true feelings/emotions towards me and my team when giving performance feedback.	3.83	Agree
2. My Superior always communicates with me when there are work-related issues.	4.11	Agree
3. My Superior always makes time to talk to me on a personal level when he found out that I am struggling with my tasks.	3.86	Agree
4. My Superior honestly evaluates my performance in a fair and transparent manner.	4.08	Agree
Overall Weighted Mean	**3.97**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

For the trust, the employees believed that their superiors honestly evaluate their performance with a weighted mean of 4.08 which was the highest, while the lowest is 3.83 where they perceived that their managers show true feelings towards the team. Table 4 shows the overall mean results of 3.97 wherein employees convey their agreement.

Table 5. Mean Ratings of Altruism on the Perceived Level of Servant Leadership on the Employee Performance

Indicators	Weighted Mean	Interpretation
1. My Superior enjoys giving credit and celebrating the success of the team more than his own.	3.89	Agree
2. My Superior provides mentoring or coaching session even it affects his personal time to ensure that I grow professionally.	3.94	Agree
3. My Superior prioritizes my needs and my team ahead of his own.	3.80	Agree
4. My Superior always ask me of how he/she can be of help to ease or deliver my tasks rather than giving commands.	4.05	Agree
Overall Weighted Mean	**3.92**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

Results for mean ratings of altruism statements are demonstrated in Table 5. The results found that the employees agreed that their superiors always ask if they can help the team in delivering the tasks as it got 4.05 weighted mean while the statement “My Superior prioritizes my needs and my team ahead of his own” scored the lowest of 3.80 weighted mean. Overall, a weighted mean of 3.92 resulted from the agreements of all the respondents on the constructs of altruism.

Table 6. Mean Ratings of Individual/Employee Performance

Indicators	Weighted Mean	Interpretation
1. I can carry out my responsibilities effectively and efficiently.	4.42	Agree
2. I have mastered all phases of my job and the required skills to get everything delivered on time.	4.50	Agree
3. I execute my tasks with high regard for quality and productivity standards.	4.46	Agree
4. I am always open to new tasks and challenges even outside my scope.	4.46	Agree
Overall Weighted Mean	**4.46**	**Agree**

Scale: Strongly Agree – 4.51 to 5.00, Agree – 3.51 to 4.50, Neutral –2.51 to 3.50, Disagree – 1.51 to 2.50, Strongly Disagree – 1.00-1.50

Table 6 presents the data that the employees agreed that they have mastered all phases of their jobs and are able to deliver on time which received the highest weighted mean of 4.50. On the other hand, employees who believed that they could carry out their responsibilities effectively and efficiently received the lowest weighted mean of 4.42. Generally, employees were all in agreement on this individual performance construct as it received an overall weighted mean of 4.46.

The next finding was supported and proven by the precedent literature that indeed servant leadership had a significant relationship with the employee’s performance as the data showed a low to moderate positive correlation; thus, rejected the Ho. This study found that there was a low to moderate correlation between the dimensions and employee performance. Specifically, altruism is moderately correlated with employee performance ($\rho=0.422$, $p<0.01$). Meanwhile, employee performance has a low correlation with love ($\rho=0.294$ $p<0.01$), service ($\rho=0.372$, $p<0.01$), empowerment ($\rho=0.390$, $p<0.01$), and trust ($\rho=0.349$, $p<0.01$).

Table 7. Spearman Correlation: Significant Relationship between the Servant Leadership Dimensions and Employee Performance

Servant Leadership Dimensions	Factor	Spearman Rho (ρ)	p-value	Strength of Association	Decision	Relationship
Love	Employee Performance	0.294	0.000	Low	Reject Ho	Significant
Service		0.372	0.000	Low	Reject Ho	Significant
Empowerment		0.390	0.000	Low	Reject Ho	Significant
Trust		0.349	0.000	Low	Reject Ho	Significant
Altruism		0.422	0.000	Moderate	Reject Ho	Significant

Note: Correlation is computed at 5% level of significance. If p-value is less than 0.05, there is a significant relationship, thus reject Ho. If otherwise, there is no significant relationship, therefore accept Ho.

Lastly, the following proposed programs were summarized by the researcher that Company Z may adopt in addressing its challenges like turnover and supporting its best practices that affect how employees perceived servant leadership in the company.

Proposed Program 1: Employee Development Ladder – This will help Company Z develop and enhance employees' skills and competencies needed for their functions and succeed in current and future assignments; prioritizes the needs of its people by providing different employee development programs that will involve, engage, and empower them to perform at their best. Providing coaching or mentoring programs, continuous feedback, and recognition programs will boost employees' motivation to do good and even stay longer in the company in return.

Proposed Program 2: Leaders and Values Transformation – Revisiting the vision, mission, and values of the Company may help the management align its leaders and people with the culture and values of Servant Leadership. This will also help create an environment that promotes recognition and culture of "malasakit" for all the resources of the organization.

Proposed Program 3: Total Rewards and Recognition Programs – Organizing a robust program for recognizing the efforts and contributions of employees will motivate them to deliver their best. Moreso, will create an avenue to recognize and honor employees who are dedicated to driving the overall success of the organization.

Conclusions

Based on the indicated findings, the following conclusions were drawn:

1. All the mean ratings calculated for each dimension of servant leadership showed "Agree" which means that respondents perceived that those dimensions had an impact on their performance. Although the result may be positive and favorable to Company Z, still the management must conduct other programs or interventions to instill the true essence of servant leadership among its leaders and pass it on to the employees as clearly supported by the data that servant leadership influenced employee's performance.

2. The result of the study rejected the Ho and proved that all the dimensions included in the questionnaire on servant leadership had a low to moderate correlation with employee performance. It may seem to be good data to support that the company had shown and even practiced servant leadership, the Company Z still needs to work on improving the effectiveness of this leadership style in the organization. Company Z must help all its employees realize the importance of every dimension of servant leadership toward achieving individual and organizational performance.

3. The researcher formulated and proposed programs that Company Z may adopt in order to continue and improve the engagement of people in embracing servant leadership. Furthermore, Company Z should continue to empower and involve its people to ensure success in every area of the business as it is proven to be the highest weighted mean that drives employees to perform and deliver their best.

Recommendations

This study revealed that servant leadership had an impact on employee performance. Thus, the following recommendations are hereby presented:

1. The researcher suggests that Company Z may adopt the proposed programs formulated in this research to increase awareness and embrace the true meaning of servant leadership.

2. The study only focused on the employee's perception of their leaders in practicing servant leadership in the organization. Although the results showed a significant correlation between servant leadership and employee performance, the researcher recommends that future researchers indulge and evaluate the leader's perception of how they see themselves as servant leaders to strike a balance between the employee and leaders' perception and ensure that programs to be introduced are aligned with the company goals.

3. This research focused only on the five (5) dimensions of servant leadership; thus, future researchers may also look for other possible dimensions and even impart some mediators such as employee engagement, organizational commitment,

and other factors that influence employee performance and keep employees empowered and involved.

Compliance with Ethical Standards

The researcher ensured compliance with the ethical standards such as the identity and anonymity of the respondents were not disclosed and were dealt with in strict confidentiality. All respondents were oriented regarding the objectives of this study and informed consent was secured to ensure that the participants understand what they are getting into. The following ethical concerns were also considered in determining the results of this study i.e., risk of harm, conflict of interest, honesty, and confidentiality (Data Privacy Act 2012). While handling the data, the researcher ensured confidentiality and avoided any forms of misleading information and conflict of interest. Before the commencement of this study, the researcher sought approval from Colegio de San Juan de Letran – Calamba. Also, a letter of intent was presented to Company Z to get their approval and the data needed for this research. The data collection, processing, and interpretation of results were facilitated by the researcher. Any gestures associated with subjectiveness and conflict of interest were not entertained to ensure the validity and integrity of the results.

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THE RELATIONSHIP BETWEEN READING COMPREHENSION SKILLS, PROBLEM SOLVING SKILLS, AND ACADEMIC ACHIEVEMENT: A CORRELATIONAL RESEARCH APPROACH

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ABSTRACT

This study explored the relationship between reading comprehension skills, problem-solving skills, and academic achievement in Grade 10 students. Using stratified-random sampling, 70 participants were selected, and the data was analyzed using correlation, regression, and ANOVA. The study found a significant and moderate correlation between reading comprehension and problem-solving skills, indicating that as reading comprehension improves, so does problem-solving ability. There was also a strong correlation between reading comprehension skills, problem-solving skills towards the academic achievement, suggesting that better reading comprehension and problem-solving is linked to higher academic achievement. Age played a significant role, with older students demonstrating higher levels of both reading comprehension and problem-solving skills. Gender differences were observed in reading comprehension, with males outperforming females, but no significant gender differences were found in problem-solving skills. This concludes that reading comprehension is an indicator to the problem-solving skills and academic achievement of the students.

Keywords: *Reading Comprehension, Problem-solving, Academic Achievement*

INTRODUCTION

"The first stage in resolving an issue is to acknowledge its existence," says Zig Ziglar. This emphasizes the importance of identifying and accepting the existence of an issue before taking further action to address it. Everyday people encounter difficulties, challenges or problems wherein it calls for a solution and a need for improvement and intervention that depends to the areas the matter is concerned. In academics, students experience lots of problems such as having the hard time to comprehend and to get the right solution of the given mathematical word problems. In fact, the Philippine Star reports the Program for International Students Assessment (PISA) test results, revealed that Philippines was ranked 76th out of 81 countries participating in reading comprehension in 2022. Indicators of the test implies top-performing students in the country did not go up in percentage points, while low-performing students registered a 4.3 percent decline in reading comprehension proficiency levels with respect to the result of PISA in 2018 where Philippines ranked 79th place, (Servallos,2023). Furthermore, in the aspect of mathematics the Philippines ranked sixth lowest after ranked the second lowest in 2018 still in Program for International Assessment test.

Consequently, to better understand a text, reading is necessary since it exposes the real meaning of the hidden ideas or concepts that a text contains (Akyol, 2006; Akyol & Boyaci-Altinay, 2019). In addition, a study conducted by Pearce, Skinner, Brunn and Lopez-Mohler (2013) as cited by Moleko & Mosimege (2020) found that the teachers responded that the students have difficulty in solving word problems and reading ability affects it less particularly in the United States where the study is conducted. However, in a study of Nicolas and Emata (2018) stated that the students problem solving was developed with the aid of an integrative approach through reading comprehension. It can also be seen that the level of proficiency of a student in reading comprehension can influence how students understand or analyze a word problem especially in the field of mathematics. With these adequate contrasting findings, it is evident that reading comprehension skills may have or may not have a significant impact on problem solving skills of the students.

Similar situation has been observed among the students in the Saint Joseph College of Sindangan Incorporated which the students have encountered difficulty in extracting the right solution and answer to the given mathematical word problems. It is also observed that the students had a hard time in understanding and comprehending what the given mathematical text implies. With these, it is important to know the relationship between the reading comprehension to the problem-solving ability of the students would be.

Subsequently, with the context mentioned, the researchers would like to further determine the relationship of reading comprehension skills, problem-solving skills as well as the academic achievement of the Grade 10 students in the Saint Joseph College of Sindangan Incorporated S.Y. 2023-2024. Moreover, this research provides fulfillment for the benefits of the students, teachers, school administrators and etc. With the findings and recommendation of the study the above-mentioned beneficiaries will be guided on

the relationship of reading comprehension skill, problem-solving skills and academic achievement of the students.

Research Questions

This study aimed to determine the significant relationship between reading comprehension proficiency, problem-solving skills, and academic achievement of the Grade 10 students in the Saint Joseph College of Sindangan Incorporated S.Y.2023-2024.

Specifically, this sought to answer the following queries:

1. What is the profile of the respondents in terms of:
    1.1. Age
    1.2. Gender
2. What is the proficiency level of reading comprehension skills of the students?
3. What is the level of Problem-Solving skills of the students?
4. What is the Academic Achievement of the students?
5. Is there a significant relationship between reading comprehension skills and problem-solving skills of the students?
6. Is there a significant relationship between reading comprehension skills and the academic achievement of the students?
7. Is there a significant relationship between problem-solving skills and academic achievement of the students?
8. Is there a significant difference in the reading comprehension of the students across their profile in terms of age?
9. Is there a significant difference in the problem-solving of the students across their profile in terms of age?
10. Is there a significant difference in the reading comprehension of the students across their profile in terms of gender?
11. Is there a significant difference in the problem-solving of the students across their profile in terms of gender?

METHODOLOGY

Research Design

This study mainly used a quantitative design to determine the relationship between Reading Comprehension Proficiency, Problem-Solving Skills, and Academic Achievement of Grade 10 students. Typically, the variables in this study (independent and dependent variables) were measured using an instrument by means of survey questionnaires. The methods also involved description, recording, analysis, and interpretation of the data gathered. It usually entails the relationship between the variables under studied which are non-manipulative variables.

The researchers specifically used a correlational study to produce a valid result that would answer the objectives of conducting the study. Correlational design investigates relationships between variables without the researcher controlling or

manipulating any of them (Bhandari, 2022). The data gathered were integrated using statistical tools to determine or to discover relationships among variables involved in the research endeavor.

The information obtained from the study utilizing the quantitative method contingent on a better way on the relationship between the Reading Comprehension and Problem-Solving Skills of the students will yield to results thus, will be able to attain the goals of the study.

Research Instrument

The instrument used in the study is one set of questionnaires for the respondents. The questionnaire for the respondents is consists of three parts:

Part I.

Deal with the respondents' personal profile and identity. This part elicits data on name (optional), age, and gender.

Part II.

Deal on the proficiency level of the reading comprehension skills of the Grade 10 students. This part of test the researchers created a self-made multiple questions adapting some text or stories from the textbook and then formulate questions from it. There are 20 items for this part. Also, adapted and modified the scale for reading comprehension performance of Alieto and Buslon (2019) to set the description of the scores based on the questionnaires answered by the respondents.

Part III.

Deal on the level of problem-solving skills of the Grade 10 students. This part of questionnaire composed of 20 multiple choice items which are made by the researchers having some textbook and available online materials which the concepts were get. Moreover, the study adapted and modified the scaling of the level of problem-solving skills of the students by Alcantara and Bacsa (2017) to explicate the scores got by the respondents.

Before the set of questionnaires were distributed and administered to the 88 Grade 10 students, a pilot test was conducted with 18 students who are also Grade 10 but not included to the identified 70 participants of the study. In this way, the instrument will be validated and will ensure its reliability so that it would be aligned to the objectives of the study.

Data Gathering Procedure

*Preparation phase***.** In this stage, the participants needed in the study which is the Grade 10 students is identified by the researchers. The sampling used is stratified

sampling which was utilized to choose the number of respondents needed in the study. With this, the researchers have chosen the two sections of Grade 10 students S.Y. 2023-2024. The researchers sent a letter to the Junior High Principal, to ask permission to conduct the study among the chosen respondents.

*Quantitative Instrument***.** The researchers made a set of multiple-choice questions having 20 items in reading comprehension skills and another 20 items in problem-solving skills. In which the concepts are within the capacity of Grade 10 students. The reliability, validity and internal consistency of the test items was also ensured through a pilot test and consultation of the panel of experts in the College of Arts, Sciences and Teacher Education.

Pilot testing phase. The researchers conducted the pilot testing of the survey questionnaire to the 18 students, having 9 students in each section of Grade 10 and the researchers assessed and asked their comments about the survey administered to them. Beforehand, the researchers explained the research endeavor and ask the consent of these participants of the pilot testing. Then, the researchers would compute, analyze, and interpret the data gathered in this phase.

*Survey***.** The researchers made a formal letter addressed to the parents of the students asking their permission to let their child participate and answer the survey questionnaire. Another letter to the math teacher of the Grade 10 students to humbly asked for some allotted time to conduct the survey since it needs at least an hour to answer the questions in the survey. The researchers used the survey questionnaire to gather information from the chosen respondents of the study. Lastly, researchers followed the ethical way in getting the current test scores of the students in English and Math that will be served as the data for academic achievement.

Statistical Treatment

1. To test the reliability of the instrument (survey questionnaires) in the pilot testing phase, *Cronbach Alpha* was used.

2. To determine the answer to the research question number 1 which is concerned with the profile of the respondents in terms of their age, gender, and club affiliations, *Frequency Count and Percentage,* and *Mean* statistical tools were utilized.

3. To answer the research question number 2, 3 and 4 all about the proficiency level on reading comprehension skills and problem-solving skills as perceived by the respondents, the *Frequency Count and Percentage, Weighted Mean, Standard Deviation, Scale for reading comprehension performance* (Alieto & Buslon, 2019), *Scale for problem-solving performance* (Alcantara & Bacsa, 2017) and *Descriptor Baseline for the Academic Achievement* of the grading system implemented by the DepEd (Tadios, L.K.A., & et al., 2022) are utilized. Below are the tables which demonstrate the scaling, the range of scores and the interpretation or descriptor that researchers adapted and modified.

Table 1

Five Point Scale on the Level of reading comprehension performance

Range of Score	Description
17-20	Very Proficient
13-16	Proficient
9-12	Somehow Proficient
5-8	Less Proficient
0-4	Not Proficient

Table 2

Five Point Scale on the Level of problem-solving skills of the students

Range of Score	Level of Problem-Solving Skills
17-20	Superior
13-16	Above Average
9-12	Average
5-8	Below Average
0-4	Poor

Table 3

Descriptor Baseline of Academic Achievement of the students

Scale of Percentile Test Scores	Descriptor
90 – 100	Outstanding
85 – 89	Very Satisfactory
80 – 84	Satisfactory
75 – 79	Fairly Satisfactory
Below 75	Did not Meet the Expectations

4. To determine the significant relationship between the reading comprehension skills, problem-solving skills and academic achievement of the students which is reflected in the statement of the problem number 4,5, & 6 the researchers used the statistical tools such as *Pearson Product Momentum Correlation (PPMC), Regression* and *ANOVA*.

5. To answer the research question 7, 8, 9 & 10 regarding the significant difference between the profile of the respondents and their reading comprehension skills and problem-solving skills, *Analysis of Variance* and *Cohens' D* tool were utilized.

The assumptions of the parametric tests are tested by the researchers before utilizing it in the data analysis. Further, these assumptions are met in this research endeavor.

RESULTS

This research was intended for exploring the significant relationship of reading comprehension, problem-solving skills, and academic achievement of Grade 10 students. After the success of undertaking the methods specifically the data gathering phase, calculations were made by the researchers. This chapter demonstrates the answer to the problem of the study found in the first chapter that would yield to results and conclusions. This chapter also highlights the analysis and interpretation of data gathered.

Results of the Pilot Study

Table 1 presents the scores of the participants of the pilot study both in reading comprehension skills and problem-solving skills. In the reading comprehension column demonstrates that among eighteen participants, eleven (11) got scores ranging from 17 – 20, four (4) got scores ranging from 13 – 16, two (2) got scores ranging from 9 – 12, and one (1) got scores ranging from 5 – 8. On the other hand, in the column of problem-solving among eighteen participants, 3 three got scores ranging from 17 – 20, seven (7) got scores ranging from 13 – 16, six (6) got scores ranging from 9 – 12, and two (2) got scores ranging from 5 – 8.

Table 1

Distribution of Scores of the Participants of the Pilot Testing

Scores	Frequency	
	Reading Comprehension	Problem-solving
17 – 20	11	3
13 – 16	4	7
9 – 12	2	6
5 – 8	1	2
0 – 4	0	0
Total	18	18

Table 1 presents the results of the pilot testing that were calculated through using Cronbach Alpha to test the reliability and the consistency of the items in the survey questionnaire both the reading comprehension and problem-solving questions. Since, there are a lot of variation of Cronbach Alpha, the researchers utilized the formula from the video tutorial of Dr. Eugene O'Loughlin in the year 2020 $\alpha = \left(\frac{k}{k-1}\right)\left(\frac{s_y^2 - \sum s_i^2}{s_y^2}\right)$.

The internal consistency of the initial questionnaire is presented in Table 1 after it was administered to 18 student – participants. The reading comprehension and problem-solving items has equal alpha coefficient of 0.824 and 0.766 respectively which interpreted as good and acceptable. These indicate that the questionnaires' content is reliable and does not need further revisions. This means that the instrument used in this study is appropriate and valid.

Table 2
Cronbach Alpha Result

	Alpha Coefficient	Number of items	Internal Consistency
Reading Comprehension	0.824	20	good
Problem-Solving	0.766	20	acceptable

The result of the pilot test allowed the researchers to proceed to the conduct of the final survey. This survey was conducted to the sample which is the 70 respondents utilizing the same questionnaire used in the pilot test. With this, the researchers could gather enough data that would obtain comprehensive details which are essential to achieve the specific goals of the research endeavor.

Problem 1.1. What is the profile of the respondents in terms of age?

Table 2 presents the age of the 70 selected respondents. Based on the results, twenty-five (25) respondents have an age of 15 which corresponds to 35.72%, forty (40) have an age of 16 which corresponds to 57.14% and five (5) have an age of 17.
This only shows that most of the respondents' age is 15, which implies that majority of the Grade 10 students in SJCSI are ages 15.

Table 2
Age of the Respondents

Age	Frequency (f)	Percentage (%)
15	25	35.72
16	40	57.14
17	5	7.14
Total	70	100

Problem 1.2. What is the profile of the respondents in terms of gender?

Table 3 illustrates the gender identity of the respondents of the 70 selected participants of the study. Based on the data, forty (40) of the respondents is male which corresponds to 57.14% and out of 70 respondents there are thirty (30) who are female which is 42.86% of the sample size.

This only shows that there are more male respondents compare to female, which has a difference of 10 in frequency.

Table 3

Gender of the Respondents

Gender	Frequency (f)	Percentage %
Male	40	57.14
Female	30	42.86
Total	70	100

Problem 2. What is the level of reading comprehension skills of the students?

Table 4 shows that out of 70 participants of the study forty-one got the scores ranging from 17 – 20 equivalent to 58.57% of the sample size, which is very proficient in reading comprehension, twenty students got scores ranging from 13 – 16 equivalent to 28.57% which is considered as proficient, and five got scores ranging from 9 – 12 that corresponds to 7.14% that is considered as somehow proficient. Whilst one student got the score within the range of 5 – 8 that corresponds to the 1.43% which is identified as less proficient, and three out of seventy students got the score within the range of 0 – 4 that corresponds to 4.29% of the sample size which is identified as not proficient in terms of reading comprehension skills. Equally important, the table 8 illustrates the overall weighted mean is 16.17 or 16 which belongs to the ranging scores of 13 – 16 and identified as proficient in terms of reading comprehension; also, has a standard deviation of 3.83 which signifies that the scores of the students in reading comprehension varied and somehow spread out.

Table 4

Level of Reading Comprehension

Range of Score	Frequency (f)	Percentage (%)	Description
17 – 20	41	58. 57	Very Proficient
13 – 16	20	28.57	Proficient
9 – 12	5	7.14	Somehow Proficient
5 – 8	1	1.43	Less Proficient

0 – 4	3	4.29	Not Proficient
Total	70	100	

Overall weighted mean = ***16.17*** *SD =* ***3.83***

Problem 3. What is the level of reading comprehension skills of the students?

Table 5 demonstrates the performance of the problem-solving of the students with respect to the scores got from the test. Twenty-nine (29) students which corresponds to the 41.43% of the sample size performed well in the problem solving which got scores ranging from 17 – 20 and identified as superior, twenty (20) got scores ranging from 13 – 16 which is equivalent to 28.57% of the participants that can be classified as above average, sixteen (16) or 22.86% of the students got scores ranging from 9 – 12 which is described as average, four (4) students got the scores ranging from 5 – 8 which is described as below average, and one (1) out seventy participants got the scores ranging from 0 – 4 which is interpreted as poor in terms of problem-solving skills. Moreover, the overall weighted mean of the students is 14.61 which has level of problem-solving skills above average and the standard deviation is 3.91 which signifies that most students belong to proficient level which the test scores varied and somewhat spread out.

Table 5
Level of Problem-Solving Skills

Range of Score	Frequency (f)	Percentage (%)	Description
17 – 20	32	45.71	Superior
13 – 16	19	27.14	Above Average
9 – 12	14	20	Average
5 – 8	3	4.29	Below Average
0 – 4	2	2.86	Poor
Total	70	100	

Overall weighted mean = ***14.41*** *SD =* ***3.87***

Problem 4. What is the academic achievement of the students?

Table 6 illustrates the academic achievement of the students using the average of their test scores in the English and Math subject respectively. Out of 70 students twenty-nine (29) got scores ranging from 90 – 100 that corresponds to 41.43% which is interpreted as outstanding, eighteen (18) got scores ranging from 85 – 89 which corresponds to 25.71% which is very satisfactory, twelve (12) got scores grade ranging from 80 – 84 that corresponds to 17.14% which is satisfactory, nine (9) got scores ranging from 75 – 79 that corresponds to 12.86% which is fairly satisfactory and two (2) got scores below 75 which corresponds to 2.86% which classified as did not meet the expectations; with mean of 86.43 and standard deviation of 5.87. This implies that most students have a very satisfactory academic achievement which the percentile scores varied.

Table 6

Academic Achievement of the Students

Scale of Test Scores (percentile)	Frequency	Percentage	Descriptor
90 – 100	29	41.43	Outstanding
85 – 89	18	25.71	Very Satisfactory
80 – 84	12	17.14	Satisfactory
75 – 79	9	12.86	Fairly Satisfactory
Below 75	2	2.86	Did not meet the expectations
Total	70	100	
	Overall weighted mean = ***86.43***		*SD* = ***5.87***

Problem 5. Is there a significant relationship between reading comprehension skills and problem solving skills of the students?

Table 7 presents the result from the correlation test using the Pearson Product Momentum Correlation. The reading comprehension and problem-solving has correlation coefficient **[*r*]** of 0.63 which is between 0.5 and 0.7 which is classified and interpreted as moderate correlation.

Table 7

PPMC Test Result

Variables	reading comprehension	problem-solving	Interpretation
reading comprehension	1	0.63	Moderately
problem-solving	0.63	1	Correlated

Legend: 0.9> r <1 - very highly correlated, 0.7> r <0.9 - highly correlated, 0.5> r <0.7 - moderately correlated, 0.3> r < 0.5 - low correlation

Table 8 provides valuable insights into the strength of the relationship of reading comprehension skills and problem-solving skills in the regression model. The multiple R is 0.629 or 0.63 which has an equal value of correlation coefficient (table 10), this represents the strength and direction of the linear relationship between the two variables, since Multiple R is 0.629 it indicates a moderate positive correlation. R square is the coefficient of determination which has a value of 0.397, it signifies that approximately 39.7% of the variance of problem-solving is explained by the reading comprehension. Adjusted R Square is 0.388 which is slightly lower than the R Square due to the adjustment for the number of predictors, but it implies the same thing as R Square. Standard error of 3.07% signifies that the data in regression model's prediction are closer to the actual values, it is more likely to be accurate. For the number of observations which is 70 entails that there are total of 70 data points used in regression analysis.

Table 8

Regression Analysis Result

Regression Statistics Summary

Multiple R	0.629
R Square	0.397
Adjusted R Square	0.388
Standard Error	3.07
Observations	70

Table 9 reveals the summary of the Analysis of Variance test that gives an insights on the relationship and its significance. The degree of freedom (df) is 69. SS stands for the Sum of Squares, which indicates the variability explained by the regression model, in the regression SS is 421.945 and in residual is 641.4264 MS stands for Mean Square, which is calculated by dividing the sum of squares by the degrees of freedom, regression MS is 421.945 while the residual MS is 9.433. Moreover, the F value is 44.73 which is the test statistic for the ANOVA test; this indicates somewhat stronger relationship between the reading comprehension and problem-solving skills.

Consequently, the significance F is 5.15E-09 which is equivalent to 5.15 x 10^{-9} this indicates an extremely less value, suggesting strong evidence against the null hypothesis. This results suggests that the reading comprehension has a significant impact on the problem-solving skills of the students.

Table 9

ANOVA Test Result

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	421.945	421.945	44.73196	5.15E-09
Residual	68	641.4264	9.433		
Total	69	1063.371			

Analysis and Interpretation of Results

Table 10 shows the summary of the results of the correlation and analysis of variance. The correlation coefficient is 0.63 which indicates a moderately positive correlation. Moreover, the Significance F is also referring to p-value, since 5.15 x 10^{-9} is an extremely low value. With this, since p-value is less than 0.05 (level of significance) this means that the null hypothesis is rejected. This suggests that there is a significant relationship between the reading comprehension skills and problem-solving skills. This yield result is supported by the related studies mentioned in the chapter II component of this research like the study of Auzar (2018) found out that the capability of students to understand the language of mathematical word problem is relayed to the ability to read for comprehension. Similarly, a study found that problem-solving skills of the students are dependent to their reading comprehension skills wherein it paved the way to the importance of vocabulary and the main idea in learning problem-solving, (Timario, 2020).

Table 10

Summary of the Result between reading comprehension and problem-solving

ANOVA & PPMC

Variables	Correlation Coefficient	Significance F	p-value	Interpretation
Reading Comprehension Problem-Solving	0.63	5.15 x 10^{-9}	< 0.05	significant

d.f.= 68 at 0.05 level of significance

Problem 6. Is there a significant relationship between reading comprehension skills and the academic achievement of the students?

Table 11 illustrates the result from the correlation test using the Pearson Product Momentum Correlation. The reading comprehension and academic achievement of students has correlation coefficient **[*r*]** of 0.73 which is between 0.7 and 0.9 which is classified and interpreted as high correlation.

Table 11

PPMC Test Result

Variables	reading comprehension	academic achievement	Interpretation
reading comprehension	1	0.73	Highly
academic achievement	0.73	1	Correlated

Legend: 0.9> r <1 - very highly correlated, 0.7> r <0.9 - highly correlated, 0.5> r <0.7 - moderately correlated, 0.3> r < 0.5 - low correlation

Table 12 provides valuable insights into the strength of the relationship of reading comprehension skills and academic achievement in the regression model. The multiple R is 0.727 which has an equal value of correlation coefficient, this represents the strength and direction of the linear relationship between the reading comprehension and academic achievement, since Multiple R is 0.727 it indicates a high positive correlation. R square is the coefficient of determination which has a value of 0.528, it signifies that approximately 52.8% of the variance of academic achievement is explained by the reading comprehension. Adjusted R Square is 0.521 which is slightly lower than the R Square due to the adjustment for the number of predictors, but it implies the same thing as R Square. Standard error of 4.065% signifies that the data in regression model's prediction are closer to the actual values, it is more likely to be accurate. For the number of observations which is 70 entails that there are total of 70 data points used in regression analysis.

Table 12

Regression Analysis Result

Regression Statistics Summary	
Multiple R	0.727
R Square	0.528
Adjusted R Square	0.521
Standard Error	4.065
Observations	70

Table 13 demonstrates the summary of the Analysis of Variance test that gives an insights on the relationship and its significance. The degree of freedom (df) is 69. SS stands for the Sum of Squares, which indicates the variability explained by the regression model; in the regression SS is 1256.795 and in residual is 1123.848. MS stands for Mean Square, which is calculated by dividing the sum of squares by the degrees of freedom, regression MS is 1256.795 while the residual MS is 16.527. In addition, the F value is 76.044 which is the test statistic for the ANOVA test; this indicates a stronger relationship between the reading comprehension and academic achievement.

Subsequently, the significance F is 1.08E-12 which is equivalent to 1.08×10^{-12} this indicates an extremely less value, suggesting very strong evidence against the null hypothesis. These results suggest that the reading comprehension has a significant impact on the academic achievement of the students.

Table 13

ANOVA Test Result of reading comprehension and academic achievement

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	1256.795	1256.795	76.044	1.08E-12
Residual	68	1123.848	16.527		
Total	69	2380.643			

Analysis and Interpretation of Results

Table 14 shows the summary of the results of the correlation and analysis of variance. The correlation coefficient is 0.73 which indicates a highly positive correlation. Moreover, the Significance F which is 1.08×10^{-12} also refers to p-value is an extremely low value. With this, since p-value is less than 0.05 (level of significance) this means that the null hypothesis is hereby rejected. This is suggesting that there is a significant relationship between the reading comprehension skills and academic achievement. This implies that reading comprehension has a great impact in the academic achievement of the students. This is also supported by the study of Jala in 2020 which asserts that reading comprehension is a contributory factor to the development of the overall academic performance of the students.

Table 14

Summary of the Result between Reading Comprehension and Academic achievement

ANOVA & PPMC

Variables	Correlation Coefficient	Significance F	p-value	Interpretation
Reading Comprehension Academic achievement	0.73	1.08×10^{-12}	< 0.05	Significant

d.f.= 68 at 0.05 level of significance

Problem 7. Is there a significant relationship between problem-solving skills and academic achievement of the students?

Table 15 reveals the result from the correlation test using the Pearson Product Momentum Correlation. The problem-solving and academic achievement of students has correlation coefficient **[*r*]** of 0.72 which is between 0.7 and 0.9 which is classified and interpreted as high correlation. This signifies that problem-solving skills is highly correlated with the academic achievement of the students.

Table 15

PPMC Test Result

Variables	problem-solving	academic achievement	Interpretation
Problem-solving	1	0.72	Highly
academic achievement	0.72	1	Correlated

Legend: 0.9> r <1 - very highly correlated, 0.7> r <0.9 - highly correlated, 0.5> r <0.7 - moderately correlated, 0.3> r < 0.5 - low correlation

Table 15 gives valuable insights into the strength of the relationship of problem-solving skills and academic achievement in the regression model. The multiple R is 0.724 which has an equal value of correlation coefficient, this represents the strength and direction of the linear relationship between the problem-solving and academic achievement, since Multiple R is 0.724 it indicates a moderate positive correlation. R square is the coefficient of determination which has a value of 0.524, it signifies that approximately 52.4% of the variance of academic achievement is supported by the problem-solving. Adjusted R Square is 0.517 which is slightly lower than the R Square due to the adjustment for the number of predictors, but it implies the same thing as R Square. Standard error of 4.08% signifies that the data in regression model's prediction are more likely closer to the actual values, it appears to be accurate. For the number of observations which is 70 entails that there are total of 70 data points used in regression analysis.

Table 16

Regression Analysis Result between problem-solving and academic achievement

Regression Statistics Summary	
Multiple R	0.724
R Square	0.524
Adjusted R Square	0.517
Standard Error	4.08
Observations	70

Table 17 shows the summary of the Analysis of Variance test that gives an insights on the relationship of the variables involve and its significance. The degrees of freedom (df) is 69. SS stands for the Sum of Squares, which indicates the variability explained by the regression model; in the regression SS is 1248.48 and in residual is 1132.163. MS stands for Mean Square, which is calculated by dividing the sum of squares by the degrees of freedom, regression MS is 1248.48 while the residual MS is 16.649. In addition, the F value is 74.986 which is the test statistic for the ANOVA test; this indicates a strong relationship between the reading comprehension and academic achievement.

Equally important, the significance F is 1.392E-12 which is equal to 1.39×10^{-12} this indicates an extremely less value, implying very strong evidence against the null hypothesis. This results suggests that the problem-solving skills has a significant impact on the academic achievement of the students.

Table 17

ANOVA Test Result of problem-solving and academic achievement

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	1248.48	1248.48	74.986	1.39E-12
Residual	68	1132.163	16.649		
Total	69	2380.643			

Analysis and Interpretation of Results

Table 18 reveals the summary of the results of the correlation and analysis of variance. The correlation coefficient is 0.72 which indicates a moderately positive correlation. Moreover, the Significance F which is 1.39×10^{-12} (also refers to p-value) is an extremely low value. With this, since p-value is less than 0.05 (level of significance) this means that the null hypothesis is rejected. This signifies that there is a significant

relationship between the problem-solving skills and academic achievement. This endures and emphasizes in the study of Jala in the year 2020 where it is found out that the overall academic performance or the academic achievement of the students is influenced on their skills which includes the problem-solving skills (stated in chapter 2).

Table 18

Summary of the Result between reading comprehension and academic achievement

ANOVA & PPMC

Variables	Correlation Coefficient	Significance F	p-value	Interpretation
Problem-solving Academic achievement	0.72	1.39×10^{-12}	< 0.05	significant

d.f.= 68 at 0.05 level of significance

Problem 8. Is there a significant difference in the reading comprehension of the students across their profile in terms of age?

Table 19 shows a medium significant difference (*d = 0.70*) between age groups of the students namely: 15, 16 and 17. Students who are 15 years old has an overall mean of 17.33 (very proficient in reading comprehension skills) and standard deviation of 2.19, students who are in the 16 years of age has an overall mean of 14.83 (proficient in reading comprehension) and standard deviation of 4.64, and students who are 17 years old has an overall mean of 18.6 (very proficient in reading comprehension) and standard deviation of 1.52; means that 17 years old performed significantly better or has a higher level of reading comprehension skills compared with 15 and 16 years old with mean difference of 1.27 and 3.77 respectively.

The results of the single-factor ANOVA are the following: F-value is 5.06, critical F-value (F crit) is 3.13 at a significance level of 0.05. Since, the F-value obtained (5.06) exceeds the critical value (3.13) this suggest that a significant difference exists between the age groups in terms of reading comprehension skills. Furthermore, the p-value associated with the F-test is equal to 0.00896 which is below the typical significance level of 0.05, this indicates strong evidence to reject the null hypothesis that there is no significant difference in reading comprehension skills across different age groups. Hence, there is a significant difference in reading comprehension skills among the age groups of 15, 16, and 17.

TABLE 19

ANOVA of Reading Comprehension in terms of Age

Age	Mean	SD	Observation	Df	F	F crit	p-value	Cohen's D
15	17.33	2.19	30					
16	14.83	4.64	35	67	5.06	3.13	0.008965353	0.70
17	18.6	1.52	5					

Problem 9. Is there a significant difference in the problem-solving of the students across their profile in terms of age?

Table 20 conveys a medium significant difference (*d = 0.58*) among the age groups of the students namely: 15,16 and 17. Students who are 15 years of age has an overall mean of 15.73 (above average in terms of problem-solving) and standard deviation of 3.31, students who are 16 years of age has an overall mean of 13.57 (above average in terms of problem-solving) and standard deviation of 4.24, and students who are 17 years of age has an overall mean of 17 (superior in terms of problem-solving) and standard deviation of 2.83. This means that 17 years old performed significantly better compared to 15 and 16 years old with mean difference of 1.27 and 3.43 respectively.

The results of the single factor ANOVA are the following: F value is 3.59 and critical F-value (F crit) is 3.13 at a significance level of 0.05. Since, the F value (3.59) obtained exceeds the critical value (3.13) this suggests that a significant difference exists between the age groups in terms of problem-solving skills. Moreover, the p-value associated with the F-test is equivalent to 0.033 which is below the typical significance level of 0.05, this implies a strong evidence to reject the null hypothesis that there is no significant difference in problem-solving skills across different age groups. Thus, there is a significant difference in problem-solving skills among the age groups of 15, 16, and 17.

TABLE 20

ANOVA of Problem-solving in terms of Age

Age	Mean	SD	Observation	df	*F*	*F crit*	p-value	Cohen's D
15	15.73	3.31	30					
16	13.57	4.24	35	69	3.59	3.13	0.033	0.58
17	17	2.83	5					

Problem 10. Is there a significant difference in the reading comprehension of the students across their profile in terms of gender?

Table 21 denotes a medium significant difference (*d = 0.54*) between female (M = 17.33, SD = 2.19) and male (M = 17.33, SD = 4.54) results of the reading comprehension with F- value = 5.111 and critical F-value = 3.982. Since, 5.111 > 3.982 F-value is greater than the critical F-value this indicate that there is a significant difference in the gender of students in terms of their reading comprehension skills. Additionally, the p-value is 0.02 or p < 0.05, since the p-value is less than the level of significance, this implies a strong evidence to reject the null hypothesis. This indicates that female students performed significantly better or has a higher level of reading comprehension skills compared with male students with mean difference of 2.03. Hence, the null hypothesis which states that there is no significant difference of the reading comprehension of the students in terms of gender is hereby rejected.

1.1. TABLE 21

ANOVA of Reading Comprehension in terms of Gender

Gender	Mean	SD	Observation	Df	*F*	*F crit*	p-value	Cohen's D
Female	17.33	4.54	30	69	5.111	3.982	0.0270	0.54
Male	15.3	2.19	40					

Problem 11. Is there a significant difference in the problem-solving of the students across their profile in terms of gender?

Table 22 exhibits no medium significant difference (*d = 0.47*) between female (M = 15.73, SD = 3.31) and male (M = 14, SD = 4.22) results of the problem-solving skills with F- value = 3.461 and critical F-value = 3.982. Since, 3.461 < 3.982 F-value is smaller than the critical F-value this indicate that there is no significant difference in the gender of students in terms of their problem-solving skills. Correspondingly, the p-value is 0.0671 or p > 0.05, since the p-value is greater than the level of significance, this implies strong evidence to support the null hypothesis. This indicates that both male and female students performed in problem-solving skills in some similar level. Hence, the null hypothesis which states that there is no significant difference of the problem-solving of the students in terms of gender is hereby accepted.

TABLE 22

ANOVA of Problem-solving in terms of Gender

Gender	Mean	SD	Observation	df	F	F crit	p-value	Cohen's D
Female	15.73	4.22	30	69	3.461	3.982	0.0671	0.47
Male	14	3.31	40					

DISCUSSION

The study aims to examine the relationship between reading comprehension, problem solving and academic achievement of the students in the Saint Joseph College of Sindangan Incorporated S.Y 2023-2024. Before proceeding to the data gathering, a pilot test is conducted to eighteen (18) students who are not included in the identified participants of the study in order to examine the reliability and consistency of the research instrument (multiple-choice survey questionnaire) which is a researchers-made instrument. A survey is then conducted to seventy (70) Grade 10 students to gather essential information to answer the series queries in the statement of the problem. The statistical tools used in the study were Frequency Count and Percentage, PPMC, Regression, ANOVA and Cohen's D in analyzing and calculating the data gathered. Definitely, the results indicates that there is a significant relationship between reading comprehension and problem solving with correlation coefficient *r 0.63* (moderately correlated); there is a significant relationship between reading comprehension and academic achievement with correlation coefficient *r 0.73* (highly correlated); and there is a significant relationship between problem-solving skills and academic achievement with correlation coefficient *r 0.72* (highly correlated). Moreover, the result reveals that there is a significant difference of reading comprehension in terms of the ages and gender of the students. Apart from that there is also a significant difference of problem-solving skills in terms of age, whereas results denotes that there is no significant difference in the problem-solving skills of students in terms of their gender.

Conclusions

This section summarizes the findings with regards to the connection between reading comprehension, problem-solving abilities, and academic performance and other insights that is related to the goals of the study. The conclusion is based on the answers to the following questions:

1. What is the profile of the respondents in terms of:
   1.1. Age

Out of seventy (70) participants of the study, twenty-five (25) have an age of 15 years old, forty (40) has an age of 16 years old, and five (5) has an age of 17 years old, having 15 years of age as a majority age of the students in Grade 10 in SJCSI.

1.2. Gender

Among seventy (70) students who participated in the study, forty (40) is male and thirty (30) is female, having male as the most numbered gender in the sample size and it might be true in the population of Grade 10 students in SJCSI.

2. What is the level of reading comprehension skills of the students?

Of the seventy (70) participants, forty-one (41) got scores ranging from 17 – 20 (very proficient), twenty (20) got scores ranging from 13 – 16 (proficient), five (5) got scores ranging from 9 – 12 (somehow proficient), one (1) got scores ranging from 5 – 8 (less proficient), and three (3) got scores ranging from 0 – 4 (not proficient); with mean score of 16.17 (SD = 3.83). This signifies that majority of the students is proficient in terms of reading comprehension skills.

3. What is the level of Problem-Solving Skills of the students?

Out of the seventy participants of the study, twenty-nine (29) got scores ranging from 17 – 20 (superior), nineteen (20) got scores ranging from 13 – 16 (above average), sixteen (16) got scores ranging from 9 – 12 (average), four (4) got scores ranging from 5 – 8 (below average), and one (1) got scores ranging from 0 – 4 (poor); with mean score of 14.61 and SD of 3.91. This denotes that the majority of the students belong to the above average level of problem-solving skills.

4. What is the academic achievement of the students?

Of the seventy (70) participants, twenty-nine (29) got percentile scores ranging from 90 – 100 (outstanding), eighteen (18) got percentile scores ranging from 85 – 89 (very satisfactory), twelve (12) got percentile scores ranging from 80 – 84 (satisfactory), nine (9) got percentile scores ranging from 75 – 79 (less proficient), and two (2) got scores below 75 (did not meet the expectations); with mean percentile score of 86.43 and SD of 5.87. This implies that majority of the students has a very satisfactory academic achievement in English and Mathematics subjects.

5. Is there a significant relationship between reading comprehension skills and problem-solving skills of the students?

There is a significant relationship between reading comprehension skills and problem-solving skills of the students with correlation coefficient (*r*) of 0.63 which indicates a moderate correlation, with p-value of 5.15×10^{-9} (< 0.05). This indicates that as reading comprehension improves, so does the ability to do problem-solving. In addition, this suggests that students who possess stronger reading comprehension skills tend to also have better problem-solving abilities.

6. Is there a significant relationship between reading comprehension skills and the academic achievement of the students?

   There is a significant relationship between reading comprehension skills and the academic achievement of the students with correlation coefficient (*r*) of 0.73 which indicates a high correlation, with p-value of 1.56×10^{-15} (< 0.05). This high correlation suggests that as students' reading comprehension abilities improve, their academic achievement tends to show a corresponding improvement.

7. Is there a significant relationship between problem-solving skills and academic achievement of the students?

   There is a significant relationship between problem-solving skills and the academic achievement of the students with correlation coefficient (*r*) of 0.72 which indicates a moderate correlation, with p-value of 5.12×10^{-7} (< 0.05). The implications of these highlight the importance of fostering and developing problem-solving skills as a means to positively enhance students' academic achievement.

8. Is there a significant difference in the reading comprehension of the students across their profile in terms of age?

   There is a medium significant difference (*d = 0.70*) between the age groups: 15 years old (*M* = 17.33, *SD* = 2.19), 16 years old (*M* = 14.83, *SD* = 4.64) and 17 years old (M = 18.6, *SD* = 1.52) of the students' reading comprehension skills results, F-value of 5.06, F critical value of 3.13 and p-value of 0.00896 (p-value < 0.05). This means that 17 years old performed significantly better than 15- and 16-years old students with mean differences of 1.27 and 3.77 respectively. Further, this finding denotes the importance of considering age as a factor in understanding and addressing variations in reading comprehension skills among students.

9. Is there a significant difference in the problem-solving of the students across their profile in terms of age?

   There is a medium significant difference (*d = 0.58*) between the age groups: 15 years old (*M* = 15.73, *SD* = 3.31), 16 years old (*M* = 13.57, *SD* = 4.24) and 17 years old (M = 17, *SD* = 2.83) of the students' problem-solving skills results, F-value of 3.59, F critical value of 3.14 and p-value of 0.033 (p-value < 0.05). This means that 17 years old performed significantly better than 15- and 16-years old students with mean differences of 1.27 and 3.43 respectively. Moreover, this signifies an importance of considering age as a factor in understanding and addressing the variations in problem-solving skills among students.

10. Is there a significant difference in the reading comprehension of the students across their profile in terms of gender?

    There is a medium significant difference (*d = 0.54*) between the gender of the students Female (*M* = 17.33, *SD* = 2.19) and male (*M* = 15.3, *SD* = 4.54) of the students' reading comprehension skills results, F-value of 5.11, F critical value of 3.98 and p-value of 0.027 (p-value < 0.05). This means that female students performed significantly better or has a higher level of reading comprehension skills

than male students with mean difference of 2.03. Furthermore, this implies an importance of considering gender as a factor in understanding and addressing variations in reading comprehension skills among students.

11. Is there a significant difference in the problem-solving of the students across their profile in terms of gender?

    There is no medium significant difference (*d = 0.47*) between the gender of the students Female (*M* = 15.73, *SD* = 3.31) and male (*M* = 14, *SD* = 4.22) of the students' problem-solving skills results, F-value of 3.46, F critical value of 3.98 and p-value of 0.067 (p-value > 0.05). This means that female students don't performed significantly better than male students, more likely they have similar level of performance in terms of problem-solving. Furthermore, this means that gender is not an important consideration to understand and address the variations in problem-solving skills among students.

Recommendations

In the light of the findings of the study, the researchers would like to recommend the following:

1. Incorporate age-specific strategies: Since there is a significant difference in reading comprehension skills and problem-solving skills across different age groups, it is recommended to design instructional approaches that cater to the unique needs and abilities of students at different ages. This can help optimize their reading comprehension and problem-solving development.
2. Promote gender-inclusive approaches: While there is a significant difference in reading comprehension skills between male and female students; it is important to create an inclusive learning environment that supports the development of reading comprehension skills for all genders. Implementing various teaching strategies and providing equal opportunities for participation can help address any differences and inequalities.

3. Foster reading comprehension through cross-curricular activities: Recognizing the high correlation between reading comprehension skills and academic achievement, educators should emphasize the integration of reading comprehension strategies across different subjects. This can be achieved by incorporating reading materials, discussions, activities, and assignments that require critical thinking and comprehension in all disciplines. For example, English proficiency, Read-A-Tone activity, story mapping and making inferences activities.

4. Integrate problem-solving skills into the curriculum: Given the high correlation between problem-solving skills and academic achievement, it is vital and necessary to incorporate explicit instruction and practice opportunities for problem-solving skills across various subjects. This will equip students with transferable skills which are necessary for their development that can enhance their overall academic performance as well as their ability to solve and handle real problems.

5. Encourage collaborative problem-solving activities: Given the high correlation between problem-solving skills and academic achievement, educators should promote collaborative problem-solving activities that foster teamwork, communication, and critical thinking. This can be achieved through group projects, discussions, and problem-based learning approaches, allowing students to learn from each other and develop their problem-solving abilities.

6. Provide targeted support for students with lower proficiency levels: Students who exhibit lower reading comprehension and problem-solving skills should be identified, and targeted interventions should be implemented to address their specific needs. This may include additional instructional support, individualized learning plans, or remedial programs to help them improve their skills and bridge any gaps associated with those essential skills.

7. The school should provide professional development for teachers: To effectively support students' reading comprehension and problem-solving skills, teachers should receive ongoing professional development since teacher plays a vital role in developing the essential skills of the students, teachers should embodied the knowledge and competency necessary for the better learning. This can include workshops, seminars, or training sessions focused on instructional strategies, assessment techniques, and differentiation methods that promote these skills in the classroom.

8. Students should prioritize the development of their reading comprehension and problem-solving skills: Students should actively engage in activities to improve these skills, seek support when needed, collaborate with peers, and practice self-assessment and reflection, since learning is the responsibility of the students, it is not just the job of the teacher. Additionally, students should dwell in varied reading materials, develop time management, and study skills, and maintain motivation and persistence in their learning journey. By focusing on these aspects, students can enhance their academic achievement and acquire valuable skills for their future endeavors.

9. Conduct further research: While this study gives light on the relationship between reading comprehension, problem-solving, and academic achievement, further research is encouraged in order to explore additional factors that may influence these skills, highly suggested to have enough time frame in order to focus on this matter and can possibly find more insights relevant to the study. This could include investigating the impact of socioeconomic status, instructional methodologies, or cultural influences and many more to gain a more comprehensive understanding of student performance in these areas.

By implementing these recommendations, administrators and educators can create a conducive learning environment that fosters the development of reading comprehension and problem-solving skills, basically enhancing students' academic achievement that will of necessity in the educational growth of the students. Further, these

are just some of the series of recommendations drawn from the findings of the study, the school, policymakers, administrators or even the educators like teachers might take into accounts these or might have any additional insights to implement in the educational context to shape a worthwhile learning experience of the students that will contribute to the academic success and well-being of every individuals – the students.

Compliance with Ethical Standards

The success of this research endeavor requires not only efforts, expertise, knowledge, and diligence but also being able to follow through the ethical way of conducting research with honesty and integrity. This is taken into consideration to organize, respect and protect human rights especially the rights of the participants of the study. To render these ethical ways, the rights to self-determination, anonymity, confidentiality, and informed consent were given emphasis and were carefully observed by the researchers. The researchers asked the permission of the school principal since the study will be conducted in the school itself and also the participants' consent was obtained before the data gathering session commences.

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THE RELATIONSHIP OF ORGANIZATIONAL CLIMATE TO PUPILS BEHAVIOR OF SELECTED ELEMENTARY SCHOOLS OF JOLO DISTRICT III

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ABSTRACT

This study aimed to determine the relationship of organizational climate to pupils' behavior of selected of selected elementary schools of Jolo District III. Specifically to: 1) Determine the organizational climate of selected Schools of Jolo District III. 2) Identify the behavior of the pupils. Teachers comprised favorable organizational climate in Jolo District III in terms of esprit, intimacy. However the existence of hindrance and disengagement seemed insignificant Teachers were given free-time to strengthen their closeness and shared their experiences. On the same view, the principal dimensions were also favorable in terms of consideration, thrust, and production emphasis. Only in the aspect of aloofness seemed unfavorable. The performance of the principal had correspondent reactions and responses from the teachers primarily conformed to the existing theory on organizational climate. Besides, the pupils comprising the academic competitiveness, concern for individual pupils' school spirit and emphasis on social life behavior were favorable In other words pupils have commended the prevailing conditions in the school system. From the data gathered the following conclusions were derived: 1. that the organizational climates under teachers dimension is characterized by teachers quarrel and criticize each other is rejected. 2. That the pupils like their teachers are accepted. 3. That there exists a relationship between school climate and pupils behavior is accepted. Any study had always the loopholes to be strengthened. With these the following propositions are suggested: 1. The principal shall come up with activities and programs that the several memberships of the faculty members can socialize themselves to strengthen cohesiveness. 2. They shall also come up with strategic programs that there may create intimacy between the pupils and the principal. 3. Minority group specially expressing their sentiments, needs and demands shall be addressed to prevent the occurring of factionalism or strife among themselves. 4. Follow-up study especially on

correlating the pupils' behavior and the managerial performance shall be conducted. 5. Additional variables shall be added to the present study for further explorations.

Keywords: *Organizational Climate, Pupils Behavior, Descriptive Research, Jolo District*

INTRODUCTION

The atmosphere, tone or ambience of an organization permeates the entire organization Like the weather it is important to be considered in the lives of the individuals and so with the climate of organization in which there exists a web of interaction among individuals Thus school climate and student behavior must be considered as (Halpin and Croft) conceived of social climate of school as a blend of two dimensions the principal's leadership and interaction.

Climate of an institution has been found to relate to some aspects of students behavior, in spite of individual differences in the perception of school climate School climate as perceived by students and teachers, can be a significant predictor of student achievement. After controlling for student scholastic ability and community socioeconomic status, they found that climate retained significant predictive power, suggesting that school climate is related to student achievement

This component of school climate pertains to the leaders, style of interacting with the teachers. The way the principal behaves as has been noted, influences the ways in which the teacher interact with each other and thus has considerable impact on the general atmosphere of the school, influences the ways in which teachers interact with each other and thus has considerable impact on the general atmosphere of the school, Halpin (1966).

Psychological studies of human behaviors, which began in the late 19th and early 20th centuries in Europe and later in America, revealed a new paradigm of science known as Behaviorism through the establishment of experimental laboratories (Lunenburg & Ornstein, 2008). Behaviorism has explored behaviors that can always be observed and quantitatively measured in controlled laboratory conditions. While the behaviorist approach focuses on the behaviors that are observable in individuals, it has ignored possible internal factors such as motivation and mental mechanisms such as thinking. This approach has had implications for organizational structures of educational programs, students, teachers, teaching methods and educational institutions. Accordingly, educational objectives should be defined as behavior-oriented. In the 1900s, the existence of subliminal instincts in human behavior was discussed and it was stated that the motives of people are some of the reasons for behaviors. These theories later became the basis for scales developed for personality profiles (Lunenburg & Ornstein, 2008; Owens & Valesky, 2011; Woolfolk, 2014). The cognitive and social psychologies that emerged in the 1960s were considered as the primary components of the scientific foundations of education and had great impact on the concepts of learning and teaching. However, when describing an individual's behavior, one must focus on the interaction

between personal characteristics and the social characteristics of the group or organization in which that behavior occurs. When describing organizational behavior, it is necessary to consider the influence of the social circle in which the organization is located (Glisson & James, 2002; Owens & Valesky, 2011; Roeser, Urdan & Stephens, 2009).

The key administrative behavior patterns, thrust- the energy and drive the principal exhibits as a role model for teachers. Principals who are in evidence in their buildings, observing what transpires, offering helpful suggestions, and mentioning new techniques at appropriate times, can help teachers focus on their tasks and sharpen their professionals skills, Genuine consideration for teachers could help in resolving problems that might interfere with teaching, it might also help teachers feel secure enough to share their teaching problems and seek advice honestly rather than withholding such information for fear of reprisals Sharing of information in the form of ideas, suggestions advice and problems can help individuals learn how to resolve their own teaching problems and facilitate the dissemination of the best fosters or impede communication. Then, the climate of the school is related to the quality of instruction students receive, Silver (1983).

The climate of an institution has been found to relate to some aspects of students behavior. Despite of individual differences in the perception of school climate Schools do seem to have distinctive climates that relate to students achievement Because of the potential importance of the general tone of a school with respect to student outcomes further research of school climate should be energetically pursued. Hence, the researcher chosen the said study, since there was clearly demonstrated relationship between school climate and students behavior considering academic competitiveness, school spirit concern for individual pupils, emphasis on social life.

Bloom (2010) identified ten components of organizational climate in the light of the studies that she conducted for many years in early childhood centers. These components are collegiality, professional development, director support, clarity, reward system, decision-making, goal consensus, task orientation, physical environment and innovation.

The focus of this undertaking is to determine the relationship of the organizational climate and students' behavior among selected elementary schools of Jolo District III

Research Questions

This study drew attention to the following interrelated problems

1. What are the organizational climate of selected schools of Jolo district III?
2. What are the behaviors of the pupils?
3. Do the different climates have relationship to pupils' behavior?

METHODOLOGY

Research Design

This study adopted the causal descriptive because it sought to undergo research on the existing school climate and pupils behavior of Jolo District III. It delved with present phenomenon, then it is descriptive

On the other hand it established relationship of variables on the school climate and student behavior then it was causal

Sampling Procedure

Simple random sampling was used to get the ideal number of the respondents of this study. Besides, stratified random sampling was used so that there is equal distribution of respondents to be selected in every elementary school in Jolo District III would be observed

With this, selection of respondent was done scientifically so us to observe the ethical principles of research. In addition it also preserved the reliability and validity of data gathered. And 50 percent of the total population of the selected elementary schools were used as respondents.

Respondents of the Study

The respondents of the study were the elementary teachers handling any grade, regardless of their sex, length of service educational attainment and civil status There were (90) teachers considered as respondent with the following numbers respectively Tanjung Elementary Schools twenty nine (29), Bakud Elementary school thirty four (34), Jati Elementary School twenty seven (27). However respondents were classified to two major groups intermediate and primary level.

Research Locale

The study was conducted in three selected schools of Jolo District III which is considered having a densely enrollees, Bakud Elementary School located inside the Philippine Constabulary Compound adjacent to DXSM Radio Station which considered as one of the best schools in town as evident on the quality pupils they are producing has (34) thirty four teachers, Jati Elementary School Located near 477, Asturias, Jolo, Sulu has (27) twenty seven teachers and Tanjung Elementary school Located at Km 2 has (29) twenty nine teachers.

Research Instrument

The data gathering instrument used in this study was the survey questionnaire. The questionnaire checklist is divided into three parts. The first part covers the personal

data of the elementary school teachers. The second part comprises the checklist for organizational climate for both teacher and principal dimension. The last part deals with the pupils' behavior description questionnaire.

The researcher used "often" in the checklist choices and implied "conducive on the descriptive interpretation of the data.

Data Gathering Procedure

The researcher sought the approval from the District Supervisor of the selected school in Jolo District III prior to the approval from the respective principals. After which, the researcher proceeded immediately to the classroom adviser and the teacher respondent.

Statistical Treatment of Data

Two (2) statistical tools were used in the analysis of the responses of the respondents. Weighted mean was used to describe the climate dimensions and pupils behavior. Mean was computed by using this formula
This formula:

$$\bar{X} = \frac{X}{n}$$

Where $\bar{X}$ = mean
X = summation of all observations
n = number of total observations
On the other hand, Spearman Rank order correlation coefficient was used to determine the extent of relationship between organizational climate and pupil's behavior
The formula is:

$$r_s = 1 - \frac{6 \Sigma D2}{N (N^2 - 1)}$$

Where N = the number of pairs
r_s = the rank-order correlation coefficient

RESULTS AND DISCUSSION

Teacher Dimensions

The study revealed that, in esprit, the organizational climate was ranging from very conducive (Very favorable) to conducive (favorable) (Table la) This means that the following occur often in these selected schools of Jolo III District 1) The morale of teachers is high 2) Teachers accomplish their work with vigor and enthusiasm 3) Teachers spend

time after school with students who have individual problems 4) Teachers accept easily the faults of their colleagues.

As to the intimacy, the same result was obtained with the first dimension (esprit) (Table 4 la) The following also occur often in these district 1) Teacher's closest friends are other faculty members in this school 2) Teachers talk about their personal life to ether faculty members 3) Teachers have fun socializing together during school time 4) Teachers invite other faculty members to their homes That is, these are favorable in this selected schools

For the hindrance, the following cases oflen occur in the district 1) Teachers are involved in too many extra-curricular activities 2) Administrative paper work is burdensome in this school 3). Pupils' progress reports (grading sheets, report cards, summative tests, etc) require too much work. That is, organizational climate in terms of hindrance was found not conducive (Table 1a).

In terms of disengagement, the climate was fauly favorable in the following two cases 1). There is a minority group of teachers who always oppose the majority 2) Teachers socialize together in small select group 3). Teachers quarrel and criticize each other 4) Teachers talk about leaving the school, system Such two cases sometimes occur in this district However, there was a favorable climate in the sense that teachers rarely quarrel and criticize each other (table 4 la), which it was found not favorable in that teachers socialize together in small select group.

The data as revealed in this study implied that teacher's dimensions on organizational climate were complex Le a combination of classical and neo-classical principles Classical as exposed by Frederick Taylor gave emphasis on the strictness of work performance Teachers would be given various loads expecting to achieve high organization performance In other words, the teachers focused on work orientation Formal structure, thus, was observed

On the same view, informal organization structure was also observed. This is the focus of neo-classical approach where the teachers' needs, morale and leisure time were allowed Teachers, therefore, were given freedom to form association and establish rapport relationship among others.

In a nutshell, there existed a Hawthorm effect where in a bureaucratic or highly organized structures of school, informal organization was given due-recognition.

Jolo District III, in consequence, could predict stability and good performance considering that disengagement was fairly observed. Moreover, factionalism or professional jealousy, as it was called, was insignificant.

Table 1a. Organizational Climate of Selected Schools in Jolo District III in terms of Teacher Dimension, 2005 - 2006

Organizational Climate	Mean	Descriptive Interpretation	
Teacher Dimensions			
a. Esprit (+)	4.10	Often	Conducive
1. The morale of teachers is high.	4.79	Very Often	Very Conducive
2. Teachers accomplish their work with vigor and enthusiasm.	4.14	Often	Conducive
3. Teachers spend time after school with students who have individual problems.	3.73	Often	Conducive
4. Teachers accept easily the faults of their colleagues.	3.73	Often	Conducive
		Often	Conducive
B. Intimacy (+)	4.07	Very Often	Very Conducive
1. Teacher's closest friends are other faculty members in this school.	4.68	Often	Conducive
2. Teachers talk about their personal life to ether faculty members	3.85	Often	Conducive
3. Teachers have fun socializing together during school time	3.69	Often	Conducive
4. Teachers invite other faculty members to their homes.	4.07	Often	Not Conducive
		Often	Not Conducive
C. Hindrance (-)	3.60	Often	Not Conducive
1. Teachers are involved in too many extra-curricular activities.	3.55		
2. Administrative paper work is burdensome in this school.	3.55	Often	Not Conducive
		Sometimes	Fairly Conducive
3. Pupils progress reports (grading sheets, repon cards, summative tests, etc) require too much work.	3.71	Sometimes	Fairly Conducive
		Often	Not Conducive
D. Disengagement (-)	3.04	Rarely	Conducive
1. There is a minority group of teachers who always oppose the majority.	3.20	Sometimes	Fairly Conducive
2. Teachers socialize together in small select group.	3.60		
3. Teachers quarrel and criticize each other.	2.31		
4. Teachers talk about leaving the school; system.	3.03		

Legend

Means	**Occurrence**	**For Esprit and Intimacy Climate Status**	**For Hindrance and Disengagement**
1.00 – 1.49 =	Never Occurs	= Not Conducive at all	= Very Conducive
1.50 – 2.49 =	Rarely Occurs	= Not Conducive	= Conducive
2.50 – 3.49 =	Sometimes Occurs	= Fairly Conducive	= Fairly Conducive
3.50 – 4.49 =	Often Occurs	= Conducive	= Not Conducive

4.50 – 5.00 = Very often Occurs = Very Conducive = Not Conducive

Principal Dimension

Findings revealed that the organizational climate of selected schools in Jolo District III was found favorable (Conducive) in terms of principal dimension, especially on the aspects of consideration, thrust, and production emphasis. This was however, not favorable in the aspect of aloofness (Table 1 a) Consideration aspect includes 1) the principal helps teachers solve their personal problems 2) The principal helps staff members settle minor differences. 3) The principal helps stays after school, to help teachers finish their work. 4). the principal tries to get better salaries/incentive for teachers. On the aspect of thrust, these are: 1) The principal sets an example by working hard himself/herself 2) The principal is well-prepared when he speaks at school functions 3) The principal tells teachers of new ideas/thrust in education 4) The principal arrives early in school and stays late when needed. In the production Emphasis, these includes 1) the principal checks the subject matter ability of teachers. 2) The principal schedules the work for the teachers 3) the principal insures that the teachers work to their full capacity. All of those cases were found often in their occurrence. As to aloofness, which is a negative aspect, includes the following 1) The principal runs the faculty meetings like a business conference 2). The rules set by the principal are not questioned by subordinates 3) Faculty meeting are organized according to a tight agenda 4) Principal keeps from teachers' result of a supervisor's/superiors supervisory visits. Each of these cases in the aloofness occur "often" which indicates not favorable.

Table 1b. Organizational Climate of Selected Schools in Jolo District III in terms of Principal Dimensions.

Organizational Climate	Mean	Descriptive Interpretation	
Principal Dimensions		Often	Conducive
A. Consideration (+)	4.08	Often	Conducive
1. The principal helps teachers solve their personal problems	4.34	Often	Conducive
2. The principal helps staff members settle minor differences.	3.85	Often	Conducive
3. The principal helps stays after school, to help teachers finish their work.	4.18	Often	Conducive
		Often	Conducive
4. The principal tries to get better salaries/incentive for teachers.	3.96	Often	Conducive
B. Thrust (+)	4.26	Often	Conducive
1. The principal sets an example by working hard himself/herself	4.39	Often	Conducive
2. The principal is well-prepared when he speaks at school functions	4.19	Often	Conducive
		Often	Conducive
3. The principal tells teachers of new ideas/thrust in education	4.27	Often	Conducive
4. The principal arrives early in school and stays late when needed	4.21	Often	Conducive

C. Production Emphasis (+)	4.14	Often	Conducive
1. The principal checks the subject matter ability of teachers	4.27	Often	Conducive
2. The principal schedules the work for the teachers	3.97	Often	Not Conducive
3. The principal insures that the teachers work to their full capacity	4.18	Often	Not Conducive
D. Aloofnes (-)	3.74	Often	Not Conducive
1. The principal runs the faculty meetings like a business conference	4.18	Often	Not Conducive
2. The rules set by the principal are not questioned by subordinates	3.52		
3. Faculty meeting are organized according to a tight agenda	3.57		
4. Principal keeps from teachers' result of a supervisor's/superiors supervisory visits.	3.71		

Legend:

1.00 – 1.49 = Never Occurs
1.50 – 2.49 = Rarely Occurs
2.50 – 3.49 = Sometimes Occurs
3.50 – 4.49 = Often Occurs
4.50 – 5.00 = Very often Occurs

The school head concerned for people in such a way that he understood and supported his staff and the teachers. Similarly he emphasized also the concern for production where tasks were delegated and achieving the organizational goals the vision and mission of school system.

Davis and Newstrom in their book "Human Behavior in organization" expressed about supportive leadership where the executive is trying to understand the needs of their subordinates, provide leadership advancement and encourage his people for greater achievement. Similarly, koontz and Weihrich (1997) in "Essentials of Management called it Path-Goal Theory of leadership where people and production were harmonized in realizing the goals of the school. The goals are always the parameter and the direction of the school.

Chester Barnard in his book "The functions of Executive" as cited in the "Administrative Thinkers" by Prasad and Prasad (1997) pointed out that there is a need to recognize the informal organization like click and group work within the context of formal structure.

With the existence of aloofness which is not favorable to the organizational structure of the school, Jolo District III, therefore, was on its way to growth and

development. The school environment as demonstrated by the principal could be counted as necessary factor for the District III to develop within the content of its mandate.

Behavior of Pupils in Selected Schools of Jolo District III

Academic Competitiveness

Findings revealed that the behavior of pupils in selected schools in Jolo district III in terms of **academic competitiveness** was favorable with one aspect of very favorable which is pupils participate daily classroom activities (Table 2a) That is, the following activities on the part of the pupils occur "often" 1) Pupils attend their classes. 2) Pupils participate daily classroom activities 3) Pupils take time to study their lessons. 4) Pupils accomplish their homework or assignment. 5) Pupils express themselves correctly when speaking or writing. 6) Pupils participate in academic competitions like quiz bee, oratorical contests and other similar activities. 7) Pupils go to the library to read. 8) Pupils discuss current events or happenings on the local, national and international levels with other pupils and other people in school. 9) Pupils ask their teachers questions about their lessons.

Table 2a. Behavior of Pupils in Selected Schools of Jolo District III in terms of Academic Competitiveness.

Pupils Behavior	Mean	Descriptive Interpretation	
Academic Competitiveness	4.23	Often	
1. Pupils attend their classes.	4.69	Favorable	
2. Pupils participate daily classroom activities	4.33	Very Often	Very
3. Pupils take time to study their lessons.	4.18	Favorable	
4. Pupils accomplish their homework or assignment.	4.16	Often Favorable	
5. Pupils express themselves correctly when speaking or writing.	4.07	Often Favorable	
6. Pupils participate in academic competitions like quiz bee, oratorical contests and other similar activities.	4.26	Often Favorable	
7. Pupils go to the library to read.	3.89	Often	
8. Pupils discuss current events or happenings on the local, national and international levels with other pupils and other people in school	4.21	Favorable Often	
9. Pupils ask their teachers questions about their lessons.	4.34	Favorable Often Favorable Often Favorable Often Favorable	

Besides, attendance of the pupils in the classroom session really mattered. And, it is one of the contributing factors that develop children in the academic performance This is quite true to schools like ours where teachers are the usual source of knowledge, skills and values.

Concern for Individual Pupils

Concern for individual pupils as one aspect of pupils' behavior was found favorable in that the following cases occurred "often" in the district. 1) Pupils are friendly to their classmates/schoolmates. 2) Pupils listen to the problems of their classmates/schoolmates. 3). Pupils help their academically weak classmates / schoolmates with their lessons or homework/ assignments. 4) Pupils respect the religious beliefs and opinions of their classmates/schoolmates. 5) Pupils easily accept the mistakes of their classmates/schoolmates. 6) Pupils visit their sick classmates/ schoolmates. 7) Pupils offer their money to help their classmates/schoolmates who are in need.

Table 2b

Pupils Behavior	Mean	Descriptive Interpretation
Concern for Individual Pupils	4.19	Often
1. Pupils are friendly to their classmates/schoolmates.	4.56	Favorable
2. Pupils listen to the problems of their classmates/schoolmates.	4.18	Often Favorable
3. Pupils help their academically weak classmates / schoolmates with their lessons or homework/ assignments.	4.15	Often Favorable
4. Pupils respect the religious beliefs and opinions of their classmates/schoolmates.	4.25	Often Favorable
5. Pupils easily accept the mistakes of their classmates/schoolmates.	4.12	Often Favorable
6. Pupils visit their sick classmates/ schoolmates.	3.94	Often
7. Pupils offer their money to help their classmates/schoolmates who are in need.	4.11	Favorable
		Often Favorable Often Favorable

Naturally, most of the children in schools are friendly. This was also evident in Jolo III District where there was favorable school climate for the children to associate themselves, Kelly (1979).

Children, especially during the first day of the classes may look for their partners whom they can lean on Psychologists termed this as "peer".

And this concern for individual pupils is a venae for good, desirable classroom atmosphere where teachers can easily facilitate leaning especially in group work of in socialized recitation method of teaching. This is also a facilitating factor in the implementation of projects in such a way that an individual can lend his personal belongings or project paraphernalia to his classmates.

School Spirit

Table 2c showed the result of the study for the aspect of school spirit. This was found favorable in these selected schools in Jolo District III. That is, the following also occurred "often" the first case "very often" 1) Pupils like their teachers. 2) Pupils like their principal. 3) Pupils talk good about their school. 4) Pupils are happy whenever they do their assignment/homework. 5) Pupils defend their school when it's criticized by others 6) Pupils accept the limitations or weakness of their school 7) Pupils enjoy working with their classmates/schoolmates in making their school clean and beautiful.

Table 2c

Pupils Behavior	Mean	Descriptive Interpretation
School Spirit	4.28	Often
1. Pupils like their teachers.	4.63	Favorable
2. Pupils like their principal.	4.48	Very Often Very
3. Pupils talk good about their school	4.23	Favorable
4. Pupils are happy whenever they do their assignment/homework.	4.23	Often Favorable
5. Pupils defend their school when it's criticized by others	4.01	Often
6. Pupils accept the limitations or weakness of their school	4.11	Favorable Often
7. Pupils enjoy working with their classmates/schoolmates in making their school clean and beautiful.	4.22	Favorable Often Favorable Often Favorable Often Favorable

School spirit implies school identity of school synergy. In the school system especially in the elementary level, children treat their teachers as their second parent Because of this, sometimes the ideas, values and skills as demonstrated by their teachers become the dominant behavior of the children. Educators have substantiated this manifested behavior to the great extent of contact show between the children and the pupils.

Majority of them would imitate the manners of speaking, listening, writing dressing of their teachers As such, they really love their teacher. This was true to the Jolo District III where school spirit was favorable.

Through this, mutual respect would be observed. And, there would be an ease of instruction, legitimacy of orders like observance of monitoring, prompt submission of assignments and others. In short, there would be an orderly, well-managed class.

Emphasis on Social Life

The teacher in selected School of Jolo District III assured that the emphasis on social life was favorable (Table 2d) Each of the following activities were found "often" in the occurrence 1) Pupils join school organizations or clubs 2) Pupils attend programs and other cultural performances 3) Pupils behave properly during programs and other similar activities in school 4) Pupils look clean, neat, and orderly 5) Pupils work and study together with their classmates. 6) Pupils attend get together activities like acquaintance parties.

Pupils Behavior	Mean	Descriptive Interpretation
Emphasis on Social Life	4.12	Often
1. Pupils join school organizations or clubs	4.36	Favorable
2. Pupils attend programs and other cultural performances	4.19	Often Favorable
3. Pupils behave properly during programs and other similar activities in school	4.16	Often
4. Pupils look clean, neat, and orderly	3.93	Favorable
5. Pupils work and study together with their classmates.	4.01	Often Favorable
6. Pupils attend get together activities like acquaintance parties.	4.08	Often Favorable Often Favorable Often Favorable

Children profit from parallel and partnership activities which become the basis for more involved group activities in later grades. The outcomes of the group work are usually shared informally in the early grades.

More so, special attention needs to be given to the planning, carrying out, and evaluation of group work in each area of curriculum For example, group activities in reading and arithmetic provided in art and social studies.

Teacher Dimension and pupils Behavior

Table 6 includes the correlation matrix showing the various degrees of relationship between the different aspects of organizational climate and those of the pupils' behavior in the district III of Jolo. The values of r in various cells of the table were o0btained through Spearman Rho computation.

It was found that the positive teacher dimensions correlate with pupils behavior except the esprit and the school spirit which were not related to each other That is, spirit and intimacy significantly correlate with each of the four (4) aspects of pupils behavior such as academic competence, concern for individual pupil, school spirit, and emphasis on social life It was further found, therefore, that the overall positive teacher dimension were correlated with the overall pupils behavior The existence and degree of such relationship were indicated by asterisks (* and ** indicate significant relationship at the 0.05 and 0.01 levels of significance at 2-tailed tests respectively) This means that as these positive teacher dimensions occur very frequent or often, the more favorable are the pupils behavior.

Negative teacher dimensions hindrance and disengagement do not correlate with each of the four (4) aspects of pupil behavior That is, the strength or the weaknesses of hindrance and disengagement have nothing to do with the possibility of the change in the pupil behavior.

	Pupil Behavior				
Organizational Climate	**Academic Competition**	**Concern for Individual pupil**	**School Spirit**	**Emphasis on Social Life**	**Overall Pupil Behavior**
I – Teacher Dimension					
Positive Dimension	.261*	.326**			
A. Esprit (+)	.442**	.288*	.150	.336*	280*
B. Intimacy (+)			.298*	.365**	.355**
Negative Dimension	.143	.230			
C. Hindrance (-)	-.050	-.031	.063	.160	.131
D. Disengagement (-)			-.194	-.032	-.045
II – Principal Dimension					
Positive Dimension	.379**	.451**			
A. Consideration	.280*	.273*	.392**	.361**	.422**
B. Thrust	.345**	.230	.347**	.269*	.304**
C. Production Emphasis			.331**	.292*	.303**
Negative Dimension	.085	.073			
D. Aloofness (-)			.047	-.017	.017

Principal Dimension and Pupil Behavior

With reference to table 6 above, findings revealed that the positive principal consideration, thrust and production emphasis were correlated significantly (having significant relationship) with each of the four (4) pupil behavior- academic competence, concern for individual pupil, school spirit and emphasis on social life, except the production emphasis with the concern for individual pupil Consequently, the overall positive principal dimensions significantly correlate with the overall pupil behavior That is, as those positive aspects of principal dimension occur very frequently or often. The more favorable will be the pupil behavior. Aloofness, which is considered as a negative aspect, does not significantly correlate with each of the four (4) pupil behavior.

Managers believe that they are the most influential people in the organization Thinkers have unanimous approval on this statement.

It is actually the manager or the principal should initiate in advance over his subordinates His decisions, performance, evaluation do not only affect the teachers but as well as the pupils.

In a monocratic type of organization like school, policies and order emanate from above. The chain of command flows from the top. Hence, subordinates reliance rest to the top. And, accountability of the top management like the principal is not confined to his teachers but to the pupils alike.

This was proven in this study where there was a correlation of the principal aspect and pupils' behavior.

Conclusions

From the data gathered, the following were inferred:

1. That the organizational climate under teachers dimension is characterized by teachers quarrel and criticized each other is rejected.
2. That the pupils like their teachers is rejected.
3. That there is a relationship between school climate and pupils behavior is accepted.

Recommendations

1. The principals shall come-up with activities and programs that the several membership of the faculty members can socialize themselves to strengthen cohesiveness.
2. They shall also come-up with strategic programs that there may create intimacy between the pupils and the principal.
3. Minority group especially expressing their sentiments, needs, and demand shall be addressed to prevent the occurring of factionalism or strife among themselves.

4. Follow-up study especially on correlating the pupils' behavior and the managerial performance shall be conducted.
5. Additional variables shall be added to the present study for further explorations.

Compliance with Ethical Standards

Above all, a comprehensive informed consent form explaining the goals, methods, potential risks and benefits, and confidentiality policies was delivered to each participant. Furthermore, all trial data points were carefully anonymised in cases when the respondents' personal information had no bearing on the trial results. Data collection was conducted in a private environment to preserve participant privacy, and the collected data was kept in a secure archive that was only accessible by the researchers. Despite the differences in their thoughts and points of view, all members were respected in the same spirit. Additionally, the researchers made an effort to give the participants a welcoming and secure environment so they could talk openly about their experiences.

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THE USE OF MOTHER TONGUE: PROCESS, CHALLENGES AND IMPLICATION

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ABSTRACT

The use of Mother Tongue (MT) as the medium of instruction is assumed to be more effective than foreign languages especially in the low grade levels despite the challenges that teachers and learners met especially in the first stage of application. It is widely known that in China and Japan their MI is very important to them. Therefore, it is interesting to find out how this MT is used in teaching, its challenges and implication to quality education. Now, the k-12 curriculum gives high importance to the native language. The objectives of this study are therefore (1) to find out the strategies, steps, process, approach, and particular activities in the use of Mother Tongue as the medium of instruction, (2) to determine various problems, issues, difficulties encountered and the practical ways for providing solutions, and (3) to ascertain the impact of MT for quality learning, such as on reading comprehension, science learning and mathematics ability. The researcher used descriptive method which was proper and suitable for the researcher to collect data and information on the current performance of the pupils. The researcher employed a focus group discussion (FGD). The Mother Tongue is used in the explanation and discussion of the lesson. Also, it is used in drill or exercise and other activities in and outside the classroom. In lesson planning, only English and Filipino are used, and the native language is not used. There are challenges encountered by teachers, for example, to exert more effort in studying Tausug term. The parents and pupils also encountered challenges. Moreover, there are implications of the use of MT for quality learning as based on the opinions of teachers. One recommendation is that the DepEd should provide

enough textbooks and teachers manual to teachers and pupils as well as provide activity sheets and workbooks for pupils to ensure quality learning outputs in the use of MT.

Keywords: *Mother Tongue, Process, Challenges, Implications, Qualitative Research.*

INTRODUCTION

This study deals with the use of Mother Tongue (MT). For several years ago there are among the educators questioning the limitation of the medium of instruction to English and Filipino only. Before, the Philippines did not allow local dialects or the MT to be used in classroom instruction except for some and special cases. This restriction happened for almost hundred years up to the recent periods. The question is "was it very effective or very fruitful?" "Did the Philippines attain the genuine quality education?"

Nowadays, many educators, especially those who are curriculum makers, believe that it is advantageous to use the mother tongue especially in the elementary grades, more specifically for grade I to III. There are claims that mother language has a very powerful impact on the formation of the individual. She points out that a child's psychological and personality development will depend upon what has been conveyed through the mother tongue. The psychologists claim is that the mother tongue matters tremendously when language expressions and vocabulary are chosen with care as soon as adults talk to children In this claim, it means to use the mother tongue is recommended. In the low grade levels, the pupils need more clarifications about their local dialect or native language. That is why it seems very useful to expose first the children to this native expression.

A child's first comprehension of the world around him, learning of concepts and skills, and his perception of existence, starts with the language that is first taught to him. In the same manner, a child expresses his first feelings, his happiness, fears, and his first words through his mother tongue Mother language has such an important role in framing the thinking, emotions and spiritual world, because it is the most important stage of life A strong bond between a child and his parents (especially mother) is established by virtue of love, compassion, body language, and also through the most important one, which is the verbal language.

Making English and Tagalog the official languages of the Philippines is a practical move, seeing as there needs to be language that can be used to do business and trade as well as to communicate on both national and international levels Still, the constitutional declaration of these two languages as official and the other languages as auxiliary takes

a discriminatory tone when looking at how it resonates in other policies and in the public sphere.

The Philippine Department of Education is proving that DepEd is the new name for the Philippine government's education department Given this legacy, the reformed DepEd has sought to address the criticism of not providing a good enough base for those wishing to pursue a university education. To achieve this, they pushed a bill through Congress that completely overhauls the current educational system There are two major components of the bill that dramatically change the format of Philippine schools, starting in 2012.

Mother tongue plays an important role in functioning target language (see (Sinha et al., 2009) and (Yadav, 2014)). As previously known in Krashen's hypothesis that acquisition distinguished succeed in learning a second language (Castello, 2015), this hypothesis is also applicable in learning a foreign language. First language acquisition significantly affects EFL speakers in transferring the message into the target language (for further reading see Allard et. al. (2011); Lemhöfer et. al. (2010); and Maniam & Kesevan (2016)). Whether positively or negatively, the speaker's mother tongue will affect their second language acquisition (Erarslan & Hol, 2014). Moreover, the similarities between learners' mother tongue and language ease them in transferring the message positively and vice versa.

Cummins claims mother tongue provides the basis for learning another language. Jim Cummins also underscores the importance of preserving mother tongue "Children who come to school with a strong foundation in their mother tongue develop stronger literacy abilities in the language used at school When parents or caregivers are able to spend time with their children and tell stories or discuss issues with them in a way that develops their mother tongue vocabulary and concepts, children come to school well prepared to learn the language of their immigrant country and succeed educationally".

According to Luistro, Mas medaling matutunan yung konsepto pag ang ginagamit ay yung kanilang sariling wika. Kahit ano yung kanilang karunungan sa bahay, ito po yung ating tinatanggap, na ito ang kanilang initial na kaalaman at walang mali doon.

With this view, it is hoped that this study proves to be of encouragement on the use of mother tongue, particularly in Jolo III district where almost 100% of the learners h-belong to Tausug tribe. Now, the title of this study is "The Use of Mother Tongue Process, Challenges and Implications"

Research Questions

It is very timely that the use of Bahasa Sug as the medium of instruction especially in elementary grade level, particularly in grade 1 to III, can be given more attention as it

is assumed to be more effective than foreign languages. Parents and many educators claim that MT is more effective in the low grade level although there are challenges especially in the first stage of application. It is widely known that in China and Japan mother tongue is very important to them. It is therefore interesting to find out the challenges and the implication of the use of local language to quality education.

Now, the k-12 curriculum gives high importance to the native language, perhaps the curriculum makers through the strong motivation from the UN, feel that this is more effective than when children of the low grade level are forced to learn with the use of the English language In this view, this study might be of help and encouragement for educators to give high importance to Sulu local language. Hence, it is imperative to answer the following research questions

1. How is Mother Tongue used in grade 1 to 3?
2. What are the challenges in the use of Mother Tongue?
3. How does Mother Tongue contribute to quality learning?

METHODOLOGY

A. **Method**. The researcher used descriptive method, it was proper and suitable for the researcher to collect data and information on the current performance of the pupils. Known to many, descriptive method is to describe the present condition as it exists during the conduct of the research.

There was a survey of opinions of the teachers regarding how they use the Mother Tongue in their teaching implementation. With this method, challenges and implication could be discovered.

B. **Research Instrument**. The researcher employed a focus group discussion (FGD). The FGD was conducted at Tanjung Elementary School where the researcher is employed, with the participation of all science teachers. A well-planned set of questions which was based on the research outline was made available. The principal was interviewed in another session. This study employed FGD to Ten (10) teachers served as a participants in the study. The FGD were employed within two (2) days.

C. **Data Analysis**. After conducting the FGD and personal interview with the school principal the researcher organized and synthesized the opinions of the respondents She applied generative approach whereby she could find out the commonalities, comparison and contrast through careful scrutiny of all ideas with sound judgment of the researcher and the thesis adviser There were no statistical tools used in the process.

RESULTS AND DISCUSSION

Mother Tongue and Its Use in the Teaching-Learning Process

In this chapter, the names of the teacher respondents are mentioned In some instances, their words are only paraphrased and therefore with indirect quotation. There are four major sections in this chapter (1) The Mother Tongue, (2) Mother Tongue as used in Lesson Explanation, (3) Mother Tongue as used in Drill/Exercises, and (4) The use of Mother Tongue in Lesson Planning Besides, there are further clarification for each section and summary for the whole chapter Further clarification is the explanation, observation and practice of the researcher Having the mother tongue in school is important as it provides children a sense of familiarity, easing their transition from home to school. Learning to read and write in the mother tongue as a formal subject in the early years is, without doubt, important according the claim of the curriculum makers. In fact, they stress the importance of the use of this mother tongue.

3.1 The Mother Tongue

In the Philippines there are several spoken dialects or languages People in Sulu use Sinug (or Bahasa Sug) dialect or language, Chavacano in Zamboanga, Yakan in Basılan, Cebuano in Cebu, Tagalog in Manila, etc. The dialect or language mostly spoken in a specific province or city is said to be the Mother tongue of the province or the city. For example, the Mother tongue in Sulu is Sinug (or Bahasa Sug). However, there are provinces of which one or two specific towns or barangays are occupied mostly by Tausug. So, the Mother tongue in that certain town or barangays may also be Simug for the purpose of facilitating the learning of children.

The Mother tongue in Pangutaran, one municipality un Sulu, for example, may also be Sinama (or Siyamal), but the official one is Sinug since Pangutaran is in Sulu.

Mother tongue, therefore, is the language or dialect spoken mostly by the residents or occupants starting from the birth

3.2 Mother Tongue as used in the Explanation of Lessons/Lecture

Mother tongue is used in the lesson explanation such as in English, science, Araling Panlipunan, Mathematics, and MAPEH, as well in other subjects Its use in the explanation is based on the responses of the following personalities (in the following paragraphs) who are selected teacher respondents in the locale of the study.

According to Maria Luz T Carlos, it is required that teachers have to use mother tongue in the lesson explanation in all subjects but not to the extent of using it word for word because other children who are already exposed to English and Filipino find it hard

to understand. It goes to show that she uses this Mother Tongue to follow the requirement as she claimed

Armina S Bandahala states that, in the k-12 curriculum, the use and implementation of Mother Tongue is mandatory as the medium of instruction inside the classroom since it is the widely uttered language in the province of Sulu. Bahasa Sug is considered to be the mother tongue of People in Sulu. Teachers in this province use this dialect m teaching Edukasyon sa Pagpapakatao, Mother Tongue as a subject, Araling Panlipunan, Mathematics, and MAPEH.

Tarhata L. Mohammad says that as mandated in the K-12 curriculunt, mother tongue is widely used in the lesson explanation. Through-out the lesson period mother tongue is being used.

Carina A. Yusop said:

To facilitate learning the use of mother tongue in explaining the lesson is of great help. But as much as possible in subjects like English and Science and Health, the medium of instruction must be in English because there are terminologies that do not have an equrvalent terms in tausug Mother Tongue is strictly used only in Grades 1, 2 and 3 particularly in Mother Tongue, Araling Panlipunan, Mathematics and MAPEH.

In the opinion of Reckmar J. Abtong, the use of Sinug is now being practiced because of its relevance. He stressed:

Through Mother Tongue language the learning is easier and can expand well the lesson. The pupils had the chance of expressing themselves because they can communicate effectively to their teachers through the Mother Tongue Based Pupils are not hesitant to talk and they can explain more by using the mother tongue. So Personally I use it.

In addition, Mother Tongue is also a learning area and therefore it is really use in the explaining the lesson. Regina Abdurahman states:

Mother Tongue is not only used as a medium of instruction but as a learning area In my class 1 use multilingual education in the explanation of my lesson. I was able to experience that using LI (mother tongue) inside the classroom produce better and faster learners.

Likewise, teacher A (name not mentioned) says:

In every lesson to be taught, it must be well-explained to the learners for them to understand well. With this, I am using mother tongue in the discussion of the lesson

oftentimes. So they would be able to reflect and participate during the discussion. So, there is retention on the learner's part.

Nurdiya E. Jingon claims her using the mother tongue in the lesson explanation. She said "it helps pupils learn better. They are less hesitant to speak up in class since they are fluent in their mother tongue".

Similarly, Winnie Rose S. Dela Cruz states:

One of the most resilient features of k-12 is the Mother Tongue based. As we all know, mother tongue way just only introduced to us few years ago, though we are using it every day of our lives but still we are not 100 familiar of the right word which is what we say "mother tongue." Though, mother tongue is new to us still we strive more so that we could impart the right knowledge that we have had and of course to help our learners to express their selves without feeling ashamed Since class interaction is highly solicited to increase the grades of the learners so Mother Tongue is of great help in attaining quality education this is because learners are not ashamed to speak or express their feelings.

Further Clarification

In this section the researcher herself could freely present her own point of view on the use of Mother Tongue as used in the lesson explanation, in connection to the responses of the teacher respondents. In other words, her personal observation and practice as regards the Mother Tongue is herein presented in the following paragraphs.

On the basis of the teachers' responses, they use most of the times the Mother Tongue in the explanation of the lesson. They use this language to a great extent. The researcher thinks, mother tongue at an early age, is important It brings about easy reflection of what is being taught in class since it is within the learners context and vocabulary Pupils in primary levels would be able to grasp the concepts rather on the translation. Furthermore, if the language of instruction is the same as the child's mother tongue, there is a better chance for the child to fit in and continue with education. So, why do teachers make the life of the school children complicated since there is already a mandate to use mother tongue as medium of instruction. As educators all know most of the learners are not rich. Their parents could not afford for tutorial. Of 55 pupils in the class, only few can understand English well. That is why DepEd is now implementing the Mother Tongue as medium of instruction in primary levels for the learners to get easily involved in classroom discussion. And lastly, with the use of Mother Tongue, the learners could not feel hesitant to interact with their classmates or teachers because the language that they are using is the native language or their home language in which they were used to express in their everyday undertakings.

Communicating in any language, one needs his own ideas to convey his point, and medium is to help the other understand. If one does not have a point to convey, there is no point in learning. That is why mother tongue is being implemented as medium of instruction in the K-12 curriculum so that teachers could be able to convey to the learners the sea, and of course the main reason is to facilitate the learning process in primary levels.

Basically mother tongue is used through-out the lesson explanation it is for the sake of the school children for them to be able to understand well the lesson. It is also important to have a mother tongue education especially in primary levels to enable the Lids to easily grasp the course content as they are used to the vocabulary.

It is noted that most of the learners are coming from unfortunate kin whose parents are very busy in their daily works and do not have time to follow up at home with their children's lessons. Some studies show that the use of mother tongue as medium of instructions makes the school children feel easy and could easily understand with their lessons even without the follow up of their parents at home. Because the language is very common to them in which they don't need any tutorial for them to understand the words.

A child connects to his parents, family, relatives, culture, history, identity and religion through his mother tongue Native language links the child with the culture of the society the child comes from and shapes his identity When a child does not know his language well, he will not be nurtured with his culture properly for the fact that the relationship between language and culture is deeply rooted Mother tongue is one of the most powerful tools used to preserve and convey culture and cultural ties. The ability to converse in a language is developed through the mother tongue. The child will get familiarized with the nuances of a language, how to learn it and use it, and this will enable him or her to learn other languages as well. A strong foundation in their first language will contribute to learning another language and help them develop stronger literacy skills in the school language, because children's literacy knowledge and abilities transfer across languages from mother tongue to the language the child is learning at school. When children continue to develop their abilities in two or more languages throughout their primary school years they gain a deeper understanding of language and gradually acquire knowledge about how it can be manipulated and applied in different ways.

As mentioned above by teacher Regina, she uses multilingual in the explanation of her lesson. Maybe, because there are some terms that are hard to understand when it is written or spoken in Bahasa Sug (Sinug). She was also stated that using the LI or the mother tongue inside the classroom produced better understanding. This is because the school children could easily speak in the language because it is mother tongue. They are not hesitant to speak, since it is their home language. It also helps the learners adapt to learn easily the second language (Filipino) and the third language (English) if the school

children mastered already the first language. The researcher strongly agrees that mother tongue develops a strong foundation in a language they understand. Learners also develop their cognitive and reasoning skills through the use of mother tongue.

It is personally agreed that the use of mother tongue in the lesson explanation is indeed of great help not just on the part of the learners but of course on the teacher's part. In preparing the lessons for the day teachers can think of many ways to make it interesting for the learners and they could not feel bored since mother tongue is being used. In effect, everybody participates in the discussions and activities being prepared.

In using the mother tongue, learners are able to think easily, learned to communicate and acquire a spontaneous understanding of grammar.

The writer agrees with the statement of teacher Nurdiya that through the use of mother tongue in the lesson explanation the learners could easily understand what the teachers are telling them and are very eager to participate inside the classroom because they can easily formulate ideas in their minds.

3.3 Mother Tongue as used in Lesson Drill/Exercises

Mother Tongue is not only used in the lesson explanation but also in drill or exercises which are usually performed after explanation by the teacher. However, English is also used in some instances where learners are ready to understand or in case the teacher thinks that English in important especially in a one-word sentence or a simple sentence-drill. But this is also followed by the use of Mother Tongue, or vice versa.

The teacher respondents, upon interview with them, gave their responses regarding how they use Mother Tongue in drill. In the following paragraphs, the responses of teachers are taken.

Maria Luz T. Carlos pointed out:

It is just the same as in lesson explanation, some drills and exercises need to be said in English after its mother tongue because there are terms which are not common and difficult to understand.

According Armina S. Bandahala, the Mother Tongue, especially in drill instruction, is really used. She said:

In giving drill or exercises, all is the same except the instructions given are all written in Bahasa Sug. But in the new curriculum, there are a learner's materials where all of the exercises in every topic are written separately.

In support of this claim, Tarhata L. Mohammad Answer said: "In giving drill or exercises the instructions given are in mother tongue."

It is also observed that in case the subjects are English and Filipino, the English language or Filipino are used but with integration of the Mother Tongue Carina A Yusop stressed:

Again if the subjects are Mother Tongue, Araling Panlipunan, and Mathematics, drill/exercises must be stated explained in mother tongue. On other subjects, like Filipino and English, Filipino and English language are used, but if the pupils are not able to understand in these rwo languages, that is the right time to use mother tongue.

It is also noted from the response of Reckmar J. Abtong that the use of Mother Tongue is effective, and he usually uses it in drill. He claimed:

Likewise, through mother tongue-based, the activities prepared by the teacher can easily be conducted and easy on the part of the pupils to follow Teachers, on the other hand, can think more than one exercise because he she can create his/her own activity simply because they are using mother tongue-based.

Such a claim is also of that of Regina Abdurahman who stressed:

In giving drill exercises, I allow my learners to answer using language 1 to 3 (multilingual) especially the use of mother tongue in order for them to connect to their culture and heritage. I experience that using the LI (mother tongue) the learners were able to express share ideas of what they experience in real life situations and connect them to the outside world.

Mother Tongue is used in drill as well as in class discussion where pupils feel totally free to talk. In fact, Teacher A (name not mentioned) was quoted as saying

In drills exercises, mother tongue has been used in giving instruction for the learners to be guided what to do. Not only in giving instructions mother tongue is also used in answering and oral recitation. Which makes feel the school children welcoming and are not afraid to commit mistake.

In the words of Nurdiya E. Jingon, she said.

In giving drill exercises to my pupils I always give instructions in mother tongue because children learn faster and more effectively when instruction is done in the mother tongue.

However, there are times in which the use of Mother Tongue is accordingly difficult in the sense that pupils can hardly understand. Although it is used, it is in combination

with other very understandable words. This is the claim of Winnie Rose S. Dela Cruz who pointed out:

Honestly speaking, it is very hard on the part of the pupils to understand the mother tongue, if they are given exercises we need to expand further into the very words that they already understand in order for them to answer

Further Clarification

As based on the responses of the teacher respondents, it shows that the use the Mother Tongue in most cases and most of the times in lesson drill or exercises. But, it is noted that English and Filipino are also used in some instances. In other words, there is a fusion or combination of languages.

In the old practice, giving drills/exercises was expressed in English to formally state the instruction. Later, with k-12, it has to be translated to Mother Tongue to clearly understand. At some point, the dynamics of the learners must be given consideration to realize the objectives of the lesson because the exercises/drills depend on the instruction given.

Nowadays, the curriculum that we are applying is K-12 Hence, it has something to do with the instructions inside the classroom using Mother Tongue With this, the primary level that includes Kinder to Grade 3 is using Mother Tongue as medium of their instructions more often to let the learners express their feelings towards a certain topic and most especially to understand the lesson taught by the teachers, and must use. This has something to do with the Quality Education crisis that we are facing now in the field of education One of those is Poor Comprehension This curriculum is designed and implemented due to the needs of the learners that are to uplift the learning ability in order to become competitive globally and to mold a certain learner into a whole-being.

Using mother tongue in giving drills/exercises is undoubtedly important where in language plays a significant factor. Since the child's own language enables her/ him to express him/herself easily, then, there is no fear of making mistakes. It encourages active participation by children in the learning process because they understand what is being discussed and what is being asked of them. They can immediately use their mother tongue to construct and explain their world, articulate their thoughts and add new concepts to what they already know.

Being multi-lingual in the drills/exercises is highly appreciated. Hence, to become competitive globally the learners must be oriented and aware of the different languages, like Tagalog and English. The learners must know how to apprehend these languages, not in the case anymore of the Mother Tongue because they are expert already in this. Also, the two parties in this scenario both benefit and there is the realization of the

objectives of the lesson taught. It is important for the teachers to see that the drills/exercises are implemented correctly. Therefore, when using the Mother Tongue, it has to be in the appropriate dynamics of the learners and time.

Using Mother Tongue inside the classroom is indeed an effective way for the learners to learn. I agree with the above statement because, since they are used already with the mother tongue it has no longer reason for the learners not to interact or share their insights to their classmates From this, learning takes place and can be multiplied especially when the teacher knows how to facilitate the class discussion. So, it made for the learners reflect as to what they have experienced that would lead them into a fruitful discussion. Real life situations/experiences can be utilized in order for the discussion to become more meaningful.

3.3 Is Mother Tongue used in Lesson Planning?

Based on the gathered responses of the teacher interviewed by the researcher, Mother tongue is not used in lesson planning, instead teachers usually use English or Filipino. It is perhaps difficult to use the native language in writing a lesson plan because teachers so far have been trained to use English and not the mother tongue in the interview with the teacher respondents, the following information is based on the responses.

Maria Luz T Carlos said "in lesson planning we use the English language and not the Mother Tongue.” Tarhata L. Mohammad also stressed:

In lesson planning we do not use the mother tongue instead we make our lesson plan in English. This is due to the complexity of the dialect where most teachers are not well-verse.

This is also supported by Carina A. Yusop as saying:

Mother tongue is only use as medium of instruction in primary level (grades 1.2 and 3). But in preparing lesson plan English and Filipino are still the language to be used.

Armina S. Bandahala also pointed out:

As a newly hired teacher, I can say that the way how lesson plan is being made and written is almost nearly compared to the term "overhauled" due to the new terms used and some added part of the plan which will add complication in accomplishing a 1 day plan. But we still use English language in writing our lesson plan for those subjects that are using mother tongue as a medium of instruction, or if not-Filipino.

Regina Abdurahman gave her response as saying:

In making lesson plan, I use the Language 3 (English) because it's easy for me to follow the steps of the learning process, the activities and strategies to be used.

Teacher A supported response, he said:

For lesson planning we still use the 1.3 (English) in preparing for it because it is easy for us teachers to prepare it. Mother tongue is only used as medium of instruction but not in doing lesson planning.

Filipino and English are emphasized in lesson planning as Nurdiya E Jingon gave her observation: "in lesson planning we are not using mother tongue even in mother tongue subject. All lesson plans should be written either in Filipino or English." Winnie Rose S. Dela Cruz also gave the same response.

As far as lesson plan is concern, in the K-12 curriculum, the teacher will have to comply with the so-called DLL or Daily Lesson log, and in the preparation of lesson plan it is the same with what has been practice, the language used is in Filipino and English.

There is one point revealed by Reckmar J. Abtong. He said:

This is one reason why Educational System is being revised because of lesson planning. This time teachers will not find hard time making their lesson plans because we do have already modules and readymade lesson plan and one thing it's good the modules are translated already to Tausug language Teachers could expand and add many activities in doing their plans.

Challenges in the Use of Mother Tongue

In this chapter there are four major sections: (1) challenges faced by teachers, (2) challenges for pupils, (3) challenges encountered by parents, and (4) challenges faced by school heads. To explain further each section, there is a special section, Further Clarification, at the end of every section, which reflects the researcher's point of view including her observation, practice as a teacher, and a few recommendations. The last additional section is the summary of the whole chapter.

Challenges refer to those actions or effort which must be fulfilled by teachers for improving and sustaining quality of teaching and of learning. So, challenges emanate from the occurrence of problems or difficulties encountered by teachers amidst use of the Mother Tongue.

Languages matter in the quest to eliminate illiteracy and facilitate better learning, as emphasized in the global Education for All movement. They matter in fostering openness towards diversity and tolerance of other cultures, which is essential to building inclusive societies. They matter for peace and mutual understanding in areas of inter-

ethnic conflict. Indeed, the role of languages in the educational, cultural and economic fabric of our societies is too great to be ignored. Often, the most disadvantaged people in a country are those whose mother language is different from the national language. This creates problems in many areas such as education, health, income disparity, risks of exploitation, exposure to environmental hazards and access to the legal system.

4.1 Challenges Encountered by Teachers

In this section 4.1 are challenges faced by teachers in using the Mother Language as the medium of instruction. The individual teachers contributed ideas and revealed their actual observation.

One of the challenges on the part of the teachers is that the teachers are encouraged to look into difficult terms in the native language, especially those terms which are seldom used for expression of ideas, or which they do not even understand yet, or which they have not yet encountered. For this, Maria Luz T Carlos pointed out.

The Teacher is challenged more to learn many terms and remember them well specially those terms which are not familiar. So that he she can impart it well to the students.

Such an important challenge is also pointed out by Armina S. Bandahala as saying:

One of the challenges in using mother tongue is the terms words used in the book for classroom discussion. There are bunches of terms in Bahasa Sug which are seldom use or not actually in use in a day to day encounters and that is what complicates it.

The researcher agrees with Armina S. Bandahala. It is true although teachers are using their own dialect, it cannot be understood automatically because it is not the term that teachers usually hear and say. So, when the researcher explains, she does not honestly know, first she needs to undergo research on the terms.

The above views are again supported by the idea of Tarhata L. Mohammad when she said:

On the part of the teacher lies a very huge challenge when it comes to the use of Mother Tongue There are a lot of words terms which even 1, a teacher, do not understand or have never encountered. Using the appropriate word, unlocking the meanings and letting the pupils understand the word are some of the so many challenge I encountered in the use of Mother Tongue.

Also, the words of Nurdiya E. Jingon gave support to the above expression of observation. Jingon said:

On the part of the teacher we found some difficulties in giving definition or translating some hard words in mother tongue. We have to translate it into Filipino or English for the pupils to understand.

According to Winnie Rose S. Dela Cruz, teachers are challenged to be resourceful enough because of unfamiliar terms in Bahasa Sug used in teaching. In other words, teachers are encouraged to look deeper into the meaning of the terms Because of being resourcefulness, they may become aware afterwards. Dela Cruz said:

We become more aware of the words that we are going to teach, we need to be resourceful, to know deeply the lesson. It needs patience to let the pupils learn and understand more.

Another challenge on the part of the teacher is it that the teachers, because of unfamiliar terms in the native language that are already in use under K-12, are challenged to use various strategies or techniques just to explain or demonstrate the terms for pupils to understand. Carina A. Yusop revealed this challenge when she said:

On the part of the teachers, it is a challenge to explain unfamiliar mother tongue words to the pupils. We need to use devices to illustrate its meaning Teachers must double their effort to explain not only the concept but as well as the word itself.

In the words of Reckmar J. Abtong, he is accordingly challenged to study terminologies in native language because it seems some pupils are more aware than hum about many unfamiliar terms. Abtong said:

On my part as Grade 1 & 2 teachers, at first, I find it difficult because I am not familiar to other terminologies in Bahasa Sug. But then, I was challenged to study more because I did not only learn from the modules and textbooks, but I also learn from my pupils most especially my pupils who are living in a rural areas in which they commonly used Bahasa Sug at home.

The next is that of Regina Abdurahman, who pointed out that the use of native language would really be challenging, and it would also be advantageous. With it, the teaching becomes more effective because of the use of accompanied strategies. As part of the interview with her, she stressed:

As a teacher, the use of mother tongue is a great challenge but through the teachers training and preparation of the learning resources, my teaching becomes more effective and met in facing these challenges through resourcefulness and effective strategies and support of the school administrator and the DepEd.

In addition, it is a challenge and advantageous for teachers to use the native language, not more on English, because accordingly it has been noticed that even at

home the parents start using English in teaching their children about different colors. As an effect, their children can hardly identify colors in Bahasa Sug, although they can identify in English. So, Teacher 4 (name not mentioned) pointed out:

For Grades 1,2 & 3 teachers it is challengeable in using the mother tongue Because, nowadays, the parents are teaching now their child in English at home before they are sending their child to school, for instance the different colors, the numbers-how it is look like series of the numbers from 1-10 So, the teachers must double the effort in teaching the pupils using the mother tongue. They must be able to establish the relation of the concept of things to the pictures that would equal to learning.

Further Clarification

In addition to what Ma'am Maria Luz stated above, one of the most challenges in the use of mother tongue was that the teacher should be fluent in mother tongue, MT challenges the teachers who are not the native of Sulu, they find it very hard to teach because the language itself is new to them. There are also words in the MT which teachers found to be hard to understand. Another one is a challenge that calls for one to utilize various instructional materials that can be used by the teacher such as story books whose content must be written in Mother Tongue Poems, songs and nursery rhymes are very difficult for teachers to compose unlike Filipino and English.

It is very difficult or even impossible for one to teach what he/she does not have It is really a challenge to the teachers to let the pupils learn when the teachers do not also understand the word/s. The learning of the pupils really depends on teachers. So, the author of the book for the Mother Tongue must be very vigilant and considerate in proposing the different words to be used in the discussion because it is just useless when the pupils do not understand the definition for it to be applied/used in the dialogues.

Mother Tongue is helpful in a way that the learners would easily understand it but some words are hard to explain. The best way to do is to translate it either into Filipino or English in order to further expound the idea. In this case, full learning of the learners is maximized.

Using Mother Tongue is a great challenge now for most of the teachers because one needs more time in researching terms that are not familiar and are difficult to understand A teacher also needs to study hard every night and analyze deeper the topic that he/she is going to tackle in the next day Why do teachers need to study? The answer is simply, "in order that he/she become ready for his/her class, teaching them the right knowledge wherein he/she is paid by impart the school children.

It must always take into consideration when unlocking/explaining unfamiliar words, association of the pictures to the words are the best way. The pupils do not just hear the

words but they would be able to associate to the concept they have instilled in their minds. As a result, learning takes place.

Being determined and dedicated to the teaching can help the pupils' learn effectively. But of course, it is challengeable to the teachers because they are doing their best to let the learners learn from them. It is always a compliment on the teachers' part to see a certain learner learns. Also, leaning is a two-way process.

It is hard to translate Mother Tongue to English especially when the words are hard. But, letting the learners learn from it is a talent. Thus, this can be strengthened once the teachers are resourceful in doing the instructional materials in support to the teaching in the classroom and clever enough in applying the best strategies that suit to the dynamics of the learners. At the same time, the support of the school administrator and the DepEd must be consistent to realize the purpose at the end of the day.

Perseverance and diligence are the two qualities that the teachers must possess It is hard to instill an idea/concept to a learner when a certain topic had been learned already especially when using different process of teaching because at some point the learners are reluctant already in accepting idea.

This is now the challenge for the teachers to be resourceful enough to find ways on how to teach the children effectively using the Mother Tongue.

4.2 Challenges for Pupils

Just like teachers, learners are also facing challenges in the use of Mother Tongue as a medium of instruction Pupils have also met difficulties but these are challenges, and these can be considered advantageous.

There are terms in Baha Sug, which are new to pupils just as how new it is to the teachers. Both teachers and pupils met the challenge to learn the terms. Maria Luz T Dela Cruz pointed out:

On the part of the pupils, they are also challenged to learn the terms together with the teacher so that teaching and learning process will take place.

Such challenge is also pointed out by Armina S. Bandahala as saying:

Every tome new terms are heard by the pupils, they have a difficulty in making connections fast because they tend to forget the meaning of a certain word, maybe because they hardly say the words and that is what makes it a challenge for the pupils.

Accordingly, some pupils usually get confused in Bahasa Sug. But of course, people may get confused in any language. Upon confusion in using the native language,

pupils are challenged to listen very well to the teachers' explanation in bilingual In relation to this. Tarhata L. Mohammad had said some words:

My pupils can automatically respond to questions or instructions using the Mother Tongue. But, sometimes they tend to be confused with some terminologies.

In connection to the statements of Mohammad, Carına A. Yusop stressed out that pupils find it hard to understand concepts which are very new especially in English Also in Bahasa Sug they find it hard to comprehend because the ternis seem new. Consequently, pupils are challenged to listen and hear and listen and give much attention to the teachers' explanation.

In contrast, Reckmar J. Abtong claims that there are less challenges on the part of the pupils because pupils at the same time are learning Bahasa Sug, for they are new in this world In other words, pupils are still in the process of learning the native language at the same time. In this sense, there is less challenge on their part. Abtong said:

My pupils can easily to cope up, they can easily comprehend because most of the terms words are being used at home, so it is very easy on their part to learn, though there are some terms which are not familiar to them and difficult for them to understand. But as a teacher it is your task to simplify the words for the sake of the school children not yours I must say less challenge on the part of the pupils since Mother Tongue is their home language therefore they could not find it difficult to understand the concept.

Another point of less challenge on the part of the pupils is the claim of Regina Abdurahman as saying:

On the part of the pupils, Mother Tongue challenges them to improve and develop their creative and critical thinking and the learning process being introduced in the curriculum, und to become better and good future citizen of the country.

On the other hand, the idea of Teacher A is that the pupils are challenged to struggle to relate native language to English and vice-versa. He said:

On the part of pupils, it is also challengeable, if I may say. The learners would struggle in relating the concept idea of a thing being taught for they are not used to it-using English to Mother Tongue and vice versa.

The above words of Teacher A are supported by the words of Winnie Rose S. Dela Cruz saying:

They need to strive hard in understanding the lesson by using the Mother Tongue, because sometimes it can create confusions on the part of the learner. It might not meet

the objectives on the use of Mother Tongue because it seems to be a foreign language to the learner.

The next is in the words of Nurdiya E. Jingon as she stated below. Based on her view, it seems that there is no way for the learners to reject K-12. Pupils are therefore challenged to accept and take K-12 no matter what it is because this curriculum program has been mandated. K-12 is accordingly new to leaners Jingon said:

On the part of the pupils some words in Mother Tongue are new to them so sometimes they lost their interest in listening to their teacher. They are more interested in stories that are English or Filipino than stories written in Mother Tongue.

Further Clarification

It would take time to the learners to sink in the ideas taught by the teachers for they are new to them. In this case, the teachers must look into to the dynamics of the pupils so the learning process takes place. The learners must be provided with all the materials to be associated when teaching so they would get the full concept.

Law of apperception must be applied by the teachers. It is building/adding a new concept to the learners. Before proceeding to another one, it has to be practiced and learned first through the different activities given to the learners.

The pupils must be indulged in the different terminologies by practicing them every day At least, when time comes, they are already aware of the words that they can hear To learn something really takes times.

The pupils must be indulged to the different sight-words and let them read every day as practice. That could make the essence of familiarization.

The use of mother tongue is actually useful to the pupils especially if it is used in giving instructions, the pupils easily catch up what the teacher tries to say But the challenge is when they reach the 3 quarter, where English indulges to the teaching-learning-process in Grade 1. The pupils would hardly cope to the transition, like in the sense of common matters. There would be inconvenience on their part to understand the words taught in MT and be taught in English differently.

4.3 Challenges Encountered by Parents

In this section 4.3 challenges encountered by teachers in relation to the use of Mother tongue are presented. These are referring to what the parents must do to help their children achieve better learning under K-12. The challenges met by parents were viewed by the teachers as found in the succeeding paragraphs.

Maria Luz T. Carlos pointed out*, "The parents are also challenged to learn together with their kids for them to follow up teaching at home*." Based on this view, parents should get involved in a similar way as their children do. He parents should also act as teachers, only this is done at home. This is to augment the learning in school, specifically in the matter of using the Mother tongue, in the translation of many terms. This means the parents are at the same time learning just as how their kids learn.

The participation of parents as pointed out above by Carlos is supported by the implied meaning of the words of Carina A. Yusop. Her words imply that parents are challenged to help their children as regards uncommon terms in Tausug. Yusop said:

Parents usually keep on asking why teachers' m primary level use Tausug language throughout the session. They are not aware of the K-12 program in primary level and are hesitant to ask or approach the teachers for clarification of their doubts Parents also find problems if their children ask them the meaning of some uncommon Mother Tongue terms.

In case, the parents do not know the terms, they have to strive hard to look into these and find ways for them to understand also. This is because not all parents are aware of the some uncommon Tausug terms, as claimed by Tarhata L. Mohammad and her colleagues as saying, "Some parents do not understand the principles behind the use of Mother Tongue as a medium of instruction" So, the parents are also challenged to help the teachers as pointed out by Reckmar J. Abtong stating:

Parents on the other hand are supportive, why? Because even though most of them did not finish their studies, they facilitate to help their child by means of using the Bahasa Sug or in Mother Tongue Based, Sometimes, their parents help us teachers in doing and by means of follow up at home in teaching their child.

Such above statement of Abtong is supported by the words Regina Abdurahman claiming that the parents are supporters of teachers, and trying hard to learn uncommon terms Regina Abdurahman said, "On the part of the parents, they are challenged to serve support and follow-up their child in the teaching-learning process."

Another similar and perceived challenge for teachers is based on the words of Teacher A saying:

On the parent's part, it is easy for them to let their children know a certain concept using Mother Tongue. They would be able to establish smooth relation in expanding the idea learning aside from their vernacular.

Based on the foregoing words of Teacher A, the parents are challenged to continuously establish harmonious relationship with their children as regards matters

pertaining to learning of their children. Parents are challenged to encourage and motivate their children to learn Sinug, and evaluate their improvement. They are challenged to cooperate with their children to facilitate learning at home. They need to work together. Such claim of helping the children at home is also the view revealed by Winnie Rose S. Dela Cruz saying:

This is now the challenge of the parents, they need to find time so that they can follow-up their children at home in giving attention to their children's need especially in learning more the lesson with the use of Mother Tongue. The help of the parents are highly encouraged in the learning process of Mother Tongue, they are also expected to have knowledge of MT as one of the subjects of their children.

On the other hand, in the following statement of Nurdiya E. Jingon, the parents are accordingly not in need of Sinug However, upon analysis with the mandatory implementation of K-12 using the Mother tongue, the parents are challenged to accept the Mother tongue and challenged to also learn Simug. They could do nothing anymore but learn Mother tongue as K-12 is now in the implementation. Regarding the refusal of parents, Jingon said:

On the part of the parents, some of them were not in favor of using Mother Tongue as a medium of instruction because according to them they don't need the Mother Tongue language what they need is that their children would be able to speak English fluently.

Further Clarification

The reason why some parents at first do not understand why MT is included in the subject is because they are not aware of the implementation of the k-12 program. But, now, as far as the researcher observed, parents are now interested in MT in the sense that there are lots of terms that they should also know And also one of the parents said and the researcher quotes "sabab sin Mother Tongue imingat in anak ko nagbassa" Amazing right? Knowing that one of your pupils be able to read is because of the use of mother tongue.

Some parents said they do not need the mother tongue, what they need is English for their children to speak English fluently Maybe, because some of the parents belong to middle class of status and they trained already their children to speak English at home or they sent their children for tutorial classes so that their child could speak fluently English in preparation for the higher levels/tertiary levels. Here comes Mother Tongue being implemented as a subject, not just a subject but as a medium of instruction in some learning areas. Now, what happened is that they find it difficult to help their kids when it comes to teaching their kids at home for follow-ups of their lessons This is because there are lots of terms/words that are hard to understand that even parents could not

understand even it is already written in Mother Tongue There are also parents who do not use Bahasa Sug as their home language. What they use is either Filipino or English and that is what brings challenge to them. Sad to note, they tend to forget their own Mother Tongue.

4.4 Challenges Encountered by School Heads

One of the challenges encountered by the school heads is that they should also learn the Mother tongue just as how teachers, pupils and parents learn it. This is because the school head is a major part of the school forces. In case there are discussions, or dialogue pertaining to school operation and situations of the school, that school head can actively communicate. Maria Luz T. Carlos said:

Together with the teacher, students and parents the school head must also learn the Mother Tongue so that if there are queries in all parties he can guide and help.

The challenge for the school heads to learn the Mother tongue is also emphasized by Amina S. Bandabala claiming that they should be always be ready for questions raised by the community in relation to K-12 specifically on the use of Sinug.

For the school head, the challenge for them is how to address every query of the parents or guardian living in the community with regard to the use of Mother Tongue in the K-12 curriculum Although most parents ask the teacher about it, there are really some who blame the school head regarding the implementation of Mother Tongue due to lack of orientation on the new curriculum.

Such challenge for school heads is also emphasized by Reckmar J. Abtong as he said below, that is, if there were ceremonies, orientation or any school activities/programs, the school heads are ready to use the Sinug. Abtong said:

On the part of the school head, they will not find it hard to communicate because, like for example, in our district we conflicted a Learning Partners Program wherein our school head served as the facilitator They facilitate learning to us with new approaches in which we can address it to our pupils School head could also help a lot on this matter.

However, there is a claim that there is only little challenge for the school heads since they are not directly concerned with the teaching. Teachers are the ones directly affected. The only challenge for school heads as claimed Tarhata L. Mohammad is to motivate the faculty forces to adhere to the Mother tongue. She pointed out:

There is lesser challenge on the part of the school heads because they are not directly affected with the use of Mother Tongue. Their challenge is how to ask their teachers to follow or use the Mother Tongue in lesson explanation.

Another challenge for school heads is pointed out by Carina A. Yusop saying:

It is a challenge on the part of the school head to inform the stakeholders regarding the use of Mother Tongue in school. Some parents said that Mother Tongue are already used at home and they need their children to learn to speak other languages (English & Filipino) that is the primary reason they sent them to school. They could not see the rationale of the use of Mother Tongue.

Based on the above idea of Yusop, the school heads are challenged to respond to possible sentiments of many personalities who are doubtful of the use of Mother tongue. The need to update these people so that the latter may get informed of the significance of the curriculum, thereby, minimizing doubts

The next is that of the claim of Regina Abdurahman that the school heads should give support to the teachers. Abdurahman said:

On the part of the school head it is a challenge for them to serve as a role model and give support to the teachers in the implementation of the use of Mother Tongue in order to uplift the quality education of the learners in the 21" century.

As to the view of Nurdiya E. Jingon, the school beads are challenged to supervise and see to it that the faculty members really use the Mother tongue. This means the school beads should not go against the use of Smug, they should just bow to its use because it is now implemented. Jingon said:

On the part of the school head it's his her task to monitor of the teachers are really using mother tongue as a medium of instruction inside the classroom.

Another challenge for the school heads is for them to assure the necessary materials for teacher's guide in teaching Likewise, the school heads are challenged to assure the competencies of faculty members. This is emphasized by Winnie Rose S. Dela Cruz as saying:

School head should provide the teachers necessary materials such as teacher's guides, learning materials for the teacher to find it interesting and motivating in teaching mother tongue as a subject. School head should also look into the capabilities or competencies of the teacher who will teach the subject (MT). The teachers must be knowledgeable on correct pronunciation or enunciation, and meaning of words. And that's what makes a challenge of the school head!

Further Clarification

For the first year of implementation of the said Mother Tongue, some of the school heads encounter problems with this because not all had attended seminars/trainings on

how Mother Tongue is used. School heads do not know how to address some queries of his faculty members due to lack of orientations. There are changes in the new curriculum. In fact, there some who ask their subordinates on how and what to do with those newly revised school forms. Sad to say, some school heads cannot answer it directly, or they could not help their teachers because they are not fully equipped with it. Luckily, things changed. After a year, the researcher guesses, school beads are fully geared with regards to the use of Mother Tongue. Because the BEAM in partnership with DepEd ARMM sent all the school heads for trainings/seminars for them to be aware what to do and how to do it.

Almost of the respondents got the same answer, they said that there is less challenge on the part of the school head because they are not directly affected. Who were really affected with the use of mother tongue were the classroom teachers. For the school heads who are native of the land, it has no problem. But the challenge is on the school heads who are not born here in Sulu and have little knowledge of the language it would be hard for them to understand and check on the Mother Tongue-based. How could they check their teachers if they themselves are not fluent to it?

Contribution of Mother Tongue for Quality Learning

Does the use of Mother Tongue (MT) bring positive impact on the quality of education? There is a perception that the MT (Sinug in Sulu) contributes a lot to the attainment of quality in education specifically in learning of the pupils. Some claim that it is increasingly obvious that the language of instruction at the beginning of one's education at such a crucial moment for future learning should be the mother tongue. In this chapter the opinions/ideas and perception of teacher respondents on the contribution of Mother tongue to quality learning are presented.

In this chapter, at the end of the presentation of the respondents' responses, there is one section titled Further Clarification stating the words of the researcher based on her viewpoint, experience and observation.

Maria Luz T. Carlos claimed:

In some aspects the use of MT facilitates learning especially in the presentation and explanation of terms which needs to be given focus so that students will get the idea needed by them. However, this is not true in other areas like in Mathematics because some terms used in Mother Tongue give children confusion, and it is more understood when used in English.

Based on the above perception of Carlos the MI is effective in some cases-like discussion and explanation of some lessons, but accordingly it is not suitable in other areas like mathematics It seems that many pupils get confuse and become more

confused in learning as far as mathematics is concerned Armina S. Bandahala reinforced such view. She said:

Science and Health is not yet included in the subject area in grade 1 For Mathematics, it is not applicable. Numerical terms that are translated 10 Bahasa Sug could not be easily understood by the pupils. So, when I explain and sense that they are having times in comprehending I automatically change the numerical terms to English language in which they are very good.

As I observed, Mother Tongue as a medium of instruction helps the pupils in understanding the lesson in Araling Panlipunan. They are capable of explaining things because they know they are allowed to express themselves using Bahasa Sug Pupils also interact, with each other if they happen to disagree on something. So it helps

Almost the same views are emphasized by Bandahala as she pointed out above. The Mother tongue is not suitable for numerical terms. This means they agree that this Sinug is good for other subjects' areas like Araling Panlipunan and some parts in science subject. However, Tarhata L. Mohammad perceived that the Mother tongue is also good in Mathematics as she said, "When we teach Mathematics, using MT, learners are more confident in giving reasons because they express their selves in their own dialect. But, this view of Mohammad is again in contrast to the view of Carina Yusop who gave the same view as that of Bandahala in the above statement. Yusop said:

In some ways, yes, but not all science terms can be translated to vernacular. In Mathematics it is not really suitable because there are also terms that are difficult for the learners to understand if it they written in Mother Tongue.

For Araling Panlipunan I must say "yes" because society is being tackled Pupils can easily express when they were using Mother Tongue.

That the Mother tongue is good in science and Araling Panlipunan and therefore that it contributes to quality learning is also pointed out below by Tarhata L. Mohammad who said:

For Science and Health understanding and concepts-skills association are the core of teaching-learning teaching- process. With the use of Mother Tongue in which learners use in the daily conversation they are more given the opportunity to clearly understand what have been discussed thus, facilitating learning. Say, for example, they will be given experiments pupils will be more confident to do it because instructions are in MT.

Araling Panlipunan is a subject where society is being discussed Learners can express themselves with ease and confidence when they use Mother Tongue.

The next view is again similar in some respects but different is some respects. This is stressed by Reckmar J. Abtong who said:

For Science and Health, "yes" it helps and facilitates learning. We discover new terminologies here most especially in naming the parts of the body and others. Pupils would really participate in learning through the use of MT. But, sometimes it is not necessary that we can translate all terms to Bahasa Sug. What is important we can direct to the pupils the learning that is at their level?

In Mathematics, and Araling Panlipunan using Mother Tongue it really facilitates learning. My pupils enjoyed a lot when I'm teaching them these 2 subjects. They themselves are actually translating the words from Bahasa Sug to English. So it helps a lot.

Such claim was reinforced by Regina Abdurahman stressing that the Mother tongue is also good in Science, Araling Panlipunan and Mathematics. Abdurahman said:

Mother Tongue as a medium of instruction in Science and Health, Mathematics, and Araling Panlipunan facilitates learning because the learners could be able to participate actively in the different activities conducted, their communication skills are being developed, and they gain self-confidence.

Likewise, Teacher A pointed out that the MT contributes a lot to quality learning in Science, Araling Panlipunan and even in Mathematics. Teacher A said:

For Science and Health, partly, Mother tongue is "yes" because, it helps the learners understand the lesson discussed for the day. At some point, "no," because there are some terms that are difficult to translate into Mother Tongue, Only to relate it to the concept.

Yes! Mother Tongue really is applicable in teaching Mathematics, especially if it talks about the operation to he used and of course, when making a scenario for problem.

Yes! It also facilitates learning when teaching Araling Panlipunan, because the teachers would be able to express their ideas understandably especially when you will just tell story of the history.

In addition, very similar perception is that of Nurdiya E. Jingon emphasizing the good impact of the Mother tongue for science education and Mathematics. Jingon said:

The use of Mother Tongue as the medium of instruction in Science and Health facilitates learning. In Science education, the communication of science concepts demands linguistic and conceptual knowledge. Therefore, both teachers and students

should communicate in their mother tongue, the language wherein they are comfortable and at ease in clearly expressing their ideas.

Using Mother Tongue in Mathematics as a medium of instruction also facilitates learning. Native language we speak may determine how our brain solves mathematical puzzle. Our mother tongue may influence the way problem solving circuits in our brains development.

Sa Araling Panlipunan mas madaling matuto ang mga mag-aaral kung gamit nila ang Mother Tongue dotul naipapahayag nila ang kanilang mga saloobin a ideya nang walang pag-aalinlangan dahil alam nila na tama ang kanilang iminumungkahi.

Abdurahman, Abtong, Teacher A and Jingon, as they pointed out above, assert that the Mother tongue is appropriate for science and Health, Mathematics and Araling Panlipunan This is partly in contrast to the perception of Carlos and Bandahala who claimed that in Mathematics the Mother tongue is not effective.

The next is the observation of Winnie S. Dela Cruz who stressed:

For Science, I should say for some instances, the pupils will understand easily using mother tongue as a medium of instruction, they participate actively once they understand the lesson through the use of Mother Tongue but there are also scientific terms that have no equivalent meaning in M.T.

I think not all of the terms or words in Mathematics can or should be taught or explained in Mother Tongue, because it only adds problem on the part of the teachers and the pupils.

In Araling Panlipunan, Mother Tongue is a big help for the learners because the words used in the textbook or even in teaching is in Filipino, come of the words are almost the same or nearly the same with the Mother Tongue.

Based on the observation or perception of Dela Cruz, the Mother tongue also brings contribution to quality learning in many subject areas, except perhaps in Mathematics in which MT is good in special cases only because not all terms in Mathematics could easily be translated to Sinug.

Further Clarification

In practice in most cases as observed by the researcher especially in the school where she is employed, Science and Health is taught in English though the teacher would use MT for emphasis. In Grade 1, 2 & 3, Science and Health is integrated in English and other learning areas but still it should use English as medium of instruction For Mathematics and Araling Panlipunan the researcher can say that using MT is of great

help for the school children, because they could express their ideas and they are not hesitant to participate So, with the use of MT in Araling Panlipunan really can help students to understand better the lesson.

The use of MT is important because the different Science skills or thinking skills cannot be fully be sharpened unless one uses his/her MT. If the pupils keep on using a foreign language to understand Science concept, then, they can only be at the low level of cognition in Science not at the high level of cognition. In other words, they can communicate fast if they use the language they usually understand easily Learners learn the concept easily, transfer skills and knowledge in their own little way from L1 (Mother Tongue) to 12 (Filipino) and lean 13 (English).

The skills acquired in the first language or mother tongue can be transferred to the second language. So, for example, if your child has developed good reading skills in MT de is likely to be able to apply these skills when reading English. One useful reading skill is the ability to guess the meaning of unfamiliar words from context. Another one is the ability to decide which new words in a text are important to look up in the dictionary and which words can safely be ignored. For this reason, it helps if you can encourage your child to read good fiction and non-fiction in her own language Similarly, the skills of being able to plan out a piece of writing or develop an argument in a persuasive essay can be applied in the second language once they have been learned in the first and so it will be applied in all learning areas.

Personally, teachers can do to produce quality learning. As educators, they need to do and implement religiously what they have learned from the seminars and training we had attended.

The researcher personally conclude that using MT as medium of instruction in most of the learning areas could facilitate learning and definitely would contribute to quality learning.

Conclusions

This study deals with the mother tongue (MT) in relation to how it is used in the teaching process. This also tackles its challenges and implications. The implementation of the use of MT is actually anchored to the K-12 Curriculum wherein teachers play a vital role in the learning of pupils Teachers need to adopt a variety of strategies that would facilitate learning in the classroom In many small group teaching situations, the role of the teacher is that of facilitator of learning, leading discussions, asking open- ended questions, guiding process and task, and enabling active participation of learners and engagement with ideas. It is where teachers encountered challenges.

The Mother Tongue is used in the explanation and discussion of the lesson. Also, it is used in drill or exercise and other activities in and outside the classroom. The fact that this mother tongue is used does not necessarily mean avoiding the use of English and Filipino In fact, in lesson planning, only English and Filipino are used, and the native language is not used.

Two of the challenges encountered by teachers are: (1) to learn many Tausug terms, to study terminologies in native language because it seems that in some cases some pupils are more aware than them about many unfamiliar terms, to study more because some teachers did not only learn from the modules and textbooks, but learn from their pupils most especially those who are living in a rural areas in which they commonly use Bahasa Sug at home, and (2) to translate Bahasa Sug into Filipino or English for the pupils to understand. Similarly, in the first place, the pupils are also challenged to learn the terms together with the teacher, (2) to strive hard to get familiar with the strange words in the Mother tongue for them to easily remember concepts in Sinug.

Moreover, the first four challenges faced by parents are (1) to learn together with their kids for them to follow up teaching at home, (2) to get involved in a similar way as their children do, parents should also act as teachers, only this is done at home, parents are challenged to help their children as regards uncommon terms in Tausug, (3) to help the teachers, and (4) to continuously establish harmonious relationship with their children as regards matters pertaining to learning of their children.

As for school beads, the following are challenges:

(1) To also learn the Mother tongue. One of the challenges encountered by the school heads is that they should also learn the Mother tongue just as how teachers, pupils and parents learn it. This is because the school head is a major part of the school forces.

(2) It is also a challenge for them to address every query of the parents or guardian living in the community with regard to the use of Mother Tongue in the K-12 curriculum.

(3) To motivate the faculty forces to adhere to the Mother tongue.

(4) The school heads are challenged to respond to possible sentiments of many personalities who are doubtful of the use of Mother tongue. The need to update these people so that the latter may get informed of the significance of the curriculum, thereby, minimizing doubts.

(5) The school heads should give support to the teachers, the school head It is a challenge for them to serve as a role model and give support to the teachers in the implementation of the use of Mother Tongue in order to uplift the quality education of the learners in the 21" century.

(6) The school heads are challenged to supervise and see to it that the faculty members really use the Mother tongue. This means the school beads should not go against the use of Sinug, they should just bow to its use because it is now implemented.

(7) To assure the necessary materials for teacher's guide in teaching.

(8) The school heads are challenged to assure the competencies of faculty members.

From the findings and conclusions derived from the study, the following recommendations are suggested: (1) the DepEd should provide enough textbooks and teachers manual to teachers and pupils as well as provide activity sheets and workbooks for pupils to ensure quality learning outputs in the use of MT, (2) core subjects must be given more time in order for the pupils to gain mastery of the skills taught, and (3) in the use of MT in teaching most of the areas, every Division should be the one to craft the lesson guides and manuals of teachers to make certain that the language use in that particular place is the one use as medium of instruction in the classroom.

Likewise, the following are suggested areas of future research (1) The Use of Mother Tongue from Grade I-III Its Implication for Private Intermediate Schools, (2) K-12 A: Challenge for Curriculum Support System, and (3) K-12: Its Impact on the Senior High School Subjects.

Compliance with Ethical Standards

First, a thorough informed consent form explaining the trial's goals, methods, potential risks and benefits, and confidentiality regulations was sent to each participant. Furthermore, since the personal information of the responders had no effect on the trial's results, all trial data points were painstakingly anonymized. To preserve participant privacy, data collection was done in a private environment, and the gathered information was kept in a safe archive that the researchers alone could access. Notwithstanding the disparities in viewpoints and opinions, each participant was accorded respect.

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TITO: ANG NABUONG TASADONG INTERAKTIBONG TALAKAYANG OPLAN PARA SA BAITANG 11

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ABSTRACT

Ang pangunahing nagtulak sa pag-aaral na ito ay ang pagbuo at pagpapatunay ng isang interaktibong biswal na kagamitang pampagtuturo para sa Asignaturang Filipino ang TITO: Ang Nabuong Tasadong Interaktibong Talakayang Oplan para sa baitang 11. Ang ginamit na pamamaraan ng pananaliksik na ito ay Descriptive Developmental at Design na naglalayong siyasatin ang balidasyon at pagpapatibay ng ginawang Interaktibong Biswal para sa mga mag-aaral ng baitang 11 sa asignaturang Filipino. Ang mga respondante ng pag-aaral, na pinili sa pamamagitan ng Purposive Random Sampling Technique, na mayroong dalawangdaang (200) mag-aaral sa baitang 11 at labing-anim (16) na guro mula sa Pagbilao National High School sa Dibisyon ng Pagbilao, lalawigan ng Quezon. Gamit ang standardized questionnaire na inangkop na instrumento, ang resulta ng Cronbach Alpha coefficient ay 0.940 para sa validity at 0.884 para sa acceptability. Gamit ang four-point Likert Scale, weighted mean, percentage distribution at correlated t-test. Ang mga natuklasan ay nagsiwalat na sa antas ng balidasyon na batay sa pagtatasa ng mga respondante sa mga layunin, konsepto, paksa, panuto, pagsasanay at ang repleksyon ay Napakabisa. Samantala, ang nakamit na antas ng pagtanggap ayon sa nagagamit, katumpakan, kaangkupan, kagamitan, at kahusayan ay Lubos na Katanggap-tanggap. Nagkaroon ng makabuluhang pagkakaiba sa antas ng akademikong pagganap ng mga mag- aaral sa paghahambing ng mga mean na marka ng mga mag-aaral sa panahon ng panimula at panapos na pagtataya. Mahihinuha na ang nabuong TITO: Tasadong Interaktibong Talakayang Oplan sa Filipino 11 ay maliwanag na nagpapataas ng pagkatuto ng mag-aaral mula sa Baitang 11 batay sa pagkakaiba ng kanilang pagganap sa panimula at panapos na pagtataya. Para sa awtput ng pag-aaral, ibinahagi ang nabuong interaktibong biswal para sa Baitang 11 upang higit

na mapahusay ang pagpapatupad ng kurikulum at magbigay-daan sa mas epektibong pagkatuto ng mga mag-aaral.

Susing Salita: *Nabuong Interaktibong Biswal, Filipino 11, Kagamitang Pampagtuturo*

PANIMULA

Dinamiko ang pagtuturo. Isa sa napakahalagang salik sa pagkatuto. Ito ay proseso ng pagpapadali ng pagkatuto. Sa modernong panahon ang pagtuturo ay maaaring mapadali o mas mapahirap datapwat karamihan sa mga kaguruan ay nagkakaroon ng kahirapan sa pagbuo ng interaktibong. Isang malaking Isang malaking hamon sa mga guro ang umisip at lumikha ng mga makabagong paraan o estratehiya sa pagtuturo ng Filipino upang mapukaw ang atensyon ng mga mag-aaral. Sa ika-21 siglo, ang mga metodo na ginagamit ng mga guro ay nagkaroon ng malaking pagbabago na umaangkla sa mga makabagong teknolohiya upang mas maging interaktibo at buhay ang talakayan.

Ang paggamit ng interaktibong biswal ay isang pinakamabisang kasanayan sa pagpapakita ng mga impormasyong malalawak ng sa ganoo'y ay masmaunawaan ng mabuti ang isang paksa. Sa pamamagitan nito nagiging aktibo ang mga makikinig sa talakayin isinasaad ng guro sa isang talakayan. Isa sa positibong adbentahe ng interaktibong biswal ay ang pagtuturo ng mga asignaturang literatura na magagamit sa pagtuturo ng Filipino. Ang interaktibong biswal ay isa sa mga pinakabagong teknolohiyang ginagamit upang magbigay ng mga impormasyon, mensahe, at karanasan sa mga tao. Ito ay nagbibigay-daan sa mga tao na mag-eksperimento, makisangkot, at magpakadalubhasa sa pamamagitan ng mga digital na interface.

Sa paglipas ng mga taon, lumago ang teknolohiya ng interaktibong biswal mula sa mga simpleng flash games at mga website, hanggang sa mga mas kumplikadong aplikasyon tulad ng mga immersive na virtual reality experiences at mga artificial intelligence-powered na chatbots. Sa ngayon, maraming mga kumpanya, organisasyon, at mga indibidwal ang gumagamit ng mga interaktibong biswal upang magbigay ng mga karanasan sa kanilang mga kliyente, tagasubaybay, at mga bisita. Halimbawa, ang mga museo at mga art exhibit ay naglalagay ng mga interaktibong biswal upang mapaganda ang karanasan ng kanilang mga bisita. Sa pamamagitan ng paggamit ng mga digital na teknolohiya, ang mga bisita ay maaaring mag-explore sa mga konsepto at karanasan na hindi magagawa sa tradisyonal na paraan. Ang interaktibong biswal ay hindi lamang limitado sa mga artistic na aplikasyon. Ito ay ginagamit din sa mga larangan ng edukasyon at negosyo. Halimbawa, sa mga eskuwelahan, ang mga guro ay maaaring gumamit ng mga interaktibong biswal upang magbigay ng mas immersive na karanasan sa kanilang mga estudyante, maging sa aspektong pagnenegosyo, ang mga interaktibong biswal ay ginagamit upang magpakita ng mga produkto at serbisyo sa mas engaging na paraan.

Bukod pa rito, ang edukasyon ay isang mahalagang sangay sa ating buhay. Ito ang nagbibigay daan upang maabot natin ang ating mga pangarap at magkaroon ng magandang kinabukasan. Ngunit hindi lamang sa tradisyunal na paraan ng pagtuturo na binabasa lamang ang mga teksto at pinaliit na larawan, ang edukasyon ay patuloy at patuloy na nagbabago at umaangkop sa mga teknolohiyang nagbabago sa ating lipunan. Isa sa mga pinakabago at popular na teknolohiya ay ang interaktibong biswal.

Ang interaktibong biswal ay isang uri ng teknolohiya na nagbibigay ng interaktibong karanasan sa mga mag-aaral sa pamamagitan ng mga larawan, bidyo, animeysyon at iba pa. Ang teknolohiyang ito ay hindi lamang makapagpapabago sa paraan ng pagtuturo, kundi nakapagpapabago rin sa paraan ng pagkatuto ng mga mag-aaral. Nakatutulong ito sa pagpapalawak ng kanilang kaisipan at pag-unawa sa mga konsepto at ideya. Isa sa mga benepisyo ng interaktibong biswal ay ang pagpapalawak ng kaalaman ng mga mag-aaral. Sa halip na puro pagsasabi lamang ng mga guro, may mga interaktibong biswal na nagbibigay ng mga larawan at bidyo upang mas maintindihan ng mga mag-aaral ang mga konsepto at ideya. Halimbawa, kung nagtuturo ang guro ng mga galaw sa pisikal na siyensya, maaaring magpakita ng bidyo ng mga halimbawa upang mas maintindihan ng mga mag-aaral kung paano gumagalaw ang mga bagay sa paligid nila. Sa ganitong paraan, mas nakapaglalaan sila ng oras at pansin sa pag-intindi sa mga kaisipan at hindi sa pagpakatapos ng mga salita na hindi nila naiintindihan. Batay sa isang tagapagbuo ng interaktibong biswal Datawrapper (2023), Nagbibigay ito ng mga tampok at tool na ginagamit sa pagbuo ng mga grap, tsart, mapa, at iba pang mga biswal. Mayroon din itong kakayahan na mag-import ng mga datos mula sa iba't ibang mga mapagkukunan. Kung saan nakatutulong sa paghihikayat ng mag-aaral sa talakayan.

Ayon kay Bock (2023), ang teknolohiyang biswal ay may napakalaking hatak sa pagbabago ng edukasyon ito ay nagpapataas ng karunungan sa impormasyon at datos sa mga talakayan na inihahatid sa pamamagitan ng biswal na kaparaanan para mga mag-aaral. Isa pang benepisyo ng interaktibong biswal ay ang pagpapaunlad ng kasanayan sa teknolohiya ng mga mag-aaral sa kasalukuyang panahon.

Ang teknolohiya ay hindi na lamang bahagi ng pang-araw-araw na buhay, kundi isa na rin itong pangangailangan upang makasabay sa pag-unlad ng ating lipunan. Sa pamamagitan ng paggamit ng interaktibong biswal, nagkakaroon ang mga mag-aaral ng pagkakataon upang masanay sa paggamit ng mga teknolohiyang ito at matuto ng mga kasanayan na nakatutulong sa kanilang hinaharap na propesyon. Gayunpaman, may mga pag-aalinlangan din sa paggamit ng biswal na teknolohiya sa edukasyon. Isa sa mga ito ay ang kalidad ng impormasyon na ibinibigay. Kailangang tiyakin ng mga guro na tama at makatotohanang impormasyon ang ibinibigay sa mga mag-aaral. Kailangan ding matukoy ng mga guro kung saan dapat gamitin ang biswal na teknolohiya sa pagtuturo. Ayon kay Asad et al. (2021), ang mga instruksyunal na pamamaraan at pamamaraan sa pagtuturo ay may pagkakatulad.

Ang istratehiya sa pagtuturo, sa praktikal na paraan ay magkatulad din, anuman ang mga gawain at ang takbo ng impormasyong nagmumula sa guro at mga mag-aaral.

Kahit na iba pang aspekto ay maaring magkaroon ng pagkakaiba, wala pa ring tutumbas sa proseso ng pagkatuto na binibigay ng guro. Kailangan ding maging handa ang mga guro na magturo nang may kaalaman sa paggamit ng mga biswal na teknolohiya.

Sa pamamagitan ng paggamit ng biswal na teknolohiya, ang mga guro rin ay nagbibigay ng mga makabagong instrumento sa mga mag-aaral upang magamit nila ito sa pag-aaral. Ang mga biswal na teknolohiya ay may kakayahang magbigay ng mas malinaw na konsepto sa mga mag-aaral. Sa kabuuan, ang biswal na teknolohiya ay isang magandang pagsasanay sa mga mag-aaral. Ito ay nakatutulong sa mga mag-aaral sa kasanayang pakikinig at pagbibigay pokus sa isang talakayan.

Paglalahad ng Layunin

Nilalayon ng pag-aaral na ito na makapaghanda at makapagtaya ng isang TITO: Tasadong interaktibong talakayang oplan na gagamitin ng mga mag-aaral para sa Baitang 11 ng Pagbilao National High School. Inaasahang makatutulong ang Interaktibong biswal na ito upang matugunan ang kasalatan sa mga kagamitang panturo na nakaangkla sa bagong kurikulum ng K to 12 at tumugon sa pangangailangan ng pagtuturo ng asignaturang Filipino.

Ang sumusunod na layunin ay pagsusumikapang makamit:

1. Makabuo ng Tasadong Interaktibong Talakayang Oplan sa ilang panitikan ng asignaturang Filipino ng Baitang 11 na umiiral sa kurikulum ng K-12.
2. Mapagtibay ang balidasyon sa kabisaan at pagtanggap sa Interaktibong Biswal na binuo.
3. Pagtataya sa pamamagitan ng pasimula at panapos na pagsusulit hinggil sa Interaktibong Biswal na nabuo.

METHODOLOGY

Ang pag-aaral na ito ay gumamit ng “Descriptive Developmental” na pamamaraan ng pananaliksik upang matukoy ang balidasyon at pagpapatibay ng ginawang Interaktibong Biswal para sa mga mag-aaral ng Baitang 11 sa asignaturang Filipino.

Ginamit din ng mananaliksik ang Design and Development Research Method. Ito ay binigyan kahulugan nina Jaya et. al (2021), ang DDR ay isang pangangailangan para sa mga guro upang mapabuti ang kanilang pagtuturo at magamit ang mga modernong teknolohiya sa pagtuturo. Ang DDR ay naglalayong magbigay ng mga solusyon sa mga suliraning pang-edukasyon sa pamamagitan ng paglikha ng mga bagong materyales at estratehiya sa pagtuturo.

Ang mga respondante ng pag-aaral, na pinili sa pamamagitan ng Purposive Random Sampling Technique, na mayroong dalawangdaang (200) mag-aaral sa baitang 11 at labing-anim (16) na guro mula sa Pagbilao National High School sa Dibisyon ng Pagbilao, lalawigan ng Quezon.

Ang pag-aaral ay gumamit ng isang pinagtibay na instrumento mula sa Opeña (2023) na pananaliksik na pag-aaral. Binubuo ng dalawang bahagi ang instrumento ng pananaliksik para sa pagsusuri ng mga eksperto. Sinuri ng Bahagi 1 ang bisa ng mga kagamitang panturo para sa Baitang 11 Filipino-Komunikasyon at Pananaliksik sa Wika at Kulturang Pilipino. Ginamit ng mananaliksik ang talatanungan para sa mga respondante, ito'y upang mataya ang kabisaan ng interaktibong biswal sa layunin, konsepto, paksa, panuto, pagsasanay, at repleksyon na nakapaloob ang paksang ginamit sa tulong ng pinakitang iskalang sa ibaba.

Puntos	Karampatang Puntos	Interpratasyon
4	3.50 – 4.00	Napakabisa (N)
3	2.50 – 3.49	Mabisa (M)
2	1.50 – 2.49	Di-gaanong Mabisa (DM)
1	1.00 – 1.49	Walang Bisa (WB)

Sinuri naman ng Bahagi 2 ang pagiging katanggap-tanggap ng mga materyales sa pagtuturo para sa Filipino 11. Ginamit ang iskala sa pag-aaral na ito upang maging ganap, katanggap-tanggap, at mailahad amg antas ng pagtanggap sa Interaktibong biswal batay sa Nagagamit, katumpakan, kaangkupan, kagamitan, at kahusayan ng nagawang interaktibong biswal nang sa ganoon ay magkaroon ng batayan sa pagpapakahulugan.

Puntos	Karampatang Puntos	Interpratasyon
4	3.50 – 4.00	Lubos na Katanggap-tanggap (LNK)
3	2.50 – 3.49	Mas Katanggap-tanggap (MK)
2	1.50 – 2.49	Katanggap-tanggap (K)
1	1.00 – 1.49	Hindi Katanggap-tanggap (HK)

Bukod rito, ang pretest at posttest para sa unang kwarter ay ibinigay sa mga tagatugon upang matukoy ang makabuluhang pagkakaiba sa pagitan ng panimula at panapos na pagtataya. Ang mga resulta ng pagganap ay binibigyang kahulugan gamit ang mga antas ng kasanayan.

Pinaghanguan: Kagawarang Pangkautusan Blg 8, S. 2015
(Panuntunan sa pansilid na pagtataya sa k-12 Kurikulum)

Level	Percentage
Lubhang Kalugod-lugod	90-100
Nakalulugod	85-89
Katamtaman/Bahagya	80-84
Maaari nang tanggapin	75-79
Hindi nakamit ang inaasahang produkto/resulta	Below 75

Sa pagpapaunlad at balidasyon ng kagamitang pangmag-aaral ng baitang 11 sa asignaturang Filipino sa Dibisyon ng Pagbilao, gumamit ang mananaliksik batay sa hinihingi ng pag-aaral ang istandardisadong talatanungan sa modelo ng ADDIE. Pagkatapos ipinasa ng mananaliksik ang pinaunlad na talatanungan sa tagapayo at mga dalubhasa sa asignaturang Filipino upang ihingi ng mungkahi para sa anumang pagbabago at pagwawasto muli ng mga katangungan. Ang wastong gamit ng mga salita, pangungusap at pagkakaakma ng mga tanong ay sisiyasatin na mabuti ng mga dalubhasa bago ipasagot ng mananaliksik. Sa pagpapatunay ng mga kagamitang panturo para sa Baitang 11 Filipino, ginamit ng mananaliksik ang isang standardized questionnaire para sa pagsusuri ng mga eksperto. Ang ginamit na standardized questionnaire ay inangkop na instrumento mula sa isang pag-aaral na ginawa ni Opeña (2023). Ang Cronbach Alpha coefficient na resulta ng instrumento ay 0.940 para sa validity at 0.884 para sa acceptability. Upang makasiguro na magagamit ang hiniram na talatanungan ay una, ang pagpasasabi sa may-ari ng tesis na si G. Nick Lester M. Opeña na may titulong “KOMU: Ang Nabuong Tunog-Biswal Modyul Sa Filipino 11” ang pagpapaalam na gagamitin ang ginawa at balidong talatanungan ng mga eksperto na magamit sa kasalukuyang pananaliksik at Pangalawa, ang pagbibigay ng liham sa tagapayo ng tesis at dekano ng School of Graduate Studies sa pag-aaprubado bilang paggamit ng hiniram na talatanungan.

Upang mapadali ang pagsusuri minabuti ng mananaliksik na bumuo ng isang sistimatikong pamamaraan tulad ng pagsasaayos ng hiniram na talatanungan at pagkatapos ay ipinakita sa kanyang tagapayo. Pinakamabisang paraan nang Balidasyon ng mga instrumento. Sa pamamahagi ng talatanungan ay nagtungo ang mananaliksik sa tanggapan ng punong guro ng Pagbilao National High School upang humingi ng pahintulot na gamiting tagatugon ang mga guro sa Filipino at mga mag-aaral sa ika-11 baitang. Pagkatapos nito muling kinuha ang pinasagutang na talatanungan sa mga mag-aaral. Ang mga datos na nakalap ay binaha-bahagi at pinag-aralang mabuti ayon sa istadistikong gagamitin. Maisasagawa nang mahusay ang pagtatally at pagkokompyut sa tulong ng istatistiko na mailalahad ng wasto ang resulta batay sa makakalap na datos at magagawa niyang malapatan ng tamang pagsusuri na sinuportahan ng mga makabuluhang ideya kaugnay sa interpretasyon o pagkahulugan kanyang nabuo.

Gamit ang four-point Likert Scale, weighted mean, percentage distribution at correlated t-test.

RESULTS AND DISCUSSION

Unang Layunin: Pagbuo ng Interaktibong biswal sa ilang panitikan ng asignaturang Filipino sa Baitang 11 baitang na umiiral sa kurikulum ng K-12.

Ang mga nabuong kagamitang panturo sa Baitang 11 sa Filipino ay ang interaktibong biswal para sa unang kwarter na tumatalakay sa batayang konsepto at paksa sa Komunikasyon at Pananaliksik sa Wika at Kulturang Pilipino. Bukod dito,

mayroon itong impormasyon at praktikal na mga pagsasanay batay sa kanilang pang-araw-araw na buhay at kasalukuyang sitwasyon. Sa huli, ginamit ang *Inclusion, Diversity, Equity, and Accessibility* (IDEA) format sa mga nailikhang mga modelong ito upang gawing mas interesado, madaling maintidihan ang mga paksa, at magamit ng mga mag-aaral sa kanilang pang-araw-araw na sitwasyon.

Tulad ng sinabi ni Hasibuan et al. (2019), mahalaga ang mga materyales sa pag-aaral sa kasalukuyang sitwasyon dahil nakatutulong din ito sa mga mag-aaral na maging praktikal, mapabuti ang kanilang mga kakayahan sa pagsasaayos ng mga problema, at maging malaya sa pag-aaral. Kaya't direkta nitong naaapektuhan ang pag-aaral ng mga mag-aaral.

Ikalawang Layunin: Pagtibayin ang balidasyon sa kabisaan at pagtanggap sa Interaktibong biswal na binuo.

Sinuri ng mga eksperto ang pangkalahatang bisa at pagtanggap ng mga nabuong kagamitang panturo sa Baitang 11 na binuo ng mananaliksik gamit ang paunang natukoy na pamantayan tulad ng sumusunod: Layunin, Konsepto, Paksa, Panuto, Pagsasanay, at Repleksyon para sa Balidasyon; at Nagagamit, Katumpakan, Kaangkupan, Kagamitan, at Kahusayan para sa Pagtanggap sa nabuong Kagamitang Pampagtuturo (Interaktibong biswal) sa Filipino 11 gamit ang panukat na 1 hanggang 4, na 1 ang pinakamababa at 4 naman ang pinakamataas.

2.1 Antas ng Balidasyon
2.1.1 Layunin

Talahanayan 2.1.1
Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng ika-11 Baitang ayon sa Layunin

Tagapagpahiwatig (Indicator) ayon sa Layunin		VI	Kaayusan
May kaugnayan sa paksa (Tiyak at malinaw)	3.72	N	1
Ispesipiko o Angkop at malinaw ang pahayag	3.22	M	6
Nasusukat	3.56	N	3.5
Nagagawa	3.61	N	2
Angkop ang kinalabasan	3.44	M	5
Natatapos sa itinakdang oras	3.56	N	3.5
Pangkalahatang Pagtatasa	**3.52**	**N**	

Legend: 3.50 – 4.00 Napakabisa (N) 1.50 – 2.49 Di-gaanong Mabisa (DM)
2.50 – 3.49 Mabisa (M) 1.00 – 1.49 Walang Bisa (WB)

Ang **Layunin** ay nakakuha ng **Napakabisa (3.52)** sa antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng ika-11 Baitang. Sa karagdagan, ang mga tagapagpahiwatig na “May kaugnayan sa paksa (Tiyak at malinaw)” ang nakakuha ng pinakamataas na mean na **3.72** na may berbal na interpretasyon na **Napakabisa** habang

ang tagapagpahiwatig na “Ispesipiko o Angkop at malinaw ang pahayag” ang nakakuha ng pinakamababang mean na **3.22** at may berbal na interpretasyon na **Mabisa**.

Ipinahiwatig nito na ang Interaktibong biswal ng Baitang 11 ayon sa Layunin ay Lubhang mabisa. Ang mga resulta ay nagpakita na ang mga layunin ay may kaugnayan sa paksa at nakahanay sa mga pinakamahalagang kasanayan sa pag-aaral. Ang mga layunin sa pagkatuto ay ginamit upang gabayan ang mga mag-aaral habang ginagawa nila ang kurso, at upang masuri ang kanilang pag-unlad sa pag-aaral. Bilang karagdagan, ang mahusay na mga layunin sa pag-aaral ay nagbibigay ng gabay para sa mga mag-aaral kapag nag-aaral muli gamit ang mga materyales at naghahanda para sa mga pagtatasa. Panghuli, ang mga layunin sa pag-aaral ay ang pinakamakapangyarihang sangkap ng kagamitang panturo kung ang mga ito ay tiyak, malinaw na sinabi, naaaksyunan at nasusukat.

Gaya ng nakasaad sa pag-aaral nina Kristidhika et al. (2020), na may kontekstwal na pagtuturo at pagkatuto, ang layuning maayos ay nakatulong sa mga mag-aaral na maunawaan ang mga ideya, at malinaw sa mga mag-aaral ang layunin ng aralin. Higit pa rito, maaaring mapabuti ang pag-unawa sa konsepto ng mga mag-aaral sa pamamagitan ng pagtulong sa kanila na i-ugnay ang layunin sa mga aralin, kung saan matututo ang mga mag-aaral na i-ugnay ito sa konteksto ng kanilang totoong buhay. Ayon din sa pag-aaral nina Ojating (2022), ang pagkakaroon ng malinaw na mga layunin sa pagtuturo ay nagbibigay ng gabay at balangkas sa guro at mag-aaral para sa kanilang mga gawain sa loob ng klase. Ito ay nagpapakita ng direksyon ng pagtuturo at nagtatakda ng mga inaasahang tagumpay o kinalabasan. Kapag may malinaw na layunin, mas nagiging masigla at maayos ang proseso ng pagtuturo at pagkatuto.

Talahanayan 2.1.2

Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Konsepto

Tagapagpahiwatig (Indicator) ayon sa Konsepto		VI	Rank
Nagbibigay ng saloobin at ideya tungkol sa mga Gawain.	3.44	M	5
Nagbibigay ng pagbabalik-tanaw sa konsepto at impormasyon tungkol sa paksa na kailangan solusyonan	3.56	N	2.5
Nakakapukaw sa atensiyon ng mga mag-aaral	3.72	N	1
Nagaganyak ang mga mag-aaral na sagutan ang mga gawain.	3.50	N	4
Nakakamit ang layunin ayon sa ginamit na aplikasyon	3.56	N	2.5
Pangkalahatang Pagtatasa	**3.56**	**N**	

Legend: 3.50 – 4.00 Napakabisa (N); 2.50 – 3.49 Mabisa (M); 1.50 – 2.49 Di-gaanong Mabisa (DM); 1.00 – 1.49 Walang Bisa (WB)

Ang **Konsepto** ay nakakuha ng **Napakabisa (3.56)** ang antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang mga

tagapagpahiwatig na “Nakakapukaw sa atensiyon ng mga mag-aaral” ang nakakuha ng pinakamataas na mean na 3.72 na may berbal na interpretasyon na **Napakabisa** habang ang tagapagpahiwatig na “Nagbibigay ng saloobin at ideya tungkol sa mga Gawain” ang nakakuha ng pinakamababang mean na 3.44 at may berbal na interpretasyon na **Mabisa**.

Batay sa talahanayan ang Interaktibong biswal ng Baitang 11 ayon sa Konsepto ay may Mataas na Bisa. Ang resulta ay nagpakita na ang Konsepto ay may kaugnayan sa paksa, layunin at nakahanay sa mga pinakamahalagang kasanayan sa pag-aaral. Ang mga konsepto ay pundamental sa proseso ng pagkatuto dahil ito ang nagpapabukas daan sa malalim na pang-unawa, pagkakaugnay ng kaalaman, at pagsasanay sa kritikal na pag-iisip.

Ayon kina Kumpulainen et al. (2023), napatunayan nila na ang interaktibong biswal ay epektibong paraan sa pagtuturo ng kumplikadong konsepto sa agham at teknolohiya. Lumitaw na ang paggamit ng mga interaktibong biswal ay nakakapagpababa ng antas ng panghihina ng loob sa pag-aaral at nakatutulong sa mga mag-aaral na magkaroon nang mas malalim na pag-unawa sa mga konsepto. Bukod pa rito, ayon kina Akhvlediani, at Lataria (2021), ang mga konsepto na ito ay naglalaman ng mga ideya at impormasyon na mahalaga para sa mga mag-aaral, at ang pagpili ng tamang pamamaraan ng pagtuturo ay maaaring makatulong upang mapukaw ang kanilang atensyon at maitaguyod ang masiglang pakikipag-ugnayan sa kanilang pag-aaral.

Talahanayan 2.1.3
Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Paksa

Tagapagpahiwatig (Indicator) ayon sa Paksa		**VI**	**Rank**
Pagkasunod-sunod ayon sa Gabay Pangkurikulum	3.56	N	1.5
Makatotohanang pagsasabuhay/pagsasatao	3.28	M	5
Nakatutugon sa pangangailangan ng mag-aaral	3.39	M	4
Naglalahad ng agad na pag-unawa at ideya sa mga gawaing pagkatuto.	3.50	N	3
Nagpapakita ng kaligirang pangkasaysayan ng paksang inilahad.	3.56	N	1.5
Pangkalahatang Pagtatasa	**3.46**	**M**	

Legend: 3.50 – 4.00 Napakabisa (N) 1.50 – 2.49 Di-gaanong Mabisa (DM)
2.50 – 3.49 Mabisa (M) 1.00 – 1.49 Walang Bisa (WB)

Ang **Paksa** ay nakakuha ng **Mabisa (3.46)** ang antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang mga tagapagpahiwatig na “Pagkasunod-sunod ayon sa Gabay Pangkurikulum at Nagpapakita ng kaligirang pangkasaysayan ng paksang inilahad” ay parehas na nakakuha ng pinakamataas na mean na 3.56 na may berbal na interpretasyon na **Napakabisa** habang ang tagapagpahiwatig na “Makatotohanang pagsasabuhay/pagsasatao” ang nakakuha ng pinakamababang mean na 3.28 at may berbal na interpretasyon na **Mabisa**.

Ipinahihiwatig nito na ang Interaktibong biswal sa Baitang 11 ay may mataas na bisa sa usapin ng Paksa. Ipinahihiwatig ng mga resulta na ang mga paksang kasama sa kontekstwalisasyon ng mga materyales sa pagtuturo ay nakahanay sa kasalukuyang kurikulum at ang mga paksa ay ang pinakamahalagang kakayahan ng mag-aaral. Ang mga materyales sa pagtuturo ay nagbibigay ng pangunahing impormasyon na mararanasan, matututunan, at ilalapat ng mga mag-aaral sa kurso. Samakatuwid, ang mga naturang materyales ay dapat na maingat na pinaplano, pinipili, isinasaayos, pinipino, at ginagamit sa isang kurso para sa pinakamalaki na epekto. Ang pagpaplano at pagpili ng mga materyales sa pagtuturo ay dapat isaalang-alang ang lawak at lalim ng nilalaman upang ang pag-aaral ng mag-aaral ay mapabuti.

Binanggit nina Akhtar et al. (2022). ang pagkakahanay ng kurikulum at mga materyales sa pagtuturo ay isang kritikal na aspeto ng edukasyon na naglalayong mapabuti ang resulta ng pagkatuto ng mga mag-aaral. Ang pagkakaugnay ng mga ito ay nagbibigay- daan sa mas malalim na pang-unawa at mas mataas na antas ng pagganap ng mag-aaral. Kapag maayos na nakatugma ang kurikulum sa mga materyales sa pagtuturo, naihahatid nang mas epektibo ang mga pangunahing konsepto at kasanayan sa pag-aaral.

Talahanayan 2.1.4
Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Panuto

Tagapagpahiwatig (Indicator) ayon sa Panuto		VI	Rank
Pangkaraniwan at malinaw	3.44	M	2.5
Madaling sundin ang panuto	3.44	M	2.5
Maayos ang pagkakasunod-sunod	3.33	M	4.5
Magagawa kahit mag-isa lang	3.33	M	4.5
Masusundan kahit hindi ginagamitan ng teknolohiya	3.56	N	1
Pangkalahatang Pagtatasa	**3.42**	**M**	

Legend: 3.50 – 4.00 Napakabisa (N) 1.50 – 2.49 Di-gaanong Mabisa (DM)
2.50 – 3.49 Mabisa (M) 1.00 – 1.49 Walang Bisa (WB)

Ang **Panuto** ay nakakuha ng **Mabisa (3.42)** sa antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Ito ay nakakuha ng pangkalahatang pagtatasa na na may berbal na interpretasyon na. Sa karagdagan, ang mga tagapagpahiwatig na “Masusundan kahit hindi ginagamitan ng teknolohiya” ang nakakuha ng pinakamataas na mean na 3.56 na may berbal na interpretasyon na **Napakabisa**, habang ang tagapagpahiwatig na “Maayos ang pagkakasunod-sunod” at “Magagawa kahit mag-isa lang” ay parehas na nakakuha ng pinakamababang mean na 3.33 at may berbal na interpretasyon na **Mabisa**.

Makikita sa mga resulta na ang talakayang biswal ayon sa Panuto ay Mabisa. Ayon sa resulta, ang panuto ay may tiyak na adhikain ng aralin o asignatura. Ito ay tumpak, malinaw, makabuluhan, maayos ang pagkakasunod-sunod at may kaugnayan sa mga aralin sa Filipino. Nagbibigay ito ng karagdagang impormasyon at pag-unawa sa mga konsepto at kaganapan ng aralin. Bukod pa rito, ang panuto ay isang mahalagang

kasangkapan upang higit pang mahasa ang kritikal na pag-iisip at analitikal na kakayahan ng mga mag-aaral.

Ayon kina Pollock at Tolone (2020), ang panuto ay dapat na direktang nakadikit sa mga pamantayan; bawat guro ay may awtonomiya na magdisenyo ng mga aralin, pumili ng mga mapagkukuhanan at iba-iba ang mga paraan ng paggawa ng pagtataya. Ang pagbibigay ng malinaw na mga panuto sa mga mag-aaral ay maaaring matiyak na ganap nilang nauunawaan kung ano ang kailangan nilang gawin upang makamit sa iyong silid-aralan.

Talahanayan 2.1.5

Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Pagsasanay

Tagapagpahiwatig (Indicator) ayon sa Pagsasanay		VI	Rank
May kaugnayan sa Layunin	3.39	M	5
Akma sa abilidad/kakayahan ng mag-aaral)	3.44	M	3.5
Gumamit ng dayalekto/salita na abot sa kaalaman at kakayahan ng mag-aaral	3.44	M	3.5
Angkop sa lebel nang kaalaman ng mag-aaral	3.56	N	1.5
Mapaunlad ang kasanayan ng mag-aaral sa pag-unawa at pagbasa.	3.56	N	1.5
Pangkalahatang Pagtatasa	**3.50**	**N**	

Legend: 3.50 – 4.00 Napakabisa (N) 1.50 – 2.49 Di-gaanong Mabisa (DM)
2.50 – 3.49 Mabisa (M) 1.00 – 1.49 Walang Bisa (WB)

Ang **Pagsasanay** ay nakakuha ng **Napakabisa** (**3.50)** sa antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Ito ay nakakuha ng pangkalahatang pagtatasa na **3.50** na may berbal na interpretasyon na **Napakabisa**. Sa karagdagan, ang mga tagapagpahiwatig “Angkop sa lebel nang kaalaman ng mag-aaral” at “Mapaunlad ang kasanayan ng mag-aaral sa pag-unawa at pagbasa” ay parehas na nakakuha ng pinakamataas na mean na 3.56 na may berbal na interpretasyon na **Napakabisa** habang ang tagapagpahiwatig na “May kaugnayan sa Layunin” ang nakakuha ng pinakamababang mean na 3.39 at may berbal na interpretasyon na **Mabisa**.

Nahinuha na ang talakayang biswal ayon sa Pagsasanay ng Baitang 11 ay may mataas na bisa. Ang tagapagpahiwatig na “Naaayon sa mga layunin” ay may pinakamataas na kahulugan na nagpapahiwatig na ang mga pagsasanay na ginawa sa mga kontekstwal na materyales sa pagtuturo ay angkop sa paksa at kakayahan ng mga mag-aaral. Habang ang “Sapat upang matukoy ang antas ng karunungan ng mga mag-aaral” ay may pinakamababang mean dahil ang mga pagsasanay sa mga materyales sa pagtuturo ay hindi sapat na mastery ng aralin lamang. Ang mga materyales sa pagtuturo ay dapat hikayatin ang mga mag-aaral na gamitin ang mga kasanayan sa pag-iisip na may mataas na pagkakasunud-sunod at maging matalinong mga gumagawa ng desisyon, gamitin ang kalayaan sa pag-iisip, at gumawa ng mga pansariling paghuhusga

sa pamamagitan ng pagsusuri at pagsusuri ng mga nauugnay na impormasyon, ebidensya, at magkakaibang pananaw.

Binigyang-diin nina Delos Reyes et al. (2021), ang maganda at maayos na paggamit ng mga pagsasanay ay naglalaman ng malalim na pag-unawa, aktibong pakikilahok, at interaktibong mga elemento na nagbibigay ng mataas na kalidad na edukasyon. Ang paggamit ng iba't ibang pamamaraan ng pagsasanay at teknolohiya, tulad ng interaktibong biswal, na nagpapalawak ng mga pagkakataon para sa masusing pagkatuto. Ang interaktibong biswal ay nagbibigay daan sa mas mataas na antas ng pagsasanay, lalo na kung ito'y may kasamang mga elementong pampamulat tulad ng tunog, galaw, o interaktibong katugunan na nagbibigay daan sa pagpapabuti ng kanilang mga kasanayan.

Talahanayan 2.1.6
Antas ng Balidasyon ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Repleksiyon

Tagapagpahiwatig (Indicator) ayon sa Repleksiyon		VI	Rank
Mahihikayat ang mag-aaral para maibahagi ang karanasan ayon sa natutunan	3.39	M	5
Magbigay ng saloobin sa guro kung nangangailangan ng tulong sa pag-aaral	3.50	N	4
Maging inspirasyon sa pagbuo ng mga inobasyon at makagawa ng iba't ibang paraan ng pagsusulit para sa pagkatuto ng mag-aaral	3.61	N	1.5
Nakahihikayat ng mga mag-aaral na ipahayag ang saloobin kaugnay ng pagkatuto.	3.56	N	3
Nakapagninilay ang guro sa resulta ng gawain batay sa mga pamantayan o rubriks.	3.61	N	1.5
Pangkalahatang Pagtatasa	**3.53**	**N**	

Legend: 3.50 – 4.00 Napakabisa (N) 1.50 – 2.49 Di-gaanong Mabisa (DM)
2.50 – 3.49 Mabisa (M) 1.00 – 1.49 Walang Bisa (WB)

Ang **Repleksiyon** ay nakakuha ng **Napakabisa** (**3.53)** sa antas ng balidasyon ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang mga tagapagpahiwatig “Maging inspirasyon sa pagbuo ng mga inobasyon at makagawa ng iba’t ibang paraan ng pagsusulit para sa pagkatuto ng mag-aaral” at “Nakapagninilay ang guro sa resulta ng gawain batay sa mga pamantayan o rubriks” ay parehas na nakakuha ng pinakamataas na mean na **3.61** na may berbal na interpretasyon na **Napakabisa** habang ang tagapagpahiwatig “Mahihikayat ang mag-aaral para maibahagi ang karanasan ayon sa natutunan” ang nakakuha ng pinakamababang mean na **3.39** at may berbal na interpretasyon na **Mabisa**.

Upang masuri ang pagiging katanggap-tanggap ng binuong kontekstwalisasyon na materyal sa pagtuturo, kasama dito ang sumusunod na bahagi: kalinawan, pagiging kapakinabangan, presentasyon, at kaangkupan. Tiniyak ng mananaliksik na malinaw at simple ang mga impormasyon sa binuong kontekstwalisado na kagamitang panturo. Higit pa rito, ang kontekstwalisadong materyal sa pagtuturo ay nagbigay ng pagkakataon para

sa pag-unlad at pagpapayaman ng lokal na kamalayan. Panghuli, ang mga nabuong gawaing materyal sa pagtuturo ay angkop sa paksa.

Ayon kina Peitz et al. (2021), ang sistematikong repleksyon sa pagtuturo ay nagpabuti ng pansariling karanasan ng mga mag-aaral sa kakayahan at ang kanilang kakayahang pag-aralan ang mga proseso ng pagtuturo at pagkatuto. Itinatampok nina Whalen at Páez (2020) na ang repleksyon sa isang aralin ay nakatutulong sa pagbuo ng mga kasanayan sa pag-iisip nang mas mataas na antas ng kognitibo at sumusuporta sa pagpapanatili ng kaalaman at pagpapahusay ng mga kasanayan sa pagtuturo, at pagpapaunlad ng mga kasanayang nagbibigay-malay at metacognitive sa mga mag-aaral.

2.2 Antas ng Pagtanggap

Upang masuri ang pagiging katanggap-tanggap ng binuong interaktibong biswal na materyal sa pagtuturo, kasama dito ang sumusunod na bahagi: nagagamit, katumpakan, kaangkupan, kagamitan at kahusayan. Tiniyak ng mananaliksik na malinaw at maayos ang mga impormasyon sa binuong interaktibong biswal na kagamitang panturo. Higit pa rito, ang interaktibong biswal ay nagbigay ng pagkakataon para sa pagpapaunlad at pagpapayaman ng lokal na kamalayan. Panghuli, ang mga nabuong gawaing materyal sa pagtuturo ay angkop sa paksa.

2.2.1 Nagagamit

Talahanayan 2.2.1
Antas ng Pagtanggap ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Nagagamit

Tagapagpahiwatig (Indicator) ayon sa Nagagamit		VI	Rank
Ang programa ay malaya sa teknolohiyang suliranin	3.50	LNK	2.5
Ang programa ay madaling maunawaan	3.39	MK	4
Ang mga larawan at kulay humuhubog sa pagpapakatao ayon sa programang itinakda.	3.67	LNK	1
Ang programa ay may kaakibat na layunin.	3.50	LNK	2.5
Ang programa ay nagpapabilis sa pagkakaroon nang agarang komunikasyon	3.33	MK	5
Pangkalahatang Pagtatasa	**3.48**	**MK**	

Legend: 3.50 – 4.00 Lubos na Katanggap-tanggap (LNK) 1.50 – 2.49 Katanggap-tanggap (K)
2.50 – 3.49 Mas Katanggap-tanggap (MK) 1.00 – 1.49 Hindi Katanggap-tanggap (HK)

Ang **Nagagamit** ay nakakuha ng **Mas Katanggap-tanggap (3.48)** sa antas ng pagtanggap ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang mga tagapagpahiwatig na “Ang mga larawan at kulay humuhubog sa pagpapakatao ayon sa programang itinakda” ang nakakuha ng pinakamataas na mean na **3.67** na may berbal na interpretasyon na **Lubos na katanggap-tanggap**, ang tagapagpahiwatig na “Ang programa ay nagpapabilis sa pagkakaroon nang agarang

komunikasyon” ang nakakuha ng pinakamababang mean na **3.33** at may berbal na interpretasyon na **Mas Katanggap-tanggap**.

Natuklasan na ang interaktibong biswal ayon sa Nagagamit ay nakakuha ng Mas Katanggap-tanggap sa mga mag-aaral sa Baitang 11 at guro sa Filipino. Ayon sa resulta na ang interaktibong biswal ay nagagamit nang maayos, malaya sa teknolohiyang suliranin, maayos ang mga larawang ginamit at napabibilis ang agarang komunikasyon ng mga mag-aaral. Pinapakita rito na ito ay isang kapaki-pakinabang na kasangkapan na nagpapahusay sa kalidad ng edukasyon at pagkatuto sa iba't ibang larangan. Ang paggamit sa interaktibong biswal ay may malalim na kahalagahan sa pag-aaral dahil ito ay nagbibigay ng mas malinaw na pang-unawa, nagpapalakas ng kritikal na pag-iisip, at nagpapahusay ng karanasan sa edukasyon. Ito ay isang teknolohiya na patuloy na magpapabuti sa paraan ng pag-aaral at pagtuturo para sa kinabukasan.

Ayon sa pag-aaral ni Wang et al (2021), ang isang interactive na visualization tool ay nagagamit para sa pagpapalalim ng pang-unawa sa aktibong proseso ng pag-aaral. Makikita sa kagamitang ito ang mga impormasyon at konsepto sa isang paraan na nagpapadali sa mga gumagamit na maunawaan ang mga aspekto ng pagsasanay, at nagbibigay-daan sa kanila na magkaroon ng masusing pagkukumpara sa iba't ibang diskarte.

Bukod pa rito, inimbestigahan ni Liu (2020) ang paggamit ng interaktibong biswal sa impormasyon ng mga proseso sa edukasyon, na nagpapakita na ang mga mag-aaral na gumamit ng mga diskarte sa paggamit ng materyales na ito ay nakaranas nang pinahusay na bilis ng pag-aaral, kalidad, at nabawasan ang pagkabalisa kumpara sa mga hindi. Ang paggamit ng interaktibong biswal ay isang epektibong paraan upang mapabuti ang proseso ng pag-aaral at magbigay-daan para sa mas matagumpay na pagkatuto.

2.2.2 Katumpakan

Talahanayan 2.2.2
Antas ng Pagtanggap ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Katumpakan

Tagapagpahiwatig (Indicator) ayon sa Katumpakan		VI	Rank
Ang programa ay naglalaman ng wastong impormasyon tungkol sa paksa	3.56	LNK	2.5
Ang programa ay nagbibigay ng pagkakataon sa mag-aaral na makapili nang pinaka -angkop na kasagutan	3.61	LNK	1
Ang mga pamimilian ay may pagkakapareho sa kahulugan subalit may iba't ibang mapanuring gamit.	3.56	LNK	2.5
Ang programa ay tiyak at malinaw ang paglalahad ng impormasyon.	3.50	LNK	4
Ang programa ay naayon sa pagkakasunod-sunod ang mga konsepto.	3.39	MK	5
Pangkalahatang Pagtatasa	**3.52**	**LNK**	

Legend: 3.50 – 4.00 Lubos na Katanggap-tanggap (LNK) 1.50 – 2.49 Katanggap-tanggap (K)
2.50 – 3.49 Mas Katanggap-tanggap (MK) 1.00 – 1.49 Hindi Katanggap-tanggap (HK)

Ang **Katumpakan** ay nakakuha ng **Lubos na Katanggap-tanggap** (**3.52)** sa antas ng pagtanggap ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang tagapagpahiwatig "Ang programa ay nagbibigay ng pagkakataon sa mag-aaral na makapili nang pinakaangkop na kasagutan" ang nakakuha ng pinakamataas na mean na **3.61** na may berbal na interpretasyon na **Lubos na katanggap-tanggap**. Ang tagapagpahiwatig na "Ang programa ay naayon sa pagkakasunod-sunod ang mga konsepto" ang nakakuha ng pinakamababang mean na **3.39** at may berbal na interpretasyon na **Mas Katanggap-tanggap**.

Nahinuha na ang talakayang biswal ayon sa Katumpakan ng Baitang 11 ay nakakuha ng Lubos na katanggap-tanggap sa mag-aaral ng Baitang 11 at guro sa Filipino. Ang katumpakan ng interaktibong biswal na ginamit ay nagpakita ng integridad, kredibilidad, kalidad, at kritikal na pag-iisip na kung saan mahalagang bahagi ng modernong edukasyon na nagbigay-daan sa mga mag-aaral na mas mapalalim na maunawaan ang mga konsepto at impormasyong tinalakay sa paaralan.

Sa kanyang pananaliksik, ipinakita ni Dhanil at Mufit (2021) na ang ganitong uri ng materyales sa edukasyon ay may malaking potensyal sa pagpapabuti ng pag-unawa ng mga mag-aaral. Ang interaktibong pag-aaral ay nagbibigay-daan sa mga mag-aaral na makaranas ng tunay na pagtatanong, kuryosidad at pagtatalo sa mga ideya, na nagpapalalim sa kanilang pang-unawa. Sa madaling salita, ito ay nagpapalakas ng cognitive conflict na nagdudulot ng positibong epekto sa pagkatuto. Ayon pa sa kanya na ang modernong paraan ng pag-aaral ay naglalaman ng interaktibong mga elemento na maaaring maging epektibo sa pagpapabuti ng pag-unawa ng mga mag-aaral sa mga komplikadong konsepto. Ang pagsasagawa ng ganitong uri ng pananaliksik ay

nagpapakita ng potensyal ng teknolohiya na maging kakampi ng mga guro sa pagtuturo at pag-aaral ng mga mag-aaral. Sa tulong ng interaktibong biswal, mas naging kaakit-akit at kapansin-pansin ang pag-aaral, na nagpapahusay sa kalidad ng edukasyon at pagkatuto ng mga mag-aaral.

2.2.3 Kaangkupan

Talahanayan 2.2.3
Antas ng Pagtanggap ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Kaangkupan

Tagapagpahiwatig (Indicator) ayon sa Kaangkupan		VI	Rank
Ang mga gawain ay nagkakaiba-iba ayon sa ugali at kakayahan ng mga mag-aaral	3.67	LNK	1
Ang mga gawain ay akma sa paksa	3.56	LNK	2
Ang mga gawain ay may kaugnayan, nagbibigay ng interes at nakagaganyak ng mag-aaral	3.33	MK	5
Ang paggamit ng karagdagang gawain ay angkop sa bilang ng mga mag-aaral	3.50	LNK	3
Ang mga salitang ginamit sa bokabularyo ay angkop sa lebel ng mag-aaral	3.39	MK	4
Pangkalahatang Pagtatasa	**3.49**	**MK**	

Legend: 3.50 – 4.00 Lubos na Katanggap-tanggap (LNK) 1.50 – 2.49 Katanggap-tanggap (K)
2.50 – 3.49 Mas Katanggap-tanggap (MK) 1.00 – 1.49 Hindi Katanggap-tanggap (HK)

Ang **Kaangkupan** ay nakakuha ng **Mas Katanggap-tanggap** (**3.49)** sa antas ng pagtanggap ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Sa karagdagan, ang mga tagapagpahiwatig na “Ang mga gawain ay nagkakaiba-iba ayon sa ugali at kakayahan ng mga mag-aaral” ay nakakuha ng pinakamataas na mean na **3.67** na may berbal na interpretasyon na **Lubos na Katanggap-tanggap** habang ang tagapagpahiwatig na “Ang mga gawain ay may kaugnayan, nagbibigay ng interes at nakagaganyak ng mag-aaral” ang nakakuha ng pinakamababang mean na **3.33** at may berbal na interpretasyon na **Mas Katanggap-tanggap**.

Nahinuha na nakakuha ng Mas Katanggap-tanggap ayon sa kaangkupan ang interaktibong biswal na ginamit sa Baitang 11. Ang nabuong kontekstwalisado na kagamitan sa pagtuturo ay may mga aktibidad na angkop sa paksa, mga aktibidad na may kaugnayan, kawili-wili, at nakakukuha ng interes ng mag-aaral. Bukod dito, ang wika ay nasa saklaw ng bokabularyo ng mga mag-aaral. Nangangahulugan lamang ito na ang mga aktibidad sa materyal na pagtuturo ay angkop sa mga mag-aaral at nagbibigay ng mga gawaing maaaring ituro. Ang tagumpay ng pagkamit kung ano ang kanilang natutugunan upang makamit sa isang sitwasyon sa pagtuturo ay nakasalalay sa pagiging angkop ng mga materyales sa pagtuturo, kasapatan, at epektibong paggamit ng mga materyales.

Ayon kay Lorbis (2019), na ang mga materyales sa pagtuturo ay maaaring mapataas ang panloob na motibasyon ng mga mag-aaral para sa pag-aaral at mapanatili ang kanilang interes. Lumikha din ito ng mga ugnayan na kapaki-pakinabang para sa

memorya at pagkamalikhain ng mga mag-aaral. Ayon naman sa pag-aaral nina Budiyanto et al. (2021), sa patuloy na pag-usbong ng mga bagong paraan ng pag-aaral at pagtuturo ay nagbibigay-diin sa pangangailangan ng pansin sa iba't ibang aspekto, tulad ng pedagohiko, kakayahan, at dedikasyon, upang mapanatili ang kahalagahan ng mga makabagong programa sa pag-aaral. Ang paggamit ng mga interaktibong biswal o mga makabagong kagamitan ay dapat angkop sa paksa, layunin, kurikulum at lebel ng mag-aaral

2.2.4 Kagamitan

Talahanayan 2.2.4

Antas ng Pagtanggap ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Kagamitan

Tagapagpahiwatig (Indicator) ayon sa Kagamitan		VI	Rank
Ang kagamitang inihanda ay nagpapaisip at nagpapasuri ng mga kritikal na paksa.	3.61	LNK	1.5
Ang Konsepto sa mga kagamitan ay pangkaraniwan at komprehensibo	3.56	LNK	3
Ang mga kagamitan ay nakadaragdag sa kasanayan sa pag-unawa at pagbasa	3.61	LNK	1.5
Ang kagamitan ay nagbibigay ng pagkakataon para mahubog ang kasanayan sa pasasalita/pakikipag-usap.	3.50	LNK	4.5
Ang tekstong kasanayan ay nagbibigay ng wastong impormasyon ayon sa paksang ipinahayag	3.50	LNK	4.5
Pangkalahatang Pagtatasa	**3.56**	**LNK**	

Legend: 3.50 – 4.00 Lubos na Katanggap-tanggap (LNK) 1.50 – 2.49 Katanggap-tanggap (K)
2.50 – 3.49 Mas Katanggap-tanggap (MK) 1.00 – 1.49 Hindi Katanggap-tanggap (HK)

Ang **Kagamitan** ay nakakuha ng **Lubos na katanggap-tanggap** (**3.56)** sa antas ng pagtanggap ng interaktibong biswal sa asignaturang Filipino ng Baitang 11. Ito ay nakakuha ng pangkalahatang pagtatasa na **3.56** na may berbal na interpretasyon na **Lubos na katanggap-tanggap**. Sa karagdagan, ang mga tagapagpahiwatig na “Ang kagamitang inihanda ay nagpapaisip at nagpapasuri ng mga kritikal na paksa” at “Ang mga kagamitan ay nakadaragdag sa kasanayan sa pag-unawa at pagbasa” ay parehas na nakakuha ng pinakamataas na mean na **3.61** na may berbal na interpretasyon na **Lubos na Katanggap-tanggap** habang ang tagapagpahiwatig na “Ang kagamitan ay nagbibigay ng pagkakataon para mahubog ang kasanayan sa pasasalita/pakikipag-usap” at “Ang tekstong kasanayan ay nagbibigay ng wastong impormasyon ayon sa paksang ipinahayag” ay parehas ding nakakuha ng pinakamababang mean na **3.50** at may berbal na interpretasyon na **Lubos na Katanggap-tanggap.**

Nahinuha na Lubos na Katanggap-tanggap ang ginamit na interaktibong biswal sa Baitang 11 ayon sa Kagamitan. Ang materyal ay nagbibigay ng pagkakataon para sa pag-unlad ng kaisipan ng mag-aaral. Ang materyal ay naghahanda sa mga mag-aaral na mag-isip nang lohikal at kritikal, ang mga konsepto sa materyal ay simple at nauunawaan. Nagpapahiwatig lamang na ang binuong materyal sa pagtuturo ay nakatulong sa mga

mag-aaral na mapayaman ang kanilang mga kasanayan sa pag-iisip nang mas mataas na pagkakasunud-sunod. Ang materyal na panturo ay isang kagamitang binuo o nakuha upang tulungan o mapadali ang mga guro sa paghahatid, pag-aayos ng kaalaman, kasanayan, at saloobin sa mga mag-aaral sa loob ng isang sitwasyon sa pagtuturo. Kaya naman, ang materyal sa pagtuturo ay isang kailangang-kailangan na kasangkapan sa proseso ng pagtuturo at pagkatuto.

Sa pagsusuri ni Ribosa at Duran (2022), ipinakita niya ang mga positibong epekto ng mga materyal na nilikha sa pagtuturo. Kasama dito ang mga awdyo o biswal na materyal, tanong, teksto, at edukasyunal na laro, na maaaring mag-ambag sa mas magandang resulta ng pag-aaral. Ang mga pag-aaral na ito ay nagbibigay diin sa kahalagahan ng pagtutok sa madaling paggamit, at pangangailangan ng mga mag-aaral sa pagbuo ng edukasyonal na materyal. Kapag wasto at tamaa ng isang materyal ay mas mapapadali ang pakikilahok at kasanayan ng mga mag-aaral, at mas naihahatid ang edukasyon sa isang mas makabago at epektibong paraan.

Binibigyang-diin Mališů (2020) ang kahalagahan ng multimedia at ugnayan ng mga materyal na pang-edukasyon, na binabanggit na ang mga elementong ito ay nagpapahusay sa pagkatuto ng mag-aaral. Ang ugnayan ng multimedia at mga gawain ay nagdadala ng pagbabago sa paraan ng pag-aaral at pagtuturo, nagpapahusay sa pagkatuto, at nagbibigay-daan sa mga mag-aaral na maging masinop, masuri, at responsableng mga mag-aaral. Ito ay isang pagtutok sa pagpapabuti ng kalidad ng edukasyon at pagpapalaganap ng kaalaman sa mga mag-aaral, na nagbibigay daan sa kanila na maging handa para sa mga kinabukasan na puno ng teknolohiya at impormasyon.

2.2.5 Kahusayan

Talahanayan 2.2.5
Antas ng Pagtanggap ng Interaktibong Biswal sa Asignaturang Filipino ng Baitang 11 ayon sa Kahusayan

Tagapagpahiwatig (Indicator) ayon sa Kahusayan		VI	Rank
Ang programa ay mabilisang nasasagot	3.44	MK	5
Ang programa ay naisasaayos nang buong husay.	3.50	LNK	4
Ang programa ay naisasagawa ayon sa angkop na panahon	3.56	LNK	2.5
Ang programa ay may kaangkupan ang mga pagsasanay sa inilahad na paksa.	3.56	LNK	2.5
Ang programa ay angkop sa malalaking bilang ng mag-aaral.	3.72	LNK	1
Pangkalahatang Pagtatasa	**3.56**	**LNK**	

Legend: 3.50 – 4.00 Lubos na Katanggap-tanggap (LNK) 1.50 – 2.49 Katanggap-tanggap (K)
2.50 – 3.49 Mas Katanggap-tanggap (MK) 1.00 – 1.49 Hindi Katanggap-tanggap (HK)

Ang **Kahusayan** ay nakakuha ng **Lubos na Katanggap-tanggap** (**3.56)** sa antas ng pagtanggap ng interaktibong biswal sa asignaturang Filipino ng Baitang. Sa karagdagan, ang mga tagapagpahiwatig na “Ang programa ay angkop sa malalaking bilang ng ma-aaral” ang nakakuha ng pinakamataas na mean na 3.72 na may berbal na interpretasyon na **Lubos na Katanggap-tanggap** habang ang tagapagpahiwatig na “Ang programa ay mabilisang nasasagot” ang nakakuha ng pinakamababang mean na 3.44 at may berbal na interpretasyon na **Mas Katanggap-tanggap.**

Nahinuha na Lubos na Katanggap-tanggap ang ginamit na Interaktibong biswal sa Baitang 11 ayon sa Kahusayan. Ang tagapagpahiwatig na “Ang programa ay angkop sa malalaking bilang ng mag-aaral” ay nakakuha ng Lubos na Katanggap-tanggap. Sa pamamagitan ng angkop na bilang ito ay nagbibigay-daan sa pagkakaroon ng masusing pag-aaral at mas mataas na kalidad ng edukasyon. Sa pamamagitan ng tamang programa, mas napapabilis ang proseso ng pagtuturo at pagkatuto. Natututugunan ang mga pangangailangan ng mas maraming mag-aaral na may iba't ibang estilo ng pagkatuto at antas ng kahusayan. Ang pagsasaalang-alang ng malaking bilang ng mag-aaral ay kailangang matutukan para sa lalong pagpapalakas ng kalidad ng edukasyon.

Sa pag-aaral ni Zhansugurova (2020), malalim na isinaalang-alang ang mahigpit na kaugnayan ng mga interaktibong biswal na teknolohiya sa proseso ng pag-aaral at sa hangarin ng pagpapabuti ng kahusayan at kalidad ng edukasyon. Ang kanyang pananaliksik ay nagdulot ng mga makabuluhang pagsusuri ukol sa epekto ng mga teknolohiyang ito sa sektor ng edukasyon, at ipinakita ang mga benepisyo at potensyal na nadadala nito sa larangan ng pagtuturo at pag-aaral. Ayon sa kanyang pag-aaral, ang paggamit ng interaktibong materyal na teknolohiya ay may mahalagang papel sa pagpapabuti ng edukasyon sa gitna ng pagtaas ng bilang ng mag-aaral sa kanilang partisipasyon. Ito ay nagbibigay-daan sa mas malawak na tunguhin ng edukasyon, personalisadong pag-aaral, at masuring pagtuturo. Ito ay isang hakbang patungo sa mas makatarungan at mas epektibong edukasyon para sa lahat.

Ikatlong Layunin: Pagtataya sa panimula at panapos na bahagi ng Interaktibong Biswal na nabuo.

Ang mga panimula at panapos na pagtataya ay nilayon upang masuri ang pagtaas ng bilang ng mga mag-aaral na mas tumaas ang kaalaman sa isang partikular na paksa. Gaya ng binigyang-diin ni Kuehn (2023) sa kanyang blog, ang panimula at panapos na pagtataya ay sumasaklaw sa lahat ng paksang pag-aaralan ng mga mag-aaral sa isang kwarter o isang semestre. Sa panahon ng panimulang pagtataya, hindi kinakailangang alam ng mga mag-aaral ang mga sagot sa lahat ng mga tanong. Gayunpaman, dapat silang asahan na gamitin ang dating kaalaman upang ipagpalagay ang mga makatwirang sagot. Kapag kumukuha ng parehong pagsusulit na tinatawag na panapos na pagtataya sa katapusan ng kwarter, dito ay inaasahang ang mga mag-aaral na sasagot ng mas maraming tanong nang tama batay sa pagtaas ng kaalaman at pag-unawa. Sa panapos na pagtataya, may pagtaas sa pagganap ng mga mag-aaral pagkatapos gamitin ang interaktibong biswal, kagamitang panturo at iba pang kagamitan sa pag-aaral.

3.1 Paunang Pagtataya

Talahanayan 3.1
Antas ng Pagkatuto ng Respondante sa Paunang Pagtataya

Tagapagpahiwatig (Indicators)	F	%
Lubhang kalugod-lugod	0	0
Nakalulugod	0	0
Katamtaman/Bahagya	0	0
Maaari nang tanggapin	8	4%
Hindi nakamit ang inaasahang produkto/resulta	192	96%
Total	**200**	**100%**

Legend: ` 90 - 100 Lubhang kalugod-lugod 75 - 79 Maaaring Tanggapin
85- 89 Nakalulugod 74-pababa Hindi nakamit ang inaasahang produkto/resulta
80 - 84 Katamtaman/Bahagya

Maliwanag na 96% o 192 sa 200 ng mga mag-aaral sa Baitang 11 ang hindi nakamit ang inaasahan sa 50-aytem na paunang pagtataya sa Filipino 11. Bukod dito, 4% o 8 Baitang 11 na mga mag-aaral lamang ang nakakamit ang Fairly Satisfactory sa Panimulang Pagtataya.

Ito ay nagpapahiwatig na maraming mag-aaral ang kaunting impormasyon tungkol sa paksang tatalakayin at sinagot nila ang paunang pagsusulit batay sa kanilang dating kaalaman at makatwirang pag-iisip.

Ayon kina Gallardo et al. (2023), inilarawan na ang pagtataya ng mga mag-aaral ay isang makabuluhang aspekto ng proseso ng pagtuturo at pagkatuto. Ipinaliwanag pa nila na ang lawak ng pagkatuto ng mag-aaral sa pamamagitan ng pagsusuri ay lubhang mahalaga dahil nagbibigay ito ng kapaki-pakinabang na puna hindi lamang para sa mga mag-aaral pati na rin sa mga guro. Bilang karagdagan, tinutulungan nito ang mga guro na matukoy kung matagumpay na natugunan ng mga mag-aaral ang mga layunin sa pag-aaral.

3.2 Panapos na Pagtataya

Talahanayan 3.2
Antas ng Pagkatuto ng Respondante sa Panapos na Pagtataya

Tagapagpahiwatig (Indicators)	F	%
Lubhang kalugod-lugod	173	86.50%
Nakalulugod	27	13.50%
Katamtaman/Bahagya	0	0
Maaari nang tanggapin	0	0
Hindi nakamit ang inaasahang produkto/resulta	0	0
Total	**200**	**100%**

Legend: ` 90 - 100 Lubhang kalugod-lugod 75 - 79 Maaaring Tanggapin

85- 89 Nakalulugod 74-pababa Hindi nakamit ang inaasahang produkto/resulta
80 - 84 Katamtaman/Bahagya

Ang 86.50 bahagdan o 173 na mag-aaral ang nakakuha ng Lubhang kalugod-lugod habang 13.50 bahagdan naman ng mag-aaral ang nakakuha ng **Nakalulugod**. Mula sa datos na nakalap, maliwanag na 86.50 bahagdan o 173 sa 200 na mga mag-aaral ay nakapagsagawa nang mas mahusay na pagganap pagkatapos gamitin ang binuo na Tasadong Interaktibong Talakayang Oplan (TITO) para sa Baitang 11 sa Asignaturang Komunikasyon at Pananaliksik sa Wika at Kulturang Pilipino.

Nahinuha na ang Tasadong Interaktibong Talakayang Oplan sa Baitang 11 ay nakatulong sa karamihan ng mga mag-aaral na gumanap nang maayos batay sa resulta ng panapos na pagtataya.

Sinuportahan ito ng pag-aaral ni Dioneda (2019) na nagpapahiwatig ng mga mag-aaral kapag nailantad, naisakonekta ang mga materyal sa pagtuturo at pagkatuto, nagkaroon ng pag-unlad sa kanilang mga puntos at pagganap. Bilang karagdagan, ang lokalisasyon at kontekstwalisasyon ay nakatulong sa mga mag-aaral na mapaunlad ang kanilang kaalaman, kasanayan, at katangian na maging isang mabuting mamamayan.

Makabuluhang pagkakaiba sa pagitan ng antas ng akademikong pagganap ng mga mag-aaral sa paunang pagtataya at panapos na pagtataya.

Ayon kina Pan at Sana (2021), ang parehong uri ng mga pagsubok ay nagpapabuti ng kaalaman para sa impormasyon at kung minsan ay nagpapahusay din ng pag-unawa ng hindi pa nasusubok na impormasyon. Kaya, ang panapos na pagtataya ay hindi lamang paraan ng pagsasanay sa pagsubok; parehong mga pamamaraan ay maaaring maging kapaki-pakinabang para sa pag-aaral. Sa pag-aaral na isinagawa ni Shala (2022) na pinahusay ng mga interaktibong presentasyon ang pakikipag-ugnayan at pagsasaulo ng mga konsepto ng mga mag-aaral sa isang klase ng teknolohiya. Ayon naman kay Santika (2023) ang interaktibong na presentasyon ay batay sa pag-aaral na nakabatay sa problema, na nagpapataas ng motibasyon ng mag-aaral at bisa ng materyal sa pag-aaral. Gaya ng nabanggit sa pag-aaral nina Montalbo at Villanueva (2020), sa paggamit ng kontekstwalisasyon, ang mga mag-aaral ay nabigyan ng “danas” sa aralin at hinayaan silang makarating sa tamang desisyon.

Bilang suporta, ibinahagi nina Bello et al. (2023) na kapag ginamit ang lokalisasyon sa pagtuturo at mga lokal na kagamitan sa pagtuturo sa pagtuturo ng Earth Science, nagkaroon ng pagtaas sa pagganap ng mga mag-aaral. Higit pa rito, sinabi rin niya na ang *localization approach* sa pag-aaral ay isang pagpapahusay, pagbibigay kakayahan, at makabago na diskarte sa pagtuturo ng science. Katulad nito, binanggit ni Rochman (2021) ang mga interaktibong na presentasyon ng *PowerPoint* para sa pag-aaral ng komunikasyon at nakatanggap ng positibong puna mula sa mga eksperto at mga mag-aaral na mapahusay ang mga karanasan sa pag-aaral at mga resulta ng pagtataya. Sinuri naman ni Fatikha (2022) ang paggamit ng interaktibo na *PowerPoint media* sa panahon ng limitadong *face-to-face* na klase at nalaman na pinapataas nito ang sigasig, pang-

unawa, at kakayahang sumagot sa mga tanong ang mga mag-aaral, na kung saan nakita ang pag-unlad ng mga resulta ng pag-aaral at pagtuturo.

Talahanayan 3.3
Pagtataya sa Makabuluhang Pagkakaiba sa Pagitan ng Marka ng Paunang Pagtataya at ng Panapos na Pagtataya

	Paired Differences					
Test	Mean	SD	T	P value	Remarks	Decision
Pre-test and Posttest	-12.780	8.289	-10.902	.000	**Significant**	**Reject H_o**

Mayroong isang makabuluhang pagkakaiba sa pagitan ng mga *average* na kabuoang marka ng mga mag-aaral sa panimulang pagtataya at panapos na pagtataya (*Pretest* at *Posttest*). Ang *probability value* ay .000 ay lubhang mas mababa kaysa sa signipikong lebel na .05, kaya ang hinuha (Hyphothesis) ay di katanggap-tanggap. Samakatuwid, Nahinuha na ang Kagamitang Pampagtuturo na Interaktibong Biswal sa Filipino 11 ay maliwanag na nagpapataas ng pagkatuto ng mga mag-aaral sa Baitang 11 batay sa pagkakaiba ng kanilang pagganap sa panimulang pagtataya at panapos na pagtataya. (*Pretest* at *Posttest)*.

Bilang suporta, ibinahagi nina Bello et al. (2023) na kapag ginamit ang lokalisasyon sa pagtuturo at mga lokal na kagamitan sa pagtuturo sa pagtuturo ng Earth Science, nagkaroon ng pagtaas sa pagganap ng mga mag-aaral. Higit pa rito, sinabi rin niya na ang *localization approach* sa pag-aaral ay isang pagpapahusay, pagbibigay kakayahan, at makabago na diskarte sa pagtuturo ng science.

Katulad nito, binanggit ni Rochman (2021) ang mga interaktibong na presentasyon ng *PowerPoint* para sa pag-aaral ng komunikasyon at nakatanggap ng positibong puna mula sa mga eksperto at mga mag-aaral na mapahusay ang mga karanasan sa pag-aaral at mga resulta ng pagtataya. Sinuri naman ni Fatikha (2022) ang paggamit ng interaktibo na *PowerPoint media* sa panahon ng limitadong *face-to-face* na klase at nalaman na pinapataas nito ang sigasig, pang-unawa, at kakayahang sumagot sa mga tanong ang mga mag-aaral, na kung saan nakita ang pag-unlad ng mga resulta ng pag-aaral at pagtuturo.

Konklusyon

Ang pag-aaral at pagbuo ng TITO: Tasadong Interaktibong Talakayang Oplan ay nagsilbing isang mahalagang hakbang patungo sa pagpapabuti at pagpapahusay ng kalidad ng edukasyon sa Filipino 11. Ang pag-aaral ay masusing inilatag upang tugunan ang pangangailangan para sa isang mas interaktibo at nakakaengganyong paraan ng pagtuturo na nag-uudyok sa mga mag-aaral sa mas aktibong partisipasyon at mag-ambag sa proseso ng pagkatuto. Sa pamamagitan ng paggamit ng TITO: Tasadong Interaktibong Talakayang Oplan, nagawa nitong magbigay ng isang kapaligirang pang-

edukasyon na sumusuporta hindi lamang sa teoretikal na pag-aaral kundi pati na rin sa praktikal na aplikasyon ng mga konseptong natutunan.

Ang antas ng balidasyon ng nabuong TITO: Tasadong Interaktibong Talakayang Oplan ay sinuri batay sa iba't ibang aspekto tulad ng layunin, konsepto, paksa, panuto, pagsasanay, at repleksyon. Ang positibong tugon mula sa mga respondente ay nagresulta ng Napakabisa. Ipinakita na ang matibay na pundasyon at kahalagahan ng programang ito sa edukasyonal na konteksto ay isang patunay na ang maingat na pagsasama-sama ng mga kaugnay na aktibidad at materyales sa pagtuturo ay mahalaga sa pagbuo ng isang epektibong kurikulum.

Sa kabilang banda, ang antas ng pagtanggap sa TITO: Tasadong Interaktibong Talakayang Oplan batay sa mga pamantayan tulad ng nagagamit, katumpakan, kaangkupan, kagamitan, at kahusayan ay nagresulta na Lubos na Katanggap-tanggap. Ito ay nagpapahiwatig na ang mga guro at mag-aaral ay parehong nakita ang malaking halaga at kabuluhan sa paggamit ng TITO: Tasadong Interaktibong Talakayang Oplan sa konteksto ng kanilang akademikong gawain. Ang positibong pagtanggap at pagiging bukas ng isipan ng komunidad ng paaralan sa pagmungkahi ng makabagong estratehiya sa pagtuturo at pag-aaral bilang isang mahalagang kasangkapan sa paghahatid ng mas epektibo at magpapataas ng kalidad ng edukasyon.

Ang isa sa mga pinakamahalagang natuklasan ng pag-aaral ay ang makabuluhang pagkakaiba sa akademikong pagganap ng mga mag-aaral bago at pagkatapos ng implementasyon ng TITO. Ang paghahambing ng mga mean na marka sa panimula at panapos na pagtataya ay nagpapakita ng maliwanag na pagpapabuti sa pag-unawa at pagsanay ng mga mag-aaral sa Filipino 11. Ipinakita nito na ang TITO ay hindi lamang isang epektibong kasangkapang pedagohikal sa pagpapataas ng kaalaman at kasanayan ng mga mag-aaral kundi pati na rin sa pagpapalakas ng kanilang akademikong pagganap.

Ang awtput ng pag-aaral, na ang pagbabahagi ng nabuong interaktibong biswal para sa Filipino 11, ay naglalayong hindi lamang mapahusay ang pagpapatupad ng kurikulum kundi pati na rin magbigay-daan sa mas epektibong pagkatuto. Ang paggamit ng teknolohiya sa edukasyon, sa pamamagitan ng interaktibong biswal at iba pang makabagong pamamaraan, ay mahalaga sa paghahanda sa mga mag-aaral para sa mas kompleks na hamon sa akademiko at propesyonal na mga larangan sa hinaharap. Ang TITO: Tasadong Interaktibong Talakayang Oplan ay isang mahalagang inisyatibo na nagpapahusay sa pagkatuto at nagbibigay ng direksyon para sa hinaharap ng pedagohikal na inobasyon sa Filipino 11.

Layunin ng TITO

Nilalayon ng TITO (Tasadong Interaktibong Talakayang Oplan) na mapalawak ang pag-unawa ng mga mag-aaral sa iba't ibang konsepto at paksang kanilang natututunan. Isa itong hakbang upang pababain ang antas ng kaalaman at gawing mas konkretong maunawaan ang mga kumplikadong ideya at proseso. Ang layunin din nito ay palakasin

ang pang-unawa ng mga mag-aaral at masiguro ang mas pangmatagal ang kaalaman ng kanilang natutuhan. Sa pamamagitan ng interaktibong biswal, nais nitong hikayatin ang aktibong partisipasyon ng mga mag-aaral sa kanilang klase at maging daan para sa personalisadong pag-unlad ng bawat isa. Inaasahan na ang interaktibong biswal ay magbibigay daan sa mas malalim na pang-unawa ng mga mag-aaral sa kanilang mga aralin, nagbibigay ng tiyak na karanasan na nagpapahusay sa kanilang kasanayan, at nagtataguyod ng masusing pakikilahok sa kanilang pag-aaral.

Rekomendasyon

Ang pag-aaral at implementasyon ng TITO: Tasadong Interaktibong Talakayang Oplan ay nagpakita ng positibong epekto sa kalidad ng edukasyon sa Baitang 11. Upang higit pang mapalakas at mapalawak ang paggamit ng programang ito, narito ang ilang rekomendasyon:

Una, kinakailangang patuloy na paunlarin ang TITO sa pamamagitan ng pagsasama ng mga bagong teknolohikal na kaalaman at estratehiya sa pagtuturo. Ang regular na pagsusuri at pagkuha ng feedback mula sa mga guro at mag-aaral ay mahalaga upang masigurong naaayon ang programa sa mga nagbabagong pangangailangan ng edukasyon.

Ikalawa, nararapat na palawakin ang saklaw ng TITO sa iba pang antas ng edukasyon at mga asignatura. Ang pagpapalaganap nito sa iba’t ibang paaralan ay magbibigay-daan upang mas maraming mag-aaral ang makinabang sa interaktibong pamamaraan ng pagtuturo. Ang tagumpay ng programa sa Filipino 11 ay maaaring magsilbing modelo para sa iba pang asignatura at antas.

Ikatlo, mahalaga ang komprehensibong pagsasanay para sa mga guro upang mas epektibong magamit ang TITO. Ang pagbibigay ng sapat na kaalaman sa teknikal na aspeto at pedagohikal na estratehiya ay makakatulong sa mga guro na integrasyon ng programa sa kanilang mga klase. Bukod dito, ang pagtatag ng isang support system para sa mga guro ay makakapagbigay ng pagkakataon para sa patuloy na pagbahagi ng karanasan at kaalaman.

Ikaapat, ang pakikipagtulungan sa komunidad ay kinakailangan upang masigurong matagumpay ang implementasyon ng TITO. Ang pagsasama ng mga magulang, mag-aaral, at iba pang stakeholders sa proseso ng pagpaplano at implementasyon ay magbibigay ng mas malawak na suporta para sa programa. Ang kooperasyon sa mga institusyong pang-edukasyon ay makakatulong din sa patuloy na pag-unlad ng TITO.

Panghuli, ang karagdagang pananaliksik ay mahalaga upang mas maunawaan ang pangmatagalang epekto ng TITO. Ang mga longitudinal at comparative studies ay

magbibigay ng mas malalim na pagsusuri sa bisa ng programa kumpara sa ibang mga interaktibong pamamaraan sa pagtuturo.

Compliance with Ethical Standards

Sa kabuuan ng pag-aaral, tiniyak ng mananaliksik na sundin ang etikal na alituntunin ng paaralan at ang mga etikal na pagsasaalang-alang sa buong papel. Ang mga mag-aaral at guro ay boluntaryong lumahok sa pag-aaral, at nakuha muna ang kanilang pahintulot habang ipinaliwanag ang layunin ng pag-aaral. Ang kanilang mga impormasyon ay pinrotektahan alinsunod sa R.A 10173 o Data Privacy Act 2012, na nag-uutos ng pagpapatupad ng mga hakbang para sa seguridad ng personal na impormasyon. Tanging mga impormasyong may kaugnayan sa pag-aaral ang kinolekta nang walang pagsisiwalat ng pribadong detalye.

Sa pagbuo naman ng interaktibong biswal, mahalaga ang pagkilala at pagrespeto sa intelektwal na pag-aari ng iba. Ginamit ang iba't ibang popular na kultura at medya bilang inspirasyon at kasangkapan upang mas mapalalim at mapayaman ang pagkatuto ng mag-aaral. Gayunpaman, mahalagang bigyang-diin na ang lahat ng mga materyales at konsepto mula sa mga kilalang gawa tulad ng pelikula, telebisyon, video games, at animayson na ginamit sa proseso ng pagtuturo ay hindi pag-aari ng mananaliksik.

Pasasalamat

Nais ng mananaliksik na mag-alay ng kanyang taos-pusong pasasalamat sa mga taong nagdagdag sa pag-unlad ng gawaing pananaliksik na ito. Sa pagsamba, paggalang, at karangalan, nais niyang kilalanin ang tulong na ibinigay sa kanya.

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TOURISTS' SATISFACTION AND EXPENDITURES AMIDST NEW NORMAL

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ABSTRACT

The main purpose of this study was to investigates tourist satisfaction and expenditures in Panglao, Bohol, Philippines, amidst the new normal brought about by the COVID-19 pandemic. The research aims to profile tourists based on age, gender, and nationality, assess their satisfaction levels, analyze their expenditures, and explore the relationship between satisfaction and expenditures. Utilizing a quantitative research design, data were gathered through surveys distributed to tourists at Alona Beach. The study revealed that most tourists were young adults (18-35 years), with a balanced gender distribution, and primarily composed of Filipinos, Americans, and Koreans. Findings indicated high overall satisfaction with Panglao, attributed to its appealing tourist attractions, although improvements were suggested in accommodations and transportation. Korean tourists reported highly favorable experiences, while American tourists highlighted the affordability of transportation and the potential for enhanced souvenir offerings. Expenditures were found to be satisfactory across nationalities, emphasizing the region's value proposition. A significant correlation was found between tourist satisfaction and expenditures, underscoring the impact of travel experiences on spending behaviors. Based on these insights, recommendations include upgrading transportation systems, adopting tiered pricing for various budgets, embracing sustainable tourism practices, and promoting cultural activities to enhance the overall tourist experience and stimulate local economic growth. This study contributes valuable knowledge for local authorities and businesses in Panglao to refine their strategies, ensuring an enriched tourist experience and fostering the region's sustainable development.

Keywords: *Expenditures, New Normal, Panglao, Bohol, Satisfaction, Tourism*

INTRODUCTION

Bohol, known for its unique land and water formations, is a popular tourist destination that significantly boosts the local economy. The province offers a range of attractions and souvenirs, from keychains to clothing, which contribute to its economic vitality. However, in the new normal, concerns have arisen about tourist expenditures. Complaints about high costs have increased, prompting the Department of Environment and Natural Resources Central Visayas (DENR-7) to investigate the pricing practices of local governments in Panglao and Bohol (Macasero, 2022).

The COVID-19 pandemic has worsened these issues by negatively impacting businesses, increasing operational costs, and reducing sales (Estremera, n.d.). Enterprises have raised prices to recover from the pandemic's economic fallout, leading to a perception of decreased value among tourists.

In 2020, the Department of Tourism reported an average daily expenditure of approximately 6.8 thousand Philippine Pesos per foreign tourist, despite a sharp decline in tourism arrivals due to travel restrictions (Department of Tourism, 2021).

Research indicates that tourists value quality, price, emotional, and social factors, all of which influence their satisfaction and likelihood to return or recommend the destination to others. Relevant legislative frameworks, such as the Consumers Act of the Philippines (Republic Act No. 7394) and the Tourism Act of 2009 (Republic Act No. Risk Management of Quick Service), emphasize the protection of consumer rights, the provision of high-quality services, and the promotion of sustainable tourism practices.

Ensuring tourists' satisfaction and fair treatment under these regulations is essential for the industry's growth. Factors such as service quality, cleanliness, safety, and accessibility significantly influence satisfaction levels (Rohman, 2020). The competitive dynamics of the tourism sector underscore the importance of understanding pre-purchase attributes and their impact on tourist satisfaction (Ledesma et al., 2022).

This study aims to measure tourist satisfaction and expenditures in Bohol amidst the new normal. By assessing the current levels of tourist satisfaction and analyzing the expenditures of tourists and the factors influencing these expenditures, this research seeks to provide insights into how the tourism industry in Bohol can enhance service quality and value. Understanding these aspects is more critical than ever as the tourism industry navigates the challenges of the new normal. The findings aim to help stakeholders in Bohol improve their offerings, ensuring sustainable growth and a thriving tourism sector in the post-pandemic era.

Research Questions

The researchers aimed to find out the tourist satisfactions and expenditures amidst the new normal in Panglao, Bohol.

Specifically, this study sought to answer the following questions:

1. What is the tourists' profile in terms of:
    1.1 age;
    1.2 gender; and
    1.3 nationality?
2. What is the tourists' profile regarding satisfaction in Panglao?
3. What is the tourists' profile on expenditure in Panglao?
4. Is there a significant relationship between tourists' satisfaction and expenditures amidst the new normal?
5. What improvement plan could be proposed based on the findings of the study?

METHODOLOGY

This section focused on the methodology that was utilized in the conduct of the study. This also outlined the research design, the procedure that was followed, the process of collecting the data and the analysis. During the collection process, the ethical consideration was also discussed.

Research Design

The researchers conducted quantitative surveys to achieve the study's goals of understanding tourist satisfaction and expenditures in Panglao, Bohol. Direct participation from both researchers and respondents gathered specific and detailed information, which was meticulously checked and thoroughly analyzed. The findings enabled the researchers to make a scientific interpretation based on the data collected.

Research Environment and Research Participants

This study was conducted in Panglao, a popular public beach situated at the southwest tip of Panglao Island, Bohol, Philippines. It is renowned for its white sand, rocky cliffs, and commercial facilities that line the one kilometer stretch of the beach. Located near a coral reef, Panglao is also a favored spot for scuba diving and snorkeling. The participants of this study were the tourists at Alona Beach, Panglao, Bohol, who were available on the day the study was conducted.

Table 1
Distribution of Respondents
(N=180)

Nationality	No. of Respondents
Filipino	89
American	36
Korean	55
Total	**180**

Research Instrument

This study was conducted using a self-made questionnaire to assess tourists' satisfaction and expenditures in Panglao. The questionnaire was developed based on theories from existing research studies and was designed to capture necessary data for the study. Prior to distribution, the researchers piloted the questionnaire to ensure its effectiveness. It included questions about tourists' overall satisfaction with their stay in Panglao, their expenditures during the trip, and their opinions regarding the impact of the COVID-19 pandemic on their experience. Additionally, demographic questions such as age, gender, and nationality were included.

Data Gathering Procedure

The researchers sent a formal letter to the Municipal Mayor of Panglao, requesting permission to conduct a survey in the popular Alona Beach area. The researchers proceeded with the project only after obtaining approval from their adviser and the High School Principal. Once all necessary approvals were secured, the researchers distributed questionnaires to selected respondents, allowing them sufficient time to respond.

Data Analysis

The following treatment was used in the data analysis. The responses were compiled, tabulated, and tallied. To determine the profile of the respondents in terms of age, gender, and nationality, the researchers employed the percentage formula.

$$P = \frac{f}{n} x\ 100\%$$

Where:

P = simple percentage

f = frequency

In determining the respondents' profile on satisfaction in Panglao and their profile on expenditures, the Weighted Mean was used.

$$WM = \frac{\sum fx}{N}$$

Where:

WM = Weighted Mean

fx = summation of frequency of scale x

N = number of cases

Meanwhile, to determine the significant relationship between the respondents' satisfaction and expenditures amidst the new normal, the Pearson Product Moment Coefficient of Correlation was utilized.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where:

r= the Pearson Product Moment Coefficient of Correlation

n = sample size

$\sum xy$ = the sum of the product of x and y

$\sum x$ = summation of x

$\sum y$ = summation of y

$\sum x^2$ = sum of the squares of x

$\sum y^2$ = sum of the squares of y

RESULTS

This chapter presents, analyzes, and interprets the data regarding the research question. The gathered data are tallied and presented in tabulated, textual, and graphical forms, and analyzed in the context of the variables examined in this study.

The first part focuses on profiling respondents in terms of age, nationality, and gender. The second part presents data concerning respondents' satisfaction with expenditures and their overall satisfaction amidst the new normal. The last part discusses data related to significant differences in respondents' perceptions of their satisfaction amidst the new normal.

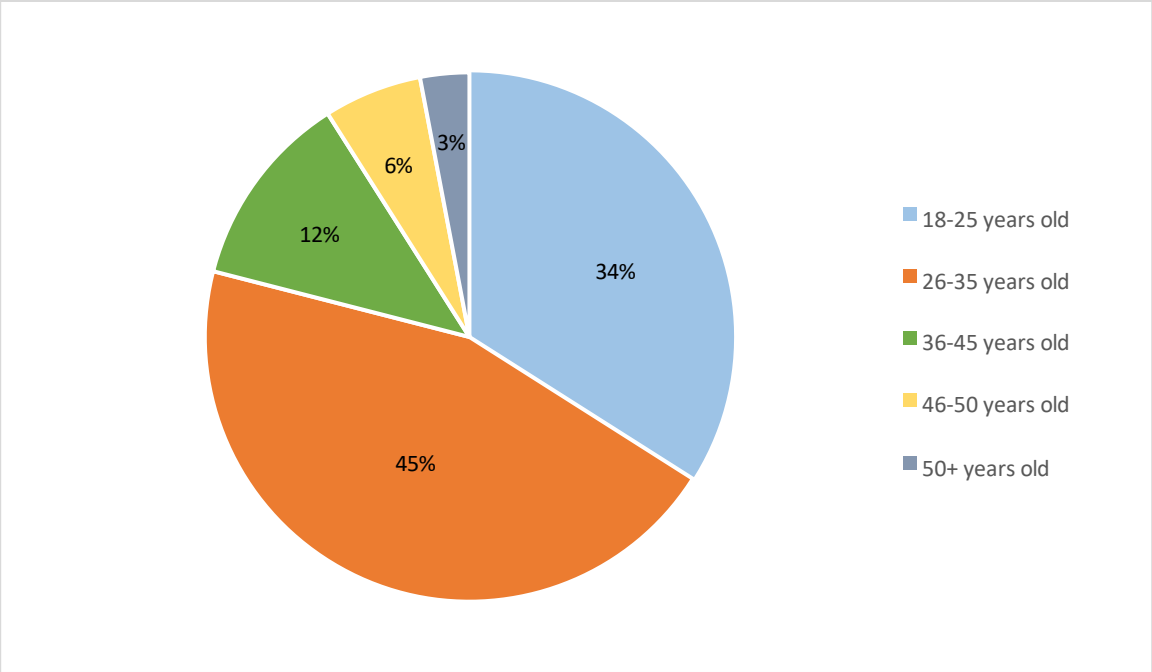


Figure 2. Respondents' Profile on Age (N=180)

Figure 2 presents the respondents' profile on age. As shown in the figure, the ages 26 to 35 years old obtained the highest percentage of 45%, while the ages 50 and above years old obtained the lowest percentage of 3%. This indicates that the majority of respondents in the study fall within the 26 to 35 age group, with a smaller proportion of respondents aged 50 and above.

According to (Department of Tourism, 2022) regarding travel behavior among Filipinos. It examines a wide range of age groups, spanning from younger to older individuals, indicating that travel is a common activity across different generations in the Philippines. The study reports that, on average, Filipinos in the surveyed population make trips relatively frequently, suggesting that travel is not just an occasional activity but is a common practice among Filipinos. Furthermore, the primary purpose of these trips is identified as leisure, indicating that a significant proportion of travelers engage in recreational travel for purposes such as vacations or tourism.

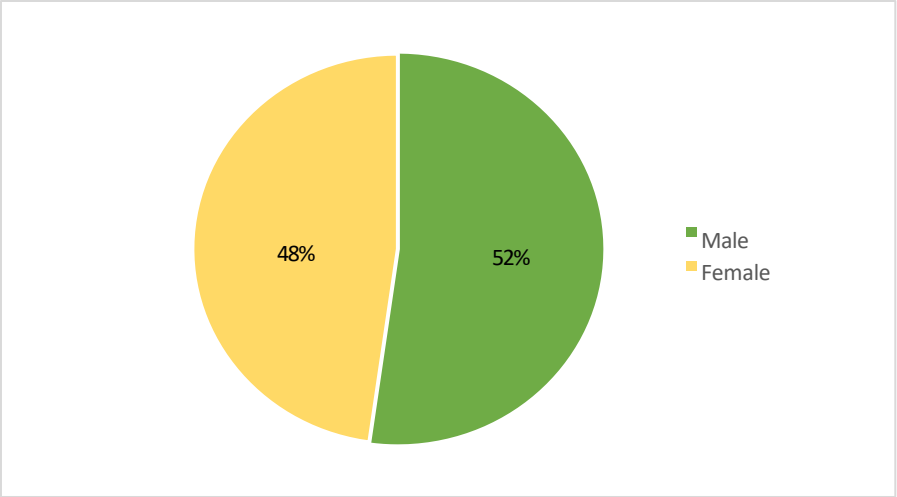


Figure 3. Respondents' Profile on Gender (N=180)

Figure 3 reveals the respondents' profile on gender. It showed that 52% of the participants identified as males, while the remaining 48% identified as females. This indicates that there was a slight majority of male respondents in the study, with a slightly smaller proportion of female respondents.

According to Martin (2020), tourist satisfaction is not uniform and varies based on gender-related preferences and expectations. For instance, safety concerns and travel choices may differ between male and female tourists in the Philippines, impacting their overall satisfaction. Service providers and destination marketers in the country should consider these gender-specific factors to tailor their offerings and enhance the satisfaction of all tourists in the post-pandemic tourism environment.

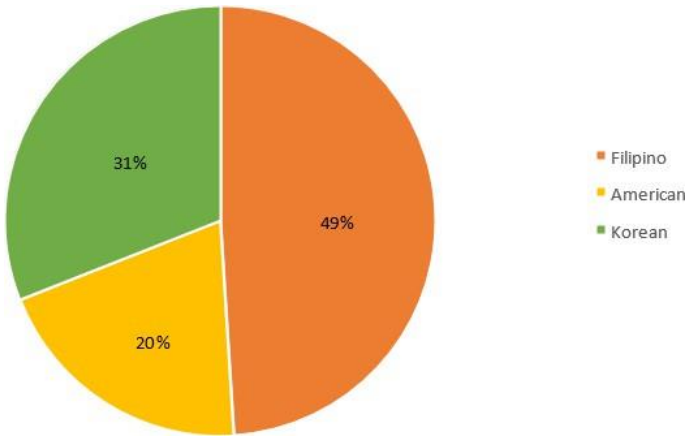


Figure 4. Respondents' Profile on Nationality (N=180)

Figure 4 shows the respondents' profile on nationality. It is revealed that 49% were Filipinos, while 20% were Americans. This indicates that most of the respondents'

nationality were Filipinos. This may be due to the fact that this research is conducted in the Philippines, and most of the population are Filipinos which restricts the diversity of the nationalities of the respondents.

The significant increase in both foreign and local tourist arrivals in Bohol is indicative of a substantial potential boost in tourist expenditure within the region. This surge in arrivals, particularly from South Korea, underscores a strong and consistent flow of spending on accommodations, dining, transportation, and leisure activities. Such expenditure can significantly contribute to the economic growth and sustainability of Bohol's tourism industry (Bohol Tourist Arrivals up by 129% in First 5 Months, 2023).

Table 2
Tourists' Satisfaction Amidst New Normal (N=180)

Statements	WM	DV	RANK
1. The overall travel experience is satisfactory.	4.70	Very Satisfied	1
2. I am satisfied with the accommodations I stayed at during my trip.	4.60	Very Satisfied	6.5
3. The availability of food options made me satisfied.	4.57	Very Satisfied	9
4. The level of customer service I received was satisfactory.	4.61	Very Satisfied	3.5
5. My trip was so satisfactory that I would recommend it to others.	4.59	Very Satisfied	8
6. The trip was satisfactory enough that I would come back here for another trip.	4.60	Very Satisfied	6.5
7. The availability of transportation options are satisfactory.	4.54	Very Satisfied	10
8. The cleanliness and maintenance of the places I visited made me satisfied.	4.61	Very Satisfied	3.5
9. I am satisfied with the use of money during my trip in Panglao.	4.61	Very Satisfied	3.5
10. The safety measures implemented in Panglao is satisfactory.	4.64	Very Satisfied	2
Composite Mean	**4.61**	**Very Satisfied**	

Legend:
4.20–5.00 – Very Satisfied
3.40–4.19 – Satisfied
2.60–3.39 – Neutral
1.80–2.59 – Dissatisfied
1.00–1.79 – Very Dissatisfied

Table 2 shows Tourists' Satisfaction Amidst New Normal. Notably, Statement 1, 'The overall travel experience is satisfactory,' garnered the highest weighted mean of 4.70, indicating that respondents are 'Very Satisfied' with their travel experience. Conversely, Statement 7, 'The availability of transportation options is satisfactory,' achieved the lowest weighted mean of 4.54, although it still signifies that respondents are 'Very Satisfied' with transportation options. The overall weighted mean for all statements stands at 4.61, characterized as 'Very Satisfied.' This implies Panglao as an exceptionally attractive tourist destination.

This positive impression is likely to result in glowing reviews and enthusiastic recommendations, potentially driving increased visitor numbers.

Tourist satisfaction continues to hold a pivotal position as a marketing tool. In the evolving landscape of tourism, tourist satisfaction is more critical than ever. It represents the joy experienced by tourists, serving as a clear indicator of their overall satisfaction. As tourists relish their visits in this transformed environment, their contentment becomes a significant factor influencing their decisions to return for future visits (Fatmawati & Olga, 2023).

Table 3
Tourists' Expenditures Amidst New Normal (N=180)

Statements	WM	DV	RANK
1. The reasonable food prices make me satisfied.	4.56	Very Satisfied	5
2. The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied.	4.31	Very Satisfied	10
3. The fairness of pricing for buying gifts/souvenirs here is satisfactory.	4.47	Very Satisfied	9
4. The prices of hotels left me satisfied.	4.53	Very Satisfied	7
5. The cost of island hopping is what I am satisfied with.	4.52	Very Satisfied	8
6. The favorable pricing of additional offers and handcraft products at this tourist destination satisfies me.	4.55	Very Satisfied	6
7. Staying at Panglao is worth every peso paid.	4.62	Very Satisfied	3.5
8. The nature of services makes me find them satisfying.	4.62	Very Satisfied	3.5
9. The belief that Panglao values my money and offers fair pricing is what I find.	4.63	Very Satisfied	2
10. I am satisfied with my overall stay.	4.66	Very Satisfied	1
Composite Mean	**4.55**	**Very Satisfied**	

Legend:
4.20–5.00 – Very Satisfied
3.40–4.19 – Satisfied
2.60–3.39 – Neutral
1.80–2.59 – Dissatisfied
1.00–1.79 – Very Dissatisfied

Table 3 shows Tourists' Expenditures Amidst New Normal. Data revealed that statement 2, "The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied," received a weighted mean of 4.31, placing it as the lowest scoring. On the other hand, statement 10, "I am satisfied with my overall stay", received the highest with a weighted mean of 4.66. Despite being the lowest score, it's still labeled as "Very Satisfied," indicating a high level of satisfaction. While slightly lower

than other statements, overall sentiment is positive. Respondents found Panglao's transportation affordability relative to other tourist destinations satisfactory.

Tourists will try to reduce their travel expenses either by targeting more affordable destinations, seeking special offers or shortening the length of their stay. In relation to this study, tourists would be more cautious about their travel spending as a result of the economic crisis. Thus, even after the crisis, it is critical to consider attractively priced offers that may seduce and attract tourists as long as the offer is tailored to their financial situation (Estremera, 2020).

Table 4
Satisfaction of Filipino Tourists' Amidst New Normal
(N=89)

Statements	WM	DV	RANK
1. The overall travel experience is satisfactory.	4.74	Very Satisfied	1
2. I am satisfied with the accommodations I stayed at during my trip	4.58	Very Satisfied	8.5
3. The availability of food options made me satisfied.	4.60	Very Satisfied	5.5
4. The level of customer service I received was satisfactory.	4.65	Very Satisfied	2
5. My trip was so satisfactory that I would recommend it to others.	4.58	Very Satisfied	8.5
6. The trip was satisfactory enough that I would come back here for another trip.	4.64	Very Satisfied	3
7. The availability of transportation options are satisfactory.	4.58	Very Satisfied	8.5
8. The cleanliness and maintenance of the places I visited made me satisfied.	4.60	Very Satisfied	5.5
9. I am satisfied with the use of money during my trip in Panglao.	4.60	Very Satisfied	5.5
10. The safety measures implemented in Panglao is satisfactory.	4.61	Very Satisfied	4
Composite Mean	**4.62**	**Very Satisfied**	

Legend:
4.20-5.00 – Very Satisfied **1.80-2.59 – Dissatisfied**
3.40-4.19 – Satisfied **1.00-1.79 – Very Dissatisfied**
2.60-3.39 – Neutral

Table 4 shows Tourists' Satisfaction of Filipinos Amidst the New Normal. Data revealed that statement 1, "The overall travel experience is satisfactory," received a weighted mean of 4.74, indicating the highest level of satisfaction among respondents. While the lowest weighted mean is statement 2, "I am satisfied with the accommodations I stayed at during my trip," statement 5, "My trip was so satisfactory that I would recommend it to others," and statement 7, "The availability of transportation options are satisfactory," gaining weighted mean of 4.58.

The overall weighted mean of 4.62 suggests that while tourists in the Philippines generally express a high level of overall satisfaction with their experiences during the new normal, but there is room for improvement in areas such as accommodations, transportation, and recommendations to others.

The satisfaction of tourists visiting the Philippines is an essential factor in the growth of tourism in the region.

Therefore, it is crucial to ensure that tourists visiting the Philippines are satisfied with their experience. This can be achieved by providing quality services and products that meet their needs and expectations. By doing so, we can increase their satisfaction levels and encourage them to revisit in the future (Gök & Sayın, 2015).

Table 5
Expenditures of Filipino Tourists' Amidst New Normal
(N=89)

Statements	WM	DV	RANK
1. The reasonable food prices make me satisfied.	4.58	Very Satisfied	4.5
2. The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied.	4.24	Very Satisfied	10
3. The fairness of pricing for buying gifts/souvenirs here is satisfactory.	4.52	Very Satisfied	7.5
4. The prices of hotels left me satisfied.	4.49	Very Satisfied	9
5. The cost of island hopping is what I am satisfied with.	4.52	Very Satisfied	7.5
6. The favorable pricing of additional offers and handcraft products at this tourist destination satisfies me.	4.53	Very Satisfied	6
7. Staying at Panglao is worth every peso paid.	4.64	Very Satisfied	3
8. The nature of services makes me find them satisfying.	4.69	Very Satisfied	1
9. The belief that Panglao values my money and offers fair pricing is what I find.	4.58	Very Satisfied	4.5
10. I am satisfied with my overall stay.	4.66	Very Satisfied	2
Composite Mean	**4.55**	**Very Satisfied**	

Legend:
4.20-5.00 – Very Satisfied
3.40-4.19 – Satisfied
2.60-3.39 – Neutral
1.80-2.59 – Dissatisfied
1.00-1.79 – Very Dissatisfied

Table 5 shows the Expenditures of Filipino Tourists' Amidst New Normal. Among the statements, Statement 8, 'The nature of services makes me find them satisfying,' obtained the highest weighted mean of 4.69, indicating that respondents are 'Very Satisfied' with the quality of services. Conversely, Statement 2, 'The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied,' received the lowest weighted mean of 4.24, suggesting that respondents are 'Very Satisfied,' although to a slightly lesser extent. The Composite Mean for all statements is 4.55, with a descriptive value of 'Very Satisfied,' implying that, overall, tourists are leaving with positive impressions of their experiences, which can enhance Panglao's reputation as a tourist destination.

According to the Philippine News Agency (2023), the Department of Tourism (DOH) has set ambitious goals for 2023, aiming to attract a substantial number of visitors and generate significant revenue. The article also mentions that the Philippines exceeded its arrivals target for 2022, indicating a growing tourism industry with the potential to contribute significantly to the country's economy.

Table 6 Satisfaction of Korean Tourists' Amidst New Normal (N=36)

Statements	WM	DV	RANK
1. The overall travel experience is satisfactory.	4.71	Very Satisfied	1
2. I am satisfied with the accommodations I stayed at during my trip	4.67	Very Satisfied	3.5
3. The availability of food options made me satisfied.	4.55	Very Satisfied	9
4. The level of customer service I received was satisfactory.	4.60	Very Satisfied	6.5
5. My trip was so satisfactory that I would recommend it to others.	4.65	Very Satisfied	5
6. The trip was satisfactory enough that I would come back here for another trip.	4.60	Very Satisfied	6.5
7. The availability of transportation options are satisfactory.	4.49	Very Satisfied	10
8. The cleanliness and maintenance of the places I visited made me satisfied.	4.58	Very Satisfied	8
9. I am satisfied with the use of money during my trip in Panglao.	4.67	Very Satisfied	3.5
10. The safety measures implemented in Panglao is satisfactory.	4.69	Very Satisfied	2
Composite Mean	**4.62**	**Very Satisfied**	

Legend:
4.20-5.00 – Very Satisfied
3.40-4.19 – Satisfied
2.60-3.39 – Neutral
1.80-2.59 – Dissatisfied
1.00-1.79 – Very Dissatisfied

Table 6 shows the Satisfaction of Korean Tourists' Amidst New Normal. Notably, Statement 1, 'The overall travel experience is satisfactory,' garnered the highest weighted

mean of 4.71, signaling that respondents are 'Very Satisfied' with the entirety of their travel experience. This signifies an overwhelmingly positive impression of Panglao as a tourist destination. On the other hand, Statement 7, 'The availability of transportation options is satisfactory,' received the lowest weighted mean of 4.49. While this indicates a degree of satisfaction, there is room for potential improvements in transportation offerings to further elevate the tourist experience. The Composite Mean for all statements is an impressive 4.62, with a descriptive value of 'Very Satisfied.' This implies that Korean tourists have immensely enjoyed their stay, likely contributing to positive reviews and potential return visits.

With more tourism products and services available in tourist destinations to serve an increasing number of tourists, there is a tendency for mass tourism to develop because of higher tourism density. This may pose threats to sustainability and increase pandemic susceptibility undermining safety, which may lead to a decline in experience, satisfaction, and commendations (Roxas et al., 2020).

Table 7
Expenditures of Korean Tourists' Amidst New Normal
(N=36)

Statements	WM	DV	RANK
1. The reasonable food prices make me satisfied.	4.58	Very Satisfied	6.5
2. The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied.	4.40	Very Satisfied	10
3. The fairness of pricing for buying gifts/souvenirs here is satisfactory.	4.49	Very Satisfied	9
4. The prices of hotels left me satisfied.	4.58	Very Satisfied	6.5
5. The cost of island hopping is what I am satisfied with.	4.55	Very Satisfied	8
6. The favorable pricing of additional offers and handcraft products at this tourist destination satisfies me.	4.60	Very Satisfied	5
7. Staying at Panglao is worth every peso paid.	4.62	Very Satisfied	4
8. The nature of services makes me find them satisfying.	4.65	Very Satisfied	3
9. The belief that Panglao values my money and offers fair pricing is what I find.	4.75	Very Satisfied	1
10. I am satisfied with my overall stay.	4.71	Very Satisfied	2
Composite Mean	**4.60**	**Very Satisfied**	

Legend:
4.20-5.00 – Very Satisfied
3.40-4.19 – Satisfied
2.60-3.39 – Neutral
1.80-2.59 – Dissatisfied
1.00-1.79 – Very Dissatisfied

Table 7 shows the Expenditures of Korean Tourists' Amidst New Normal. Among the statements, Statement 9, 'The belief that Panglao values my money and offers fair pricing is what I find,' achieved the highest weighted mean of 4.75, signifying a 'Very Satisfied' rating. In contrast, Statement 2, 'The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied,' received the lowest weighted mean of 4.40, although still indicating 'Very Satisfied' sentiments among respondents. The overall weighted mean for all statements is 4.60, with a descriptive value of 'Very Satisfied.' This implies that Panglao's reputation for transparent and reasonable pricing is a significant asset, likely fostering trust and loyalty among tourists.

According to the Philippine Statistics Authority (2023), data from 2021 to 2022 reflects significant growth in both inbound and domestic tourism expenditure in the Philippines. This upward trend is a promising sign for the country's tourism industry. In conclusion of the study, by analyzing tourist expenditures during this period, valuable insights can be gained to identify areas for improvement and ultimately enhance overall tourist satisfaction.

Table 8
Satisfaction of American Tourists' Amidst New Normal
(N=55)

Statements	WM	DV	RANK
1. The overall travel experience is satisfactory.	4.58	Very Satisfied	3
2. I am satisfied with the accommodations I stayed at during my trip.	4.42	Very Satisfied	10
3. The availability of food options made me satisfied.	4.56	Very Satisfied	4.5
4. The level of customer service I received was satisfactory.	4.53	Very Satisfied	6.5
5. My trip was so satisfactory that I would recommend it to others.	4.53	Very Satisfied	6.5
6. The trip was satisfactory enough that I would come back here for another trip.	4.50	Very Satisfied	9
7. The availability of transportation options are satisfactory.	4.53	Very Satisfied	6.5
8. The cleanliness and maintenance of the places I visited made me satisfied.	4.69	Very Satisfied	1
9. I am satisfied with the use of money during my trip in Panglao.	4.56	Very Satisfied	4.5
10. The safety measures implemented in Panglao is satisfactory.	4.67	Very Satisfied	2
Composite Mean	**4.56**	**Very Satisfied**	

Legend:
4.20–5.00 – Very Satisfied
3.40–4.19 – Satisfied
2.60–3.39 – Neutral
1.80–2.59 – Dissatisfied
1.00–1.79 – Very Dissatisfied

Table 8 shows the Satisfaction of American Tourists' Amidst New Normal. Notably, Statement 8, 'The cleanliness and maintenance of the places I visited made me satisfied,' obtained the highest weighted mean of 4.69, signifying that American tourists are 'Very Satisfied' with the cleanliness and upkeep of Panglao's attractions. Conversely, Statement 2, 'I am satisfied with the accommodations I stayed at during my trip,' received the lowest weighted mean of 4.42, though it still indicates 'Very Satisfied'. The overall weighted mean for all statements is 4.56, with a descriptive value of 'Very Satisfied.' This implies that American tourists have enjoyed a successful and enjoyable experience in Panglao. These positive experiences are likely to translate into positive reviews, recommendations, and potentially repeat visits, ultimately benefiting the local tourism industry and supporting its growth in the long term.

The substantial influx of American tourists to the Philippines in 2022, with approximately 505.1 thousand travelers, underscores the pivotal role of the American market in Philippine tourism. This prominent presence of American tourists is indicative of the country's appeal and attraction to travelers from the United States. However, it's important to note that the COVID-19 pandemic severely disrupted the travel industry, resulting in a notable reduction in international tourist arrivals in 2021. As the tourism sector seeks to recover, it will be essential for the Philippines to prioritize and enhance the satisfaction of American tourists, given their significant contribution to the industry and the potential for their continued support in revitalizing the country's tourism sector (Mondares, 2023).

Table 9 represents the Tourists' Expenditures of Americans Amidst New Normal. The highest-rated aspect in the survey was "I am satisfied with my overall stay," with a score of 4.58. The lowest-rated aspect in the survey was "The fairness of pricing for buying gifts/souvenirs here is satisfactory," which received a score of 4.31. It is categorized as "Very Satisfied," indicating that tourists generally found the pricing for gifts and souvenirs to be fair. Overall, the tourists had a positive travel experience in regard to their expenditures, with a composite mean score of 4.47, categorizing their satisfaction level as "Very Satisfied". This indicates that the generally positive travel experience of tourists regarding their expenditures for gifts and souvenirs may require attention from entrepreneurs to enhance both their businesses and the satisfaction of tourists, considering it was the lowest-rated aspect in the survey, despite being categorized as "Very Satisfied".

The pandemic's economic impact has led to a shift in behavior largely attributed to budget constraints and financial considerations of American tourists in the Philippines. Tourists are now prioritizing price over service quality when making travel decisions. They are more likely to seek cost-effective travel options and value-for-money experiences while being mindful of their expenditures (Allan et al., 2022).

Table 9
Expenditures of American Tourists' Amidst New Normal
(N=55)

Statements	WM	DV	RANK
1. The reasonable food prices make me satisfied.	4.44	Very Satisfied	7
2. The affordability of transportation to Panglao compared to other tourist destinations leaves me satisfied.	4.36	Very Satisfied	9
3. The fairness of pricing for buying gifts/souvenirs here is satisfactory.	4.31	Very Satisfied	10
4. The prices of hotels left me satisfied.	4.53	Very Satisfied	4.5
5. The cost of island hopping is what I am satisfied with.	4.50	Very Satisfied	6
6. The favorable pricing of additional offers and handcraft products at this tourist destination satisfies me.	4.53	Very Satisfied	4.5
7. Staying at Panglao is worth every peso paid.	4.56	Very Satisfied	2.5
8. The nature of services makes me find them satisfying.	4.39	Very Satisfied	8
9. The belief that Panglao values my money and offers fair pricing is what I find.	4.56	Very Satisfied	2.5
10. I am satisfied with my overall stay.	4.58	Very Satisfied	1
Composite Mean	**4.47**	**Very Satisfied**	

Legend:
4.20–5.00 – Very Satisfied
3.40–4.19 – Satisfied
2.60–3.39 – Neutral
1.80–2.59 – Dissatisfied
1.00–1.79 – Very Dissatisfied

Table 10 shows the computed r value of 0.5324 which is greater than the critical value of 0.1463 and the computed p value of < 0.00001. The value indicated that the null hypothesis is to be rejected. This further implies a strong positive correlation (r = 0.5324) between the variables. The critical r value of ± 0.1463 signifies the statistical significance (p < 0.00001) of the relationship and rejecting the null hypothesis (Ho). This is significant for further investigation to understand the nature and real-world implications of this relationship between the tourists' satisfaction and their expenditures.

Table 10
Significant Relationship Between Tourist Satisfaction and Expenditures Amidst New normal
(N=180)

Relationship	Computed r	Critical r value	P – value	Decision
Tourists' Satisfaction VS Expenditures	0.5324	± 0.1463	< 0.00001	Reject Ho

Restaurants and other businesses can consider the accommodations for tourists by preparing a risk management plan to pursue their operations and adapt to the new normal. In the new normal of travel, tourists seek reassurance that their health and safety are a top priority. Businesses that proactively address these concerns by implementing measures such as enhanced sanitation protocols, physical distancing arrangements, and flexible booking options not only mitigate risks but also contribute to a more enjoyable and stress-free experience for tourists (Martín et al., 2022).

DISCUSSION

Findings

Based on the data gathered, the following emerged which served as bases for making the following:

1. Respondents' Profile

On Age. Most of the respondents are comprised of young adults from 18 years old to 35 years old, followed by adults from 36 years old, and then only a few from 50 years old above.

On Gender. In terms of gender, the respondents were half between males and females, with males having a few more than females.

On Nationality. Almost half of the respondents were led by Filipinos, followed by Americans, and then Koreans.

2. Respondents' Satisfaction

On Satisfaction. It indicated that Panglao is an extraordinarily appealing tourist location. This pleasant impression is likely to result in great evaluations and enthusiastic recommendations, perhaps generating increasing visitor numbers.

On Filipino Tourists. While tourists in the Philippines usually express a high degree of overall satisfaction with their experiences during the new normal, implied that there is potential for improvement in areas like as lodgings, transportation, and recommendations to others.

On Korean Tourists. This Indicated that Korean visitors had a fantastic time, which likely contributed to favorable evaluations and future repeat trips.

On American Tourists. This indicated that American visitors had a successful and delightful trip to Panglao. These favorable experiences are likely to transfer into positive evaluations, recommendations, and maybe future trips, ultimately benefiting and boosting the local tourist industry's long-term growth.

3. Respondents' Expenditures

On Expenditures. Respondents evaluated Panglao's transportation affordability to be satisfactory in comparison to comparable tourist locations.

On Filipino Tourists. This indicated that travelers are generally satisfied with their experiences, which can help Panglao's reputation as a tourist destination.

On Korean Tourists. This indicated that Panglao's reputation for clear and affordable pricing is an asset, presumably promoting confidence and loyalty among tourists.

On American Tourists. This indicated that the generally positive travel experience of tourists regarding their expenditures for gifts and souvenirs may require attention from entrepreneurs to enhance both their businesses and tourist satisfaction.

Conclusion

The researchers reached a conclusion that there is a strong correlation between tourists' satisfaction and expenditures, indicating that the experiences they have during their stay, as well as their spending habits in the new normal, significantly impact their overall well-being. This emphasizes the importance of factoring in tourists' socio-emotional well-being when planning their trips, recognizing the profound influence of their experiences and spending habits on their holistic welfare.

Recommendations

Based on the conclusions drawn from our comprehensive analysis, the following recommendations are proposed to enhance tourists' satisfaction and expenditures in Panglao, Bohol:

1. The Private Sectors and Local Government Unit (LGU) may invest in upgrading transportation systems to enhance accessibility for tourists, including efficient shuttle services and improved connectivity to key destinations to reduce travel times, making the region more attractive to visitors.

2. Business owners in Panglao may implement a tiered pricing approach catering to tourists with varying budgets, encompassing both budget-friendly and luxury options in accommodation, dining, and activities to ensure that all tourists find value in their expenditures.

3. The Department of Tourism may embrace sustainable tourism practices to preserve the natural beauty of the region, including implementing eco-friendly measures such as beach clean-up programs, waste reduction, and responsible wildlife encounters to attract eco conscious travelers and ensure the long-term sustainability of the destination.

4. The Local Government Union may promote cultural showcases, art exhibitions, and recreational activities to diversify the tourist experience and extend their stay. By offering engaging and culturally enriching activities, Panglao can encourage tourists to spend more time and resources in the region, benefiting local businesses and enhancing the overall visitor experience.

Compliance with Ethical Standards

This study adhered to ethical standards by obtaining informed consent from all participants, ensuring confidentiality, and maintaining voluntary participation without coercion. No harm came to participants, and the study received ethics committee approval. Researchers declared no conflicts of interest and reported findings transparently and honestly. Cultural sensitivity was respected throughout the research process.

PROPOSED IMPROVEMENT PLAN OF TOURISTS' SATISFACTION AND EXPENDITURES AMIDST NEW NORMAL

Rationale

The COVID-19 pandemic has significantly impacted the tourism sector worldwide, and Panglao is no exception. By implementing this plan, local stakeholders and officials can proactively tackle these challenges and ensure the sustainability and growth of tourism in the area. Regulating pricing practices is crucial for building tourists' trust and confidence in the destination. Fair and transparent pricing practices will not only benefit tourists but also contribute to the long-term success of local businesses.

Prioritizing health and safety measures is essential for Panglao to adapt to the "new normal". Furthermore, continuous awareness campaigns will help educate both locals and tourists about the importance of adhering to health and safety guidelines, creating a sense of responsibility and cooperation within the community. Maintaining high quality standards is paramount for attracting and retaining tourists. Cleanliness and exceptional service will not only satisfy tourists but also generate positive reviews and word-of-mouth recommendations, further enhancing Panglao's reputation as a preferred destination. This will ultimately lead to increased tourist satisfaction and expenditures, contributing to the economic growth and development of the region.

Objectives

This study aims to explicitly realize the following goals:

- To evaluate tourist satisfaction within the new normal by examining contributing factors, overall satisfaction levels, and segment-specific variations.
- To examine the influence of the new normal on tourists' spending habits by investigating the effects of travel restrictions, health protocols, and safety measures and by comparing pre-pandemic and post-pandemic expenditure trends to assess their economic implications on the tourism industry.
- To investigate the correlation between tourist satisfaction and expenditures in the new normal, analyzing whether higher satisfaction levels are associated with increased spending and identifying the specific factors that shape this relationship within the current travel environment.
- To provide recommendations for stakeholders in the tourism industry, this objective seeks to offer actionable insights to enhance tourist satisfaction and stimulate spending in the "new normal." It also aims to suggest adaptive strategies that align with changing consumer preferences and expectations within the post-pandemic tourism landscape.

Mechanics of Implementation

Before putting their plans into action, the researchers need to make sure that the proposed improvement plan has been shared with and evaluated by the research panel.

This step is vital as the panelists' guidance, recommendations, and insights will significantly contribute to enhancing and elucidating the intended deliverables. Once the researchers obtain approval from the panelists, they can proceed with confidence.

Schedule of Implementation

After the proposed program has been approved by the authorities in charge, researchers must submit the improvement plan to the relevant authorities, informing them of the study's findings and recommendations. Once authorization is granted, the program can be implemented.

Monitoring and Evaluation

A monitoring and evaluation tool will be adapted to assess how the tourist satisfaction and expenditures within the new normal can be optimized. Regular assessments will be conducted by the researchers to identify areas of concern among tourists, aiming to improve their overall experience and enhance the financial impact on the local economy. This process will ensure that the tourism strategy aligns with the evolving needs of travelers in this changed environment.

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TRACING TRIUMPH: A COMPREHENSIVE STUDY OF PASSI CITY COLLEGE GRADUATES - REVEALING CAREER OUTCOMES AND COMPETENCIES FROM 2009 TO 2018

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ABSTRACT

This study utilized a descriptive research design to assess the research training needs of faculty members at Passi City College. A sample of 45 faculty members was selected through convenience sampling from a total population of 77. Data were collected using a 25-item Faculty Research Capability-building Instrument, and analysis involved frequency count, percentage, mean, and standard deviation calculations. The study identified the top ten research training needs, including evaluating programs and activities, determining statistical tools, conducting lesson study and writing research lessons, research advising and mentoring, developing and validating research instruments, conducting research for beginners, using quantitative methods, conducting action research for instructional improvement, evaluating extension service impact, and training on intellectual property and patent review. Areas such as conducting mixed methods research, writing terminal reports for extension services, paraphrasing cited texts, assessing community needs for extension services, and conducting qualitative methods were also recognized but deemed slightly less urgent. A strong positive correlation was observed between faculty preferences and the level of research training need. These findings offer valuable insights for Passi City College to design targeted training programs and support faculty in enhancing their research capabilities. However, limitations include the use of convenience sampling and self-reported data. Future research is encouraged to validate these findings in broader contexts.-The study was conducted at Passi City College from March 20 to June 2018.

Keywords: *Assessment, Research, Training Needs, Development Plan*

INTRODUCTION

A tracer study, according to LLego and Bañez (2017), is one means of maintaining the caliber of the curriculum and providing intended use to graduates to boost the quality of a certain course. One role of every educational and academic institution is to trace their graduates to look if the program had an impact to the graduates, institution and society. Also, Hazaymeh & Peña (2013) stated that graduate surveys provide rich experience about the whereabouts of graduates, which might help to broaden perspectives among administrators, faculty and students. Such information like the income, economic sector, current job title, working time, duration of search for the first job, methods of job search, values develop and practice in work, skills acquired are relevant for higher education institutions to note.

The Passi City Local Government established Passi City College on February 3, 2005, through the Special Ordinance No. 2005-02, which was duly approved by the Sangguniang Panlalawigan through a Joint Committee Report No. 01 Series of 2005 on March 28, 2005. Passi City College offers tertiary education to six courses, the Bachelor of Science in Business Administration (BSBA), previously BS Commerce, the Bachelor in Secondary Education (BSED), Bachelor in Elementary Education (BEED), Bachelor of Science in Criminology (BSCRIM), and the Bachelor of Science in Hotel and Restaurant Management (BSHRM).

The college started producing graduates in the year 2008 till 2018. The purpose of this study is to track the career paths of our graduates and, at the same time, to evaluate the strengths and weaknesses of the institution in providing tertiary education to its graduates.

Research Questions

This study aims to keep track of the performance of PCC graduates for school year 2009 – 2018.

Specifically, it seeks to answer the following:

1. What is the profile of the graduate of Passi City College in terms of the following:
   - Year Graduate
   - Course
2. What is the present occupation of graduates of Passi City College?
3. What major line of business are they currently employed in?
4. What is the present employment status of PCC graduates?
5. What is the present job level position of PCC graduates?
6. What competencies PCC graduates find most important to meet the demands of the industry and the challenge of competitiveness?

METHODOLOGY

The study employed the descriptive-survey research. Descriptive-survey research is a type of research that uses surveys to collect data about a population or phenomenon.

The data collected is used to describe the characteristics of the population or phenomenon, such as their demographics, attitudes, or behaviors (Creswell, & Plano Clark, 2017). The respondents of the study were the 152 PCC graduates school year 2009 – 2018. Of which thirteen (13) graduated in 2009, fourteen(14) in 2010, ten (10) in 2011, four (4) in 2012, twelve (12) in 2013, twenty four (24) in 2014, thirty (30) in 2015, twenty three (23) in 2016, twelve (12) in 2017, ten (10) in 2018.

This study makes use of snowball sampling. Snowball sampling (also known as chain referral sampling or network sampling) is a non-probability sampling method in which initial participants recruit subsequent participants, who then recruit more participants, and so on. This creates a chain of referrals that can be used to identify and recruit members of a population that would be difficult to reach through other methods (Heckathorn, (1997). The tools that were utilized by the researchers in gathering the employability of PCC graduates from the school year 2005 – 2017 were the researcher-made Questionnaire – checklist based from the standardized Commision on Higher Education (CHED) tracer study survey questionnaire. To ensure the validity of the instrument, the panel of validators who are experts in the field checked the instrument as to its content and face value. The researchers used a researcher – made questionnaire checklist which was validated by the panel of validators who looked into the content of the instrument.

The researchers produced copies of the instrument and began with the data gathering by personally looking for PCC graduates, using Social Media, and employing the assistance of the Office of the Association of Barangay Captains in Passi City. Cellular phone interview was conducted to those who worked in some distant places, at the same time, using Facebook Messenger. During the interview, the researchers oriented the respondents of what the study is all about. Likewise, statements were clearly stated to ensure the reliability of results. After all the necessary data were gathered, the researcher thanked the respondents for their cooperation. The data gathered were then tabulated, analyzed, and interpreted. The data that were obtained from the study were statistically interpreted through frequency and percentage count. Frequency and Percentage Count was used to describe the profile of the graduate of Passi City College in terms of year graduated and course, their present occupation, major line of business they are currently employed, present employment status, present job level position and the competencies PCC graduates find most important**.** Rank was used to present the competencies PCC graduates find most important in meet the demands of the industry and the challenge of competitiveness.

RESULTS

Profile of the Graduates of Passi City in Terms of Year Graduated. The table presents a comprehensive profile of graduates from Passi City, categorized by the year they graduated, spanning from 2009 to 2018. Across the specified period, a total of 152 graduates were recorded. Examining the distribution across individual years provides insights into the fluctuating trends in graduation numbers. In 2009, there were 13 graduates, constituting 8.6% of the total. The subsequent year, 2010, witnessed a slight

increase with 14 graduates, representing 9.2% of the total. However, 2011 saw a slight decrease with 10 graduates, accounting for 6.6%. The year 2012 marked the lowest number of graduates with only 4, making up 2.6% of the total. In 2013, the number increased slightly to 12 graduates, representing 7.9%. The following year, 2014, experienced a notable surge with 24 graduates, constituting 15.8% of the total, marking a significant increase. In 2015, the number of graduates reached its peak with 30, representing 19.7%. Subsequent years showed fluctuations with 23 graduates in 2016, accounting for 15.1%, and 12 graduates in 2017, also accounting for 7.9%. Finally, in 2018, there were 10 graduates, making up 6.6% of the total. This data illustrates varying graduation rates over the years, with notable fluctuations and occasional peaks, suggesting potential shifts in educational dynamics or population trends within Passi City.

Table 1

Profile of the Graduates of Passi City in Terms of Year Graduated

Date Graduated	Frequency	Percentage
2009	13	8.6
2010	14	9.2
2011	10	6.6
2012	4	2.6
2013	12	7.9
2014	24	15.8
2015	30	19.7
2016	23	15.1
2017	12	7.9
2018	10	6.6
Total	**152**	**100**

Profile of the Graduates of Passi City in Terms of Course. Table 2 outlines the profile of graduates from Passi City College categorized by their respective courses. The data spans across several courses, with a total of 152 graduates recorded. Breaking down the numbers, the Bachelor of Elementary Education (BEED) program stands out with 35 graduates, constituting 23% of the total. Following closely is the Bachelor of Science in Business Administration (BSBA) program, also with 35 graduates, making up another 23%. Meanwhile, the Bachelor of Secondary Education (BSED) program recorded 30 graduates, accounting for 19.7%. Additionally, the Bachelor of Science in Criminology (BSCRIM) program saw 19 graduates, representing 12.5%. The Bachelor of Science in Information Technology (BSIT) program contributed 22 graduates, constituting 14.5%. Meanwhile, the Bachelor of Science in Hotel and Restaurant Management (BSHRM) program and the Bachelor of Science in Commerce program both had smaller numbers, with 7 and 4 graduates, respectively, making up 4.6% and 2.6% of the total. This data offers insights into the distribution of graduates across various academic disciplines within

Passi City College, highlighting the popularity and diversity of educational programs offered by the institution.

Table 2

Profile of the Graduates of Passi City College in Terms of Course

Course	Frequency	Percentage
BEED	35	23
BSED	30	19.7
BSCRIM	19	12.5
BSHRM	7	4.6
BSBA	35	23
BSIT	22	14.5
BS Commerce	4	2.6
Total	**152**	**100**

Present Occupation of Graduates of Passi City College. Table 3 provides an overview of the present occupations of graduates from Passi City College, detailing the diversity of career paths pursued by its alumni. The data encompasses a total of 152 individuals, each categorized based on their current occupation. Analysis reveals a varied distribution across different occupational categories. The majority of graduates are employed as professionals, with 64 individuals, comprising 42% of the total. Service-related occupations also feature prominently, with 36 graduates, representing 24%, engaged as service workers, shop employees, or market sales workers. Clerical positions are occupied by 17 graduates, constituting 11%, while a smaller number of individuals, totaling 5 each, are categorized as officials of government and special interest organizations, corporate executives, managers, and managing. Additionally, the category of special occupations includes 5 graduates, comprising 3%, while 3 individuals, or 2%, are identified as techniques and associate professionals. Trades and related workers, as well as those categorized as laborers and unskilled workers, each represent 3% and 1%, respectively, with 5 and 1 individual(s) falling under these categories. Notably, 16 graduates, accounting for 11%, currently report having no occupation. This comprehensive breakdown underscores the diverse career paths pursued by graduates of Passi City College, reflecting the institution's role in preparing individuals for a wide range of professional endeavors and contributing to the socioeconomic landscape of the region.

Table 3

Present Occupation of Graduates of Passi City College

Occupation	Frequency	Percentage
Clerks	17	11
laborers and Unskilled Workers	1	1
Officials of Government and Special Interest Organizations, Corporate Executives, Managers, and Managing	5	3

Professionals	64	42
Service Workers and Shop and Market Sales Workers	36	24
Special Occupation	5	3
Techniques and Associate Professionals	3	2
Trades and Related Workers	5	3
None	16	11
Total	**152**	**100**

Major line of Business PCC Graduates Are Currently Employed. Table 4 offers insights into the major lines of business where graduates of Passi City College (PCC) are presently employed, showcasing the diverse sectors where alumni have found opportunities. The data, encompassing 152 individuals, delineates the distribution of graduates across various industries. Education emerges as the predominant sector, with 46 graduates, constituting 30% of the total, employed in educational institutions. Public administration and defense, along with compulsory social security, also feature prominently, employing 28 graduates, accounting for 18%. Financial intermediation employs 18 graduates, representing 12%, while wholesale and retail trade, including repair services, engage 11 graduates, comprising 7%. Real estate, renting, and business activities employ 8 graduates, making up 5%, while health and social work employ 4 graduates, constituting 3%. Hotels and restaurants, along with other community, social, and personal service activities, each employ 5 graduates, contributing 3% to the total. Manufacturing, electricity, gas, and water supply, as well as transport, storage, and communication, each employ a smaller number of graduates, with 3, 2, and 2 individuals, respectively, making up 2% and 1% each. Construction, private households with employed persons, and those who reported none in terms of line of business each have minimal representation, with 1 individual each, accounting for 1%.

Table 4

Major Line of Business PCC Graduates are Currently Employed

Line of Business	Frequency	Percentage
Construction	1	1
Education	46	30
Electricity, Gas, and Water Supply	2	1
Financial Intermediation	18	12
Health and Social Work	4	3
Hotels and Restaurants	5	3
Manufacturing	3	2
Other Community, Social and Personal Service Activities	5	3
Private Households with Employed Persons	1	1
Public Administration and Defense; Copulsory Social Security	28	18
Real Estate, Renting and Business Activities	8	5
Transport Storage and Communication	2	1

Wholesale and Retail Trade, Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	11	7
none	18	12
Total	**152**	**100**

Present Job Placement Status of Graduates of Passi City College. Table 5 illustrates the job placement status of graduates from Passi City College, detailing the distribution across various employment categories. A significant majority, accounting for 59.2% (90 graduates), have secured regular or permanent positions. Those working under contractual arrangements comprise 20.4% (31 graduates) of the total. A smaller proportion, 2.6% (4 graduates), are self-employed, while 2% (3 graduates) hold casual jobs. Additionally, 3.9% (6 graduates) are employed on a temporary basis. Notably, 11.8% (18 graduates) are currently not employed. Overall, the data encompasses 152 graduates, providing a comprehensive overview of their employment status post-graduation.

Table 5

Present Job Placement Status of Graduates of Passi City College

Categories	Frequency	Percent
Regular or Permanent	90	59.2
Contractual	31	20.4
Self-Employed	4	2.6
Casual	3	2
Temporary	6	3.9
None	18	11.8
Total	152	100

Present Job Level Position of PCC Graduates. TThe table provides insights into the current job level positions held by graduates of Passi City College. A notable portion of the graduates, 43% (66 individuals), occupy professional, technical, or supervisory roles. Those in rank or clerical positions represent 41% (62 individuals) of the total. A smaller segment, 3% (5 graduates), are self-employed. At the higher end of the hierarchy, 2% (3 graduates) hold managerial or executive positions, while 1% (1 graduate) is in a managerial or supervisory role. Additionally, 11% (16 graduates) are not employed at present. This data covers a total of 152 graduates, highlighting the diverse employment levels among the alumni of Passi City College.

Table 6

Present Job Level Position of PCC Graduates

Job Level Position	Frequency	Percentage
Managerial or Executive	3	2
Managerial or Supervisory	1	1

Professional, Technical, or Supervisory	66	43
Rank or Clerical	62	41
Self-employed	5	3
None	16	11
Total	**152**	**100**

Competencies PCC Graduates Find Most Important to Meet the Demands of the Industry and the Challenge of Competitiveness. Table 7 identifies the competencies that graduates of Passi City College consider most essential for meeting industry demands and competitive challenges. Leading the list is communication, deemed important by 92% (140 graduates), ranking first. Closely following is human relations, which 91% (139 graduates) find critical, securing the second rank. Problem-solving skills are also highly valued, with 89% (135 graduates) emphasizing their importance, placing them third. Critical thinking is similarly significant, highlighted by 88% (133 graduates), and ranked fourth. Lastly, entrepreneurial skills are noted by 65% (99 graduates), ranking fifth in terms of importance. This data underscores the diverse skill set that graduates believe is necessary to thrive in the professional landscape.

Table 7

Competencies PCC Graduates Find Most Important to Meet the Demands of the Industry and the Challenges of Competitiveness

Competency	Frequency	Percentage	Rank
Communication	140	92	1
Human Relation	139	91	2
Entrepreneurial	99	65	5
Problem-solving	135	89	3
Critical Thinking	133	88	4

DISCUSSION

The analysis of Passi City College graduates reveals a multifaceted overview of their post-graduation trajectories, highlighting variations in employment status, job levels, essential competencies, and industry placement. A comprehensive examination of the data uncovers significant trends and patterns, reflecting the dynamic nature of the graduates' professional journeys.

In terms of job placement status, a considerable proportion of graduates have secured stable employment, with 59.2% (90 individuals) in regular or permanent positions. This indicates a strong alignment between the educational outcomes of Passi City College and the demands of the job market. Contractual employment accounts for 20.4% (31 graduates), suggesting that a notable segment of graduates may be engaged in industries or roles that prefer flexible staffing arrangements. Self-employment, though less common, is pursued by 2.6% (4 graduates), demonstrating entrepreneurial tendencies among a

small subset. Casual and temporary employment are represented by 2% (3 graduates) and 3.9% (6 graduates), respectively, indicating that some graduates may be in transitional phases or engaged in industries with high turnover rates. The unemployment rate among graduates stands at 11.8% (18 individuals), highlighting potential areas for improvement in job readiness or market alignment.

The distribution of job level positions further elucidates the career progression of Passi City College graduates. A significant portion, 43% (66 individuals), hold professional, technical, or supervisory roles, reflecting a high level of competence and the ability to secure specialized positions. Rank or clerical roles are occupied by 41% (62 graduates), indicating that many alumni begin their careers in entry-level positions, which can serve as stepping stones to higher responsibilities. Self-employment is chosen by 3% (5 graduates), aligning with the earlier noted entrepreneurial pursuits. The presence of graduates in managerial or executive positions, though small at 2% (3 individuals), and those in managerial or supervisory roles at 1% (1 graduate), suggests that a few alumni have quickly ascended to leadership roles. However, the 11% (16 graduates) who are not employed underscores a need for enhanced career support and possibly stronger industry connections.

A closer look at the competencies valued by the graduates reveals insights into their perceived requirements for success in the professional world. Communication skills top the list, with 92% (140 graduates) recognizing their importance. This underscores the critical role of effective communication in virtually all professional settings, facilitating teamwork, client interactions, and managerial duties. Human relations, deemed important by 91% (139 graduates), highlight the significance of interpersonal skills in fostering collaborative work environments and building professional networks. Problem-solving skills are emphasized by 89% (135 graduates), reflecting the necessity for graduates to navigate complex challenges and devise innovative solutions in their respective fields. Critical thinking, valued by 88% (133 graduates), further supports the need for analytical and evaluative skills that enable graduates to make informed decisions. Entrepreneurial skills, noted by 65% (99 graduates), indicate a recognition of the growing importance of innovation and business acumen, even among those not directly pursuing entrepreneurial ventures.

The diversity of career paths among Passi City College graduates is evident in their present occupations. Professionals constitute the largest group, with 42% (64 individuals) working in roles that likely require specialized knowledge and skills. Service-related occupations are the second most common, with 24% (36 graduates) engaged in service industries, reflecting the significant role of these sectors in the local economy. Clerical positions are held by 11% (17 graduates), suggesting that administrative and support roles are prevalent entry points for many alumni. Smaller groups of graduates are employed as officials in government or special interest organizations, corporate executives, managers, and in special occupations, each constituting 3% (5 individuals). Technicians and associate professionals, as well as trades and related workers, represent 2% (3 individuals) and 3% (5 individuals), respectively. Laborers and unskilled workers, although minimal at 1% (1 individual), highlight the varied nature of employment

among graduates. The 11% (16 graduates) reporting no occupation aligns with the earlier unemployment figures, reinforcing the need for targeted employment support initiatives.

Examining the major lines of business where graduates are currently employed provides further insights into industry trends. Education emerges as the dominant sector, employing 30% (46 graduates), which is indicative of the strong demand for educators and the college's role in fulfilling this need. Public administration and defense, along with compulsory social security, employ 18% (28 graduates), reflecting significant employment opportunities within the government sector. Financial intermediation, employing 12% (18 graduates), underscores the relevance of financial services and the skills required to thrive in this industry. Wholesale and retail trade, including repair services, engage 7% (11 graduates), highlighting the importance of these sectors in the local economy. Real estate, renting, and business activities employ 5% (8 graduates), while health and social work, employing 3% (4 graduates), indicate essential service sectors. Hotels and restaurants, as well as other community, social, and personal service activities, each employ 3% (5 graduates), reflecting the diversity of service-oriented careers. Smaller numbers of graduates are employed in manufacturing, electricity, gas, and water supply, and transport, storage, and communication, each accounting for 2% to 1%. Minimal representation in construction and private households with employed persons indicates niche employment areas.

The profile of graduates by the year of graduation highlights fluctuating trends over the decade from 2009 to 2018. In 2009, 8.6% (13 graduates) marked the start of the period, with a slight increase to 9.2% (14 graduates) in 2010. A decrease to 6.6% (10 graduates) in 2011 and a further drop to 2.6% (4 graduates) in 2012 represent the lowest figures. The subsequent years saw a gradual increase, with 7.9% (12 graduates) in 2013 and a significant surge to 15.8% (24 graduates) in 2014. The peak occurred in 2015 with 19.7% (30 graduates), followed by fluctuations: 15.1% (23 graduates) in 2016, 7.9% (12 graduates) in 2017, and 6.6% (10 graduates) in 2018. These variations suggest changes in student enrollment, retention rates, and possibly the impact of external factors influencing educational dynamics.

The profile of graduates by course reveals the popularity of specific programs. The Bachelor of Elementary Education (BEED) and the Bachelor of Science in Business Administration (BSBA) programs each produced 23% (35 graduates), indicating strong enrollment and completion rates in these fields. The Bachelor of Secondary Education (BSED) program followed closely with 19.7% (30 graduates), reflecting sustained interest in educational careers. The Bachelor of Science in Criminology (BSCRIM) program accounted for 12.5% (19 graduates), highlighting its appeal. The Bachelor of Science in Information Technology (BSIT) program produced 14.5% (22 graduates), underscoring the relevance of technology-related education. Smaller numbers in the Bachelor of Science in Hotel and Restaurant Management (BSHRM) and the Bachelor of Science in Commerce programs, with 4.6% (7 graduates) and 2.6% (4 graduates) respectively, suggest more niche areas of interest.

Conclusions

Based on the findings from the study, Passi City College has demonstrated its commitment to providing a diverse and comprehensive education, offering various academic pathways that cater to the needs of the job market and industries. The data revealed fluctuations in the number of graduates over the years, indicating potential variations in educational attainment and enrollment levels within the city's educational institutions. This insight aligns with research by Gallardo (2019), Ramos (2020), and Aquino (2019), which emphasizes the importance of adaptability and responsiveness in educational institutions to meet the demands of the ever-changing job market and enhance graduates' employability.

Passi City College's emphasis on education-related programs, particularly Bachelor of Elementary Education (BEED) and Bachelor of Secondary Education (BSED), showcases the institution's dedication to producing qualified educators for the region. This aligns with the Philippine Development Plan 2017-2022 (Government of the Philippines, 2019), which emphasizes the significance of developing a skilled and qualified teaching workforce to improve the quality of education and address the country's educational challenges.

Moreover, Passi City College's inclusion of other fields such as Bachelor of Science in Criminology (BSCRIM), Bachelor of Science in Hotel and Restaurant Management (BSHRM), Bachelor of Science in Business Administration (BSBA), and Bachelor of Science in Information Technology (BSIT) reflects the college's adaptability to industry demands. This mirrors the findings of Carreon (2018) and Hontiveros (2020), highlighting the importance of equipping graduates with relevant skills and knowledge to address skills mismatches and enhance their employability in the job market.

The study also reveals that Passi City College graduates have successfully entered various occupations and sectors, with a notable percentage employed in education, public administration and defense, and financial intermediation. These findings align with the World Bank's World Development Report 2019 (World Bank, 2019), which emphasizes the significance of human capital and skilled workforce development in driving economic growth and productivity.

However, the presence of 11% of unemployed graduates emphasizes the need for continuous career support and counseling services. This finding underscores the importance of strategies to improve employability and reduce the unemployment rate among alumni. Continuous career support and counseling, as suggested by Arambulo (2017) and Van der Velde and Van der Heijden (2018), can enhance graduates' skills, build their confidence, and increase their chances of securing suitable employment opportunities.

The study's focus on essential competencies valued by Passi City College graduates reveals the significance of communication skills, human relations skills, problem-solving skills, critical thinking skills, and entrepreneurial skills. These findings corroborate

research by Eurostat (2021), Organisation for Economic Co-operation and Development (2016), and Blustein (2019), which stress the importance of these competencies in meeting the demands of the modern job market and fostering a skilled and adaptable workforce.

Passi City College has shown success in preparing graduates for diverse career paths and meeting the demands of the job market. The findings of the study provide valuable insights into the college's educational trends and effectiveness in enhancing graduates' employability. By leveraging these findings and aligning their strategies with industry demands, Passi City College can further enhance its educational programs and career support services, ensuring that future graduates have increased opportunities for successful employment and career advancement.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are suggested:

1. For PCC Graduates, it is crucial to continuously develop and enhance their communication, problem-solving, and critical thinking skills to remain competitive in the job market. Engaging in continuous professional development and upskilling opportunities will keep them relevant and adaptable in their respective industries. Graduates should actively seek career support and counseling services offered by the college to improve their employability and explore diverse career opportunities.

2. For Current and Prospective Students, when choosing academic programs, they should consider the demand and market relevance of courses to align with industry needs. Participating in internships, workshops, and industry-related activities will allow them to gain practical experience and develop essential employability skills. Seeking guidance from academic advisors can help them choose courses that best align with their career goals and aspirations.

3. For PCC Administration and Faculty, it is important to regularly review and update the curriculum to ensure it meets current industry demands and fosters the development of key competencies sought by employers. Facilitating partnerships with employers and industry partners will create internship and job placement opportunities for graduates. Strengthening career support services and counseling will enhance graduates' employability and reduce the unemployment rate among alumni.

4. For Employers and Industry Partners, collaborating with PCC to provide input on the skills and competencies required for various job roles will ensure a better match between graduates' skills and industry needs. Offering internship programs and job placement opportunities for PCC graduates will allow them to gain practical experience and transition smoothly into the workforce. Engaging in skill-building initiatives and workshops will support graduates in developing industry-specific knowledge and expertise.

5. For Future Researchers, building upon the existing study's findings to conduct longitudinal research on employment outcomes and career trajectories of PCC graduates will provide valuable insights into the long-term impact of the college's programs. Investigating potential factors influencing fluctuations in graduation rates and unemployment among alumni will help identify strategies for improvement. Conducting studies on the impact of industry-specific training and experiential learning on graduates' employability will further enrich the understanding of effective educational approaches.

6. For Policy Makers and Government Agencies, supporting initiatives that promote industry-academia collaboration to bridge skills gaps and improve graduates' employability will contribute to the overall economic development. Allocating resources to enhance career support services in educational institutions will better address graduates' employability needs and reduce unemployment rates. Promoting policies that incentivize industries to offer internships and job opportunities to fresh graduates will encourage industry engagement with educational institutions.

7. For Accreditation and Quality Assurance Bodies, working closely with educational institutions like PCC to ensure the relevance and quality of academic programs in meeting industry needs will contribute to improved educational outcomes. Incorporating employability-related metrics into accreditation processes will incentivize colleges to focus on graduates' job placement outcomes. Encouraging the integration of industry-specific certifications and credentials into academic programs will enhance graduates' marketability and preparedness for the job market.

8. For the Local Community and Economy, supporting PCC and its graduates by promoting local hiring and talent retention will strengthen the local workforce and foster economic growth. Engaging in partnerships with PCC to offer mentorship programs and industry-driven projects will bridge the gap between academia and the job market, ensuring that graduates are well-prepared for real-world challenges. Recognizing the contributions of PCC graduates in various sectors and industries will reinforce the college's positive impact on the local community and economy.

Compliance with Ethical Standards

In conducting this study, strict adherence to ethical standards was maintained throughout the research process. Informed consent was obtained from all respondents prior to their participation, ensuring they were fully aware of the study's purpose and procedures. Respondents were explicitly informed of their right to withdraw from the study at any time without any negative repercussions. Anonymity was rigorously upheld, with all personal identifiers removed to protect the identities of the participants. The well-being of the respondents was safeguarded at all times, ensuring that their participation did not cause any harm or distress. There were no conflicts of interest influencing the conduct of the study, and the researchers ensured that all findings were presented objectively without bias. Plagiarism was strictly avoided, with all sources and references appropriately cited. The results of the study were utilized solely for academic and research purposes, contributing to the understanding of the employability and professional development of

Passi City College graduates. Through these measures, the researchers ensured the highest standards of ethical integrity in the study.

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TULONG, DUNONG, SULONG PROGRAM: ITS IMPACT ON CAMPUS JOURNALISM PERFORMANCE OF A PUBLIC SECONDARY SCHOOL IN SOUTHERN NUEVA VIZCAYA

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ABSTRACT

This study assessed the impact of the "Tulong, Dunong, Sulong Program: Campus Journalism" extension project of the College of Teacher Education of Nueva Vizcaya State University-Bambang Campus. The extension project spearheaded seminars and training to develop skills in campus journalism, such as news writing, feature writing, sports writing, editorial writing, editorial cartooning, photojournalism, and layouting. The beneficiaries were the students and teachers of a public secondary school in Southern Nueva Vizcaya. This mixed-method research utilizing the sequential explanatory design was aimed to explore the attainment of the objectives of the extension project, particularly its relevance and timeliness, its impact on other aspects of the beneficiaries, and its strengths and weaknesses. The data were gathered using the researcher-made quality assurance and measurement evaluation tool (quantitative), document scanning, and through a semi-structured interview (qualitative). Descriptive statistics and thematic analysis were used to analyze the strands of data. The 10 participants were purposively taken: two school paper advisers, three mentors/coaches, and five student journalists. All the training conducted were rated outstanding. Triangulated results showed that the extension project had contributed significantly based on the results of the press conferences participated. There were also improvements in other aspects of the beneficiaries, which were classified as increased productivity in publication, development of skills in journalistic writing, and improvement of academic achievement. The strengths and weaknesses of the project were also unveiled. For strengths, they were generally

classified as provided maximum experience, invited resource speakers/ materials, and cost-effective. Meanwhile, the weaknesses were generally identified as time management, delivery method, and pace and information absorption.

Keywords: *campus journalism, extension project, impact study, Tulong, Dunong, Sulong Program*

INTRODUCTION

Implementing extension programs and services is one of the means by which Higher Education Institutions (HEIs) are directed to induce change in the members of their community. Being one of the premier universities in the Philippines, one of the thrusts of the Nueva Vizcaya State University is Research and Extension Programs. It includes in its general mandate to undertake extension service (RA 9402). Among the university's extension service modalities are programs or projects implemented for community stakeholders with the objective of fostering the development of skills for the efficient and effective transmission of knowledge.

As the pillar of social development, educational institutions have a social duty to strengthen communities and improve lives by transmitting knowledge and technology through training, workshops, seminars, and technical advisors (Codamon-Dugyon, 2016).

The College of Teacher Education (CTE) is one of the four colleges at NVSU-Bambang Campus that specifically targets clients in the education sector whose requirements align with the college's mission and priorities, such as Skills Training and Literacy. Campus journalism, which is related to skills training and literacy, is essential to each institution since it shapes students' abilities and talents in writing and assesses how well schools are able to compete with other institutions. In accordance with the university's mission to transform lives and the community and in response to requests for training and workshops on writing school papers, the CTE, together with The University Gazette, students and faculty of Bachelor of Secondary Education, Bachelor of Elementary Education, Master of Arts in Education, Master of Arts in Teaching, Master of Education in Science Education and Doctor of Education, planned to conduct a Campus Journalism Seminar-Workshop in conjunction with its extension project, "Tulong, Dunong, Sulong."

This project is a seminar and workshop on news writing, feature writing, sports writing, editorial writing and cartooning, photojournalism, and layouting that will give the school a great opportunity to begin establishing its school paper. Through the provision of pertinent services and suitable resources, this extension initiative aimed to engage the

academic community and maximize the potential of the targeted clientele, especially in the field of Campus Journalism.

The Campus Journalism Project was created to give secondary students in one public secondary school in Southern Nueva Vizcaya the necessary knowledge and abilities to produce a school newspaper. The training program covers the fundamentals of the various types of journalism writing.

The extension project started in 2018. The project has implemented training sessions. The training included News Writing, Feature Writing, Sports Writing, Editorial Writing, Editorial Cartooning, Photo Journalism, and Layout Design. Extensionists from the CTE were the trainers for the project. Others, who served as trainers, were invited experts who had created a name in the field of Campus Journalism. The project followed the methodology illustrated in Figure 1.

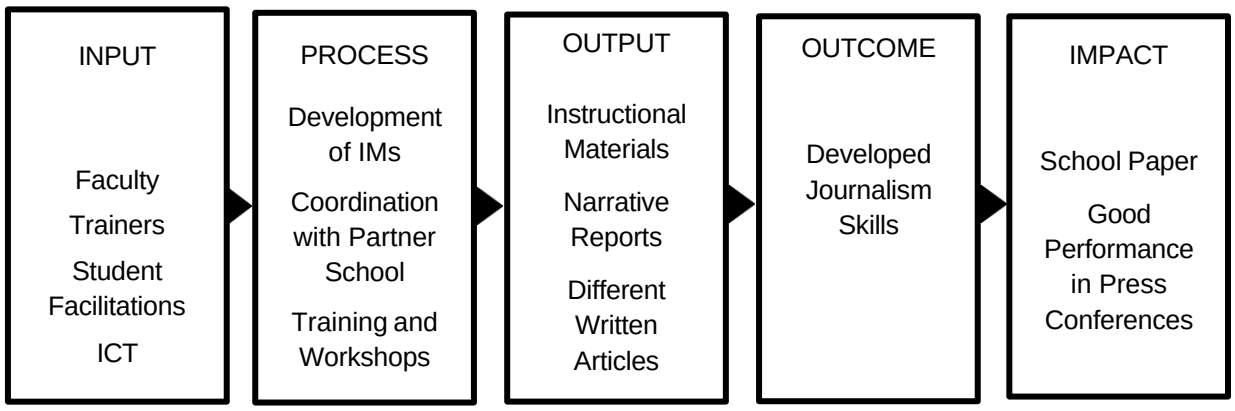


Figure 1. Project Methodology

Three years from its implementation and completion, an impact assessment of the project is beneficial to measure how the project transformed the lives of its beneficiaries. This impact assessment study will describe the point of view of the beneficiaries regarding the project and how the project has had a significant impact on their lives, specifically in their responsibilities as school paper advisers and mentors for the teachers and as campus journalists for the students.

Specifically, it aimed to answer the following questions:

1) What is the participants' level of evaluation of the extension project in terms of relevance and timeliness?

2) How is the student journalists' performance in the different areas of journalism since the conduct of the extension project?

3) What are the improvements since the conduct of the extension project on Campus Journalism?

4) What are the strengths and weaknesses of the extension project on Campus Journalism?

METHODOLOGY

The mixed-method research design was used in this study. The study is a sequential explanatory analysis of the impact of the extension project on Campus Journalism among student journalists and school paper advisers, mentors and coaches in a public secondary school in Southern Nueva Vizcaya. The participants were the two school paper advisers, three mentors/coaches, and five student journalists who attended the training sessions. Using purposive sampling, only 10 participants were considered because of the inclusion criteria set by the researcher: 1) must have attended the training; 2) is an active member of the school paper; 3) participated in press conferences; and 4) must be willing to participate in this study. Voluntary participation and consent were asked from the respondents. The anonymity and the confidentiality of their responses were guaranteed.

For the quantitative data analysis, the mean was used in the evaluation of the beneficiaries of the extension project (trainings/sessions). The data were gathered using the researcher-made quality assurance and measurement evaluation form. Document scanning was done to unveil the performances of the students in the different areas over the years. For the discussion of the impact and, strengths and weaknesses of the extension project, qualitative research was utilized. The data were gathered through a semi-structured interview. Three research experts and two English language teachers validated the instruments. Thematic analysis using the framework of Braun and Clarke (2022) was used in analyzing, interpreting, and presenting the qualitative data. Focus Group Discussion was also done to crystalize the data gathered.

In order to gather pertinent data, the researcher sought permission to perform the study by filing a formal request letter to the office of the School Principal. The researcher personally conducted the semi-structured interview when the request was approved. The purpose, aims, and significance of the research were explained to the participants before the interview proper. The participants were encouraged to be truthful in their responses to ensure the study's results and conclusions were reliable and valid.

RESULTS AND DISCUSSION

1. Training evaluation results of the extension project

Training Topics	Weighted Mean	Qualitative Description
News Writing	4.8	Outstanding
Feature Writing	4.9	Outstanding
Sports Writing	4.8	Outstanding
Editorial Writing	4.9	Outstanding
Editorial Cartooning	4.2	Very Satisfactory
Photojournalism	4.8	Outstanding
Layouting	4.1	Very Satisfactory
Grand Mean	4.64	Outstanding

Table 1. Training Evaluation Results Based on Relevance and Timeliness

The implementation of the Tulong, Dunong, Sulong Progam on Campus Journalism was considered successful in attaining its objectives, as seen in the skills assessment of the students after each workshop. Among the journalism skills shown in Table 1, Feature Writing and Editorial writing got the highest evaluation with an average weighted mean of 4.9. These are followed by News Writing, Sports Writing, and Photojournalism, with 4.8 weighted mean. Editorial Cartooning got a 4.2 mean. The lowest is Layout Design, with a mean of 4.1. Nevertheless, all of the tracks got a verbal interpretation of Outstanding.

The results would mean that the beneficiaries considered the training as effective. The results also imply that the extension project led to the acquisition of different campus journalism skills. This was because of the effective program management, delivery of content based on the learning needs, alignment of training with the objectives of the extension project, effective training measurement and relevant training content, and effective reinforcement of training to increase learning retention.

As support, Fonseca (2018) emphasized that campus journalism workshops, such as the extension project, provide students with the opportunity to refine and practice their journalistic skills, as well as be the voice of change by getting readers to think about pressing issues that they might not have read about elsewhere.

2. Performance of the school in the different areas of journalism during the three-year Division Schools Press Conference (DSPC)

Student Beneficiary	Category	Place	Year
Student A	Feature Writing	Unplaced 2nd 3rd	2019-2020 2020-2021 2021-2022
Student B	News Writing	Unplaced 6th 4th	2019-2020 2020-2021 2021-2022
Student C	Editorial Writing	7th 4th 2nd	2019-2020 2020-2021 2021-2022
Student D	Photojournalism	Unplaced 4th 3rd	2019-2020 2020-2021 2021-2022

Table 2. Results of Division Schools Press Conference

After the project was launched in 2018, students participated in different areas of journalism during Division Schools Press Conferences (DSPCs).

In terms of the specific skills acquired by the students, the table shows that four students have significant acquisitions, as seen in the three-year press conferences. Student A, from being unplaced in 2019-2020, he garnered second place in 2020-2021 and third place in 2021-2022. Student B also improved in News Writing from being unplaced in 2019-2020 to sixth place in 2020-2021 and fourth place in 2021-2022. Meanwhile, Student C went from seventh place in 2019-2020, fourth place in 2020-2021, to second place in 2021-2022 in Editorial Writing. In Photojournalism, Student D was unplaced in 2019-2020, fourth place in 2020-2021, and third place in 2021-2022.

The results imply that the training was effective in teaching the students the necessary skills. It equipped them with the content and ability to produce quality journalistic articles. The extension project also prepared the students and even the teachers who act as coaches to writing competitions such as the Division Schools Press Conference which is done every academic year in the Basic Education.

Chavez's study (2023) provided evidence that extension programs in campus journalism really help mold student journalists. The primary reason is that the students

are not only exposed to the content (mechanics and/or conventions in journalistic writing) but also trained to write and produce journalistic articles.

3. Improvements since the conduct of the extension project on Campus Journalism

The following improvements have occurred since the conduct of the extension project on Campus Journalism, which was generally classified as increased productivity in publication, development of skills in journalistic writing, and improvement of academic achievement.

Increased productivity in publication. This category appeared the most frequent in the responses of the participants. The participants perceived that because of the extension project on Campus Journalism, the writing, layouting, and production of school papers became more manageable since the writers, artists, and advisers were given input that enabled them to perform their duties and responsibilities even more effectively. These are some of the responses from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *“Based on my observation, they submit more articles and cartoon,” (P2)*
> *“…because of the training, the student-journalists, especially the writers produce more articles,” (P4)*
> *"Mas dumami po yung inspiration namin to write and mas madali nalang yung pagsusulat naming ng mga articles." (Our inspiration to write increased, and it was easier for us to write articles.) (P8)*

The extension project was believed to have given the participants a forum for academic conversation where detailed suggestions were openly offered via the experiences of the speakers, and specific inquiries were answered. As a result, following the discussion, the seminar-workshops allowed participants an opportunity to put the ideas into practice. The seminar-workshop gave the participants a constructivist perspective where they could practice and produce more articles ready for publication, hence, making the publication more productive.

Similar to the findings of Dela Rosa et al. (2021), the participants expressed consensus on the positive impact of participating in campus publications or undergoing school journalism training on their proficiency in their respective areas of expertise, such as writing, editing, and visual communication, when compared to their previous abilities.

Development of skills in journalistic writing. Appearing to be less frequent, this category is an improvement among student journalists after engaging in the training on Campus Journalism. This became evident because of the number of journalistic works submitted to the editors and school paper advisers. During the pre-press conferences conducted in school, the advisers and coaches observed the improvement of the student

journalists in their style of writing their articles. The students' critical understanding of the mechanics and rules in writing in their respective fields was noticeable in their outputs. Here are a few of the answers from the participants who took part (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *“The students gained more knowledge in their respective fields,” (P1)*
> *"Nung nagtraining kami before the contest, napansin ko ang development ng mga outputs niya," (When we trained before the contest, I noticed the development of his outputs) (P5)*
> *"I think I improved po lalo na sa pagsunod sa rules in writing the article," (I think I improved especially in following the rules in writing the article) (P10)*

The participants believed that because of their experience during the training, their skills have improved. The extension project on Campus Journalism helped the student-journalists to experience first-hand not only the sharing of the resource speakers but especially the writing process following the suggested writing conventions. Henceforth, experiential learning is an appropriate learning strategy, and journalism instruction is in fact, using it more often (Berger & Foote, 2017).

Despite the COVID-19 pandemic, the training was still made possible using technologies and online platforms. In fact, it served as a new learning among journalists since technology became a medium during conferences. A wide range of technological resources that journalists may use in their professional practices to make their work more accessible to their viewers best describes this period (Veglis & Maniou, 2019).

The study of Albino (2021) also revealed that the five-day Campus Journalism training conducted in a secondary national high school in Subic, Philippines, improved the students' writing skills. This was manifested through the improvement of the school paper and the students' performances in press conferences.

Improvement of academic achievement. This category was the least often mentioned in the participants' responses. Participants believed that because of the training, not only that they improve their skills in writing articles, but they also improved in terms of their performance in their academics, particularly in the English subject. Not because students were given extra credits but because of the essays and other outputs submitted to the teachers. Here are a few of the remarks from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

"Based sa sabi ng co-teacher ko, mas gumaling daw siya when it comes to writing essays." (Based on what my co-teacher had mentioned, he said that he got better when it comes to writing essays.) (P1)

"As her teacher in English, I've seen her improvement in the subject." (P7)

"Tumaas rin po ang aking mga grades kasi nakakarelate po ako hindi lang sa pagsusulat kundi pati sa mga nangyayari around us since we need to watch news and be aware of the issues," (My grades also increased because I can relate not only to writing but also to what is happening around us since we need to watch news and be aware of the issues,) (P9)

More than just a curricular activity, the participants believed that attending press conferences and trainings on Campus Journalism helped them improve their academic performance—writing in English and keeping up with the latest news or issues in Araling Panlipunan, for instance. Bilinovich (2022) emphasized that student journalism may serve as a model for the actual world by allowing students to freely and openly explore ideas, debate, and identify issues that need to be addressed.

Furthermore, these campus journalists are young people who will soon become adults and who are developing their maturity, ideas, philosophies, academic success, and identities (Make My News, 2017). More importantly, though, they could already be agents of change in the communities they belong as a result of training like the extension on campus journalism (Cortes, 2014).

4. Strengths and weaknesses of the extension project on Campus Journalism

The following are the strengths and weaknesses of the conducted extension project on Campus Journalism. The strengths were generally classified as provided maximum experience, invited resource speakers/ materials, and cost-effective. Meanwhile, the weaknesses were generally identified as time management, delivery method, and pace and information absorption.

Provided maximum experience. This category appeared the most frequently in the responses of the participants when asked about the strengths of the extension project on Campus Journalism. They believed that because of the extension project on Campus Journalism, the students gained more ideas through the maximum experience provided by the resource speakers. Students also were given opportunities to apply the concepts shared with them. The student-journalists, according to the participants, underwent a series of writing wherein their outputs were checked every after a writing session. Here

are a few of the remarks from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *"The workshops provided the students time to practice their field." (P1)*
> *"…and it provided them actual experience." (P4)*
> *"Yung trainings po ay nagbigay sa amin ng experience para ipractice yung sasalihan namin." (The trainings gave us the experience to practice what we will be participating in.) (P8)*

The responses imply that the project provided the participants with experiences where theories and concepts could be applied, especially in writing their articles. It is also understandable that the extension project provided not only concepts in journalistic writing but also training or activities where students could deepen their understanding of the conventions and mechanics of writing in their respective fields.

This is supported by Loveland's study (2014), which discovered that action-based instruction (including seminars and workshops) increased students' understanding and procedural activity in planning and logistical abilities. On this basis, students also had the chance to comprehend and put their writing styles into practice.

Invited resource speakers/materials. This category was also frequent in the remarks from the participants. In the interview, the participants explained that most of the speakers were really experts in their respective fields. Some of them joined press conferences before and made a mark by winning and bagging awards. Some speakers are part of organizations related to journalism/ campus journalism. Here are a few of the responses from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *"The speakers are really expert in their field." (P1)*
> *"…we are also thankful for the PPT's given because it helps us go back with the content," (P3)*
> *"…gusto rin po naming yung presentations kasi ibinigay po para po may additional reference kami aside from the book." (We also like the presentations because they are given so that we have additional references aside from the book.) (P9)*

It can be understood that the speakers are effective in teaching the concepts and in giving tips and techniques. The materials used are informative and helpful references for the students. Kurtus (2022) underlined that a speaker with insufficient knowledge needs to learn what he or she is talking about and how to create a successful presentation since being effective implies being well-informed and educated about the ideas in journalism. Knowing the material and successfully communicating it are both characteristics of good speakers.

Cost-effective. This category also appeared in the responses of the participants, albeit least frequently. It was mentioned because the training on Campus Journalism was an extension program between the two institutions; therefore, there is no need to spend the professional fee of the resource speakers. Compared to other training or seminars conducted in school, this training was not costly because most of the expenses were mostly operating expenses. The school publication should have spent more considering the number of sessions, training, and impact it gave to the beneficiaries. Here are a few of the answers from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *“The school doesn’t have to pay much anymore for the trainings,” (P2)*
> *“…we only have to provide snacks and lunch since the speakers were only given certificates and tokens. The project helped the school and particularly the publication to save some funds.” (P4)*
> *"Ang maganda pa po ay hindi kami gumastos para sa trainings. Nung nagpatutor po kasi ako is may bayad." (The good thing is that we did not spend for training. When I was tutored, there was a fee.) (P10)*

According to Molaba (2023), engaging in thorough training programs that are continuous is crucial for realizing one's full potential. However, the extension project made better use of already available resources reduced the need for outside trainers, and saved a significant amount of publication expenditures while students learned practical skills that were essential to their fields and positions, which cut down on the price of formal training programs.

Time management. This category was the most frequent when the participants were asked during the interview about the weaknesses of the extension project. It was a weakness since most of the speakers also had to attend to their jobs. The student journalists also have to prioritize their academics aside from their writing or training sessions. In the interview, finding the perfect time that would fit the schedule of the students and the resource speakers was really a struggle. Nonetheless, most of the sessions were still done after work hours and classes. Here are a few of the remarks from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *"Naging problem ang scheduling ng trainings kasi yung mga bata also need to go home after classes. If maaga naman, the speakers also have work to attend." (The scheduling of trainings became a problem because the children also need to go home after classes. If it is early, the speakers also have work to attend.) (P3)*
> *“Sinusundo nalang po ako nila mama pero nagagabihan po ako noon,” (They were picking me up, but I sometimes go home late.) (P8)*

The responses suggest the necessity to build up schedules if there are additional training since students and resource speakers also have obligations to attend. The remarks also imply that practice and learning take time, especially when it comes to journalism. Effective time management may transform a training program into an extremely productive, outstanding procedure. More and better learning occurs when time is more efficiently managed (Webmaster, 2010). Just-in-time training helps students retain their knowledge and find solutions when they need them by saving time, reclaiming time, and spending time wisely.

Delivery method. This category was also disclosed as a weakness. According to the participants, during the pandemic, trainings such as this were really hard to attend, especially for students who have little to no knowledge of using technology. Though it served as a new learning among the students, the platform was still an obstacle they had to go through during the conduct of the sessions. Here are a few of the responses from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *“Not all of the students have access to internet,” (P1)*
> *“Hindi po ako masyadong marunong gumamit ng google meet,” (I don't know how to use google meet very well.) (P7)*

According to Andriotis (2016), one more issue with training and development is making sure that your participants are completely engaged with your learning platform and material. In the delivery of the extension project, technology became a challenge among the students since most of them, though exposed to technologies, have little knowledge of how to use the applications or platform.

Pace and information absorption. This category was unveiled but the least frequent as a weakness of the extension project on Campus Journalism. Some of the lectures are delivered only in an hour. The pace of some of the training could have been faster since there were problems when it came to scheduling the students and speakers. In the interview, it was mentioned that since there were problems with the training hours, there was a need to fast-track the lectures and the students needed help in trying to understand and absorb all of the contents. Here are a few of the answers from the participants (*P refers to the participant; language use was retained to ascertain the authenticity of the responses given*):

> *"Medyo nagkaproblema sa bilis. Because the students were not met during a particular time, nagrarush na kung minsan para maideliver yung kailangan ituro." (I had a bit of a speed problem. Because the students were not met during a particular time, sometimes there was a rush to deliver what needed to be taught.) (P6)*

"…nahirapan po ako sa pag-aral kasi bukod sa bago yung ibang techniques, medyo abrupt din po kung minsan ang training, pero okay parin naman po," (I had a hard time studying because apart from the new techniques, the training was also a bit abrupt at times, but it's still okay.) (P10)

The responses imply the need to consider the time of both the speakers and the students. That is, the content must be delivered on time, and the students must be able to understand it and apply it during training or competitions.

Conclusions

1. The training conducted was rated outstanding. Triangulated results showed that the extension project contributed significantly based on the results of the press conferences participated.

2. The beneficiaries improved in other aspects. Generally, the improvements were classified as increased productivity in publication, development of skills in journalistic writing, and improvement of academic achievement.

3. The strengths of the extension project were generally classified as: provided maximum experience, invited resource speakers/ materials, and cost-effective.

4. The extension project's weaknesses were generally identified as time management, delivery method, and pace and information absorption.

Recommendations

1. Because the training was all rated outstanding and there is considerable improvement based on the competition results and other aspects of the beneficiaries, it is recommended that the project be replicated in a new location and with a larger number of beneficiaries.

2. To solve the deficiencies, the extension leaders may consider consistency and adaptability, a comprehensive grasp of the seminar-workshop process, and the inclusion of all participants in the decision-making process.

Compliance with Ethical Standards

This is a declaration that the author sought the approval of the authority before the conduct of the study. Only the willing participants were involved in this research. Voluntary participation and signed informed consent were asked from the participants. Though audit trails/interview logs were utilized, their anonymity and the confidentiality of their responses were guaranteed. No conflict of interest exists.

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USE OF LEARNING KITS IN PHYSICS EDUCATION AND ITS EFFECTIVENESS: A META-ANALYSIS

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ABSTRACT

Physics education has witnessed a paradigm shift with the integration of innovative teaching tools, such as learning kits, aimed at enhancing student engagement and understanding. This meta-analysis abstract study examines the effectiveness of learning kits in physics education by synthesizing and analyzing a comprehensive collection of research studies. The meta-analysis incorporates studies published from 2015 to 2023, The findings of the research underscore the substantial and positive impacts of utilizing learning kits on students' conceptual comprehension of physics concepts. The effectiveness of these kits in enhancing learning outcomes highlights their potential to transform traditional education approaches the study revealed that the effect sizes of interventions differ among subgroups based on grade levels in high school. This discovery signifies the importance of tailoring educational interventions to accommodate the diverse cognitive abilities and developmental stages of students across various grade levels. the exploration of the frequency of studies across different countries pertaining to learning kits and their effect sizes demonstrates the global interest in enhancing educational methodologies. these three research questions collectively shed light on the transformative potential of learning kits, the importance of tailored interventions, and the global momentum in educational research. These insights stand as a foundation for informed decision-making, curriculum development, and pedagogical innovation in the pursuit of enhancing students' learning experiences and outcomes across various educational contexts.

Keywords: *Learning kits, Physics Education*

INTRODUCTION

Physics education plays a crucial role in shaping students' understanding of the natural world and fostering critical thinking skills. It is a fundamental science that explores the fundamental principles governing matter, energy, motion, and the universe. Through physics education, students develop a deeper comprehension of the physical phenomena surrounding them and can apply scientific principles to real-life situations. Consequently, a strong foundation in physics is essential for students pursuing careers in various scientific, engineering, and technological fields (Ching, et al., 2019). Traditionally, physics education has relied heavily on classroom lectures, textbook readings, and problem-solving exercises to convey complex concepts. While these methods are essential, they may not always fully engage students or cater to various learning styles. As education evolves and pedagogical techniques continue to advance, the integration of teaching aids has emerged as a valuable approach to enhance the effectiveness of physics education (Bao, & Koenig, 2019). Teaching aids refer to various tools, materials, or resources used by educators to supplement their instructional methods and facilitate students' learning experiences.

These aids can be tangible, such as laboratory equipment, models, and learning kits, or intangible, such as multimedia presentations and simulations (Tikva, & Tambouris, 2021). By incorporating teaching aids into the learning process, educators can create interactive and immersive learning environments that encourage student participation and conceptual understanding (Cai, et. al., 2021). The use of teaching aids in physics education serves several important purposes. Firstly, these aids play a crucial role in visualization. Physics concepts are often abstract and challenging to comprehend, but with the help of teaching aids like physical models or computer simulations, students can better grasp these ideas. Tangible representations and visualizations make the concepts more accessible and memorable (Radu, & Schneider, 2022). Secondly, teaching aids facilitate experiential learning. Through hands-on experiences, such as laboratory experiments and practical activities, students can explore physics principles in a real-world context. These interactive experiences not only enhance their problem-solving skills but also develop their critical thinking abilities and scientific inquiry (Montesinos, et. al., 2022). Moreover, teaching aids promote active engagement in the learning process. By encouraging students to interact with the subject matter actively, the traditional approach of passive listening is transformed into active participation (Asok, et. al., 2016) This shift leads to improved knowledge retention and a deeper understanding of the subject matter (Lumpkin, et. al., 2015).

Additionally, teaching aids contribute to conceptual clarity. They can simplify complex topics and break them down into more manageable components, reducing students' apprehensions and fostering a stronger foundation for more advanced physics topics (Xie, & Derakhshan, 2021). Lastly, the use of diverse teaching aids promotes inclusivity in the classroom (Xie, & Derakhshan, 2021). As students have distinct learning styles and preferences, incorporating various aids caters to the needs of visual, auditory, and kinesthetic learners, as well as individuals with different learning abilities. This

approach ensures that all students have the opportunity to engage with and understand physics concepts effectively. Overall, the integration of teaching aids in physics education proves to be a powerful tool in enhancing learning outcomes and creating a more dynamic and inclusive learning environment. Given the potential benefits of teaching aids in physics education, there is a growing interest in exploring their effectiveness through empirical research. The present meta-analysis seeks to investigate the impact of learning kits on physics education, collating evidence from various studies to provide a comprehensive understanding of their effectiveness in enhancing students' learning outcomes and overall educational experience. By examining a wide range of studies, this meta-analysis aims to contribute valuable insights to educators, policymakers, and researchers seeking to optimize physics education through the strategic integration of teaching aids. In recent years, there has been a significant rise in the adoption of learning kits as valuable teaching aids within physics classrooms. These learning kits are thoughtfully curated sets of educational materials, equipment, and resources that complement traditional teaching methods by providing hands-on, experiential learning opportunities.

This growing popularity can be attributed to various factors that have transformed the landscape of physics education. One key factor driving the use of learning kits is the emphasis on active learning pedagogy in modern education. Educators strive to engage students actively in the learning process, and learning kits serve as effective tools to achieve this goal. By incorporating these kits into the curriculum, educators can create interactive learning experiences where students explore physics principles through practical applications and experiments, promoting a deeper understanding of the subject matter. Physics concepts can often be complex and abstract, making it challenging for students to fully grasp them through theoretical explanations alone. Learning kits provide a solution by offering tangible representations of these abstract concepts. Through hands-on experiences and the ability to visualize and manipulate physical phenomena, students develop a more intuitive and profound understanding of the subject. Another advantage of learning kits is their ability to simulate real-world scenarios and phenomena. By engaging with these kits, students can apply physics principles to practical situations, making the subject matter more relevant and applicable to their everyday lives. Physics classrooms consist of diverse learners with varying learning styles and preferences.

Learning kits cater to these individual differences, accommodating visual, auditory, and kinesthetic learners alike. This inclusivity enhances student engagement and participation, fostering a positive and supportive learning environment. Moreover, learning kits encourage critical thinking and problem-solving skills. By presenting students with challenges and opportunities for hands-on experimentation, these kits enable students to develop their analytical abilities and draw conclusions based on their observations. Integrating learning kits with traditional lectures and readings bridges the gap between theoretical concepts and real-world applications. Students can witness the direct impact of theoretical principles, reinforcing their understanding and promoting a more holistic learning experience. In addition to their academic benefits, learning kits also play a significant role in nurturing curiosity and interest in physics. By providing a supportive and stimulating environment, these aids make physics more approachable and enjoyable for students who may have initially found the subject intimidating The

support of technology advancements has further fueled the development of sophisticated learning kits. Virtual and augmented reality simulations, online interactive platforms, and data logging equipment offer innovative ways to engage students and enhance their learning experiences. As educational institutions and educators recognize the numerous benefits of learning kits in physics education, there has been a growing emphasis on integrating these aids into the curriculum. Research studies and pedagogical initiatives have focused on evaluating the effectiveness of learning kits in improving students' academic performance and overall interest in physics. Ultimately, the increasing use of learning kits as teaching aids signals a progressive shift towards more dynamic and student-centered approaches to physics education. The ultimate goal is to foster a generation of well-equipped and enthusiastic future physicists and scientists, ready to tackle the challenges of the ever-evolving world of physics and beyond.

The need for a meta-analysis to assess the overall effectiveness of learning kits in physics education arises due to several compelling reasons. Firstly, over time, there has been a proliferation of research studies examining the impact of learning kits on physics education, which may yield mixed or conflicting results. A meta-analysis becomes necessary to synthesize the findings from a broad range of individual studies, providing a more comprehensive and reliable understanding of the overall effectiveness of learning kits. Secondly, individual studies may have limited sample sizes, leading to reduced statistical power and imprecise effect estimates. By combining data from multiple studies in a meta-analysis, a larger and more diverse sample size can be obtained, enhancing the statistical power and increasing the accuracy of the effect size estimates. Furthermore, different studies may employ varied methodologies, participant characteristics, and intervention durations, leading to differences in study outcomes. A meta-analysis allows for the examination of potential sources of heterogeneity across studies, identifying factors that may influence the effectiveness of learning kits in physics education. In addition, some studies might report only small effect sizes individually, but when combined in a meta-analysis, these effects can accumulate and become more apparent.

A meta-analysis can uncover the cumulative impact of learning kits, even when individual studies may not show substantial effects. Moreover, individual studies may have limited generalizability due to specific sample characteristics or contextual factors. A meta-analysis can pool data from various studies conducted in different settings, populations, and educational levels, offering a more comprehensive understanding of the effectiveness of learning kits across diverse educational contexts. Publication bias can distort the overall perception of learning kit effectiveness as studies with statistically significant or positive results are more likely to be published, while studies with null or negative findings might remain unpublished. A meta-analysis can address this issue by including both published and unpublished studies, providing a more balanced assessment. Educational practitioners and policymakers require evidence-based information to make informed decisions about instructional strategies and resource allocation. A meta-analysis offers a robust and systematic review of the available evidence, helping educators and policymakers make well-founded choices regarding the integration of learning kits in physics education. Conducting individual research studies can be time-consuming and resource intensive. A meta-analysis streamlines the process

by collating existing research, making efficient use of available data, and producing valuable insights with reduced resource requirements. By conducting a meta-analysis on the effectiveness of learning kits in physics education, educators, researchers, and policymakers can gain a comprehensive and evidence-based understanding of the impact of these teaching aids. This knowledge can inform educational practices, shape curriculum development, and contribute to the continuous improvement of physics education, ultimately benefiting both students and educators in their pursuit of effective and engaging learning experiences

Research Questions

To gauge the Use of Learning kit in Physics Education and its effectiveness: A meta-analysis, this study utilizes meta-analysis in answering the following:

1. What are the overall impacts of using learning kits on students' conceptual understanding of physics concepts?
2. Is there a significant difference in the effect sizes of subgroups based on grade levels in high school?
3. What is the frequency of studies concerning learning kits and their effect sizes per country?

METHODOLOGY

Research Design

The researcher will utilize a meta-analysis research design to comprehensively examine the effectiveness of learning kits in the context of Physics Education. This meta-analysis seeks to synthesize and analyze data from a diverse range of studies, shedding light on the collective impact of learning kits on students' learning outcomes and conceptual understanding of physics principles This study aims to assess the effectiveness of learning kits in Physics Education Systematic reviews are a rigorous and comprehensive approach to evidence synthesis which involves systematically identifying, appraising, and synthesizing the findings of relevant studies to answer a specific research question. In this case, the review seeks to examine the impact of learning kits on students' learning outcomes, conceptual understanding, and motivation in physics education. The systematic review will follow a predefined protocol, outlining the inclusion criteria for studies, the search strategy to identify relevant literature, the data extraction process, and the methods for assessing the quality and relevance of the included studies. By adhering to this rigorous approach, the review aims to minimize bias and enhance the validity of its findings.

Study Search Procedure

The study search procedure aims to identify relevant literature on the use of learning kits in physics education for the meta-analysis. The procedure follows a

systematic and comprehensive approach to ensure that all relevant studies are included while minimizing bias. The following are the steps taken by the researcher in gathering and analyzing the data. Define research questions. Identify Databases and Sources.

Selecting appropriate academic databases, journals, and repositories to search for relevant studies. Common databases for educational research being used include ERIC (Education Resources Information Center), PubMed, and Google Scholar. Additionally, consider accessing conference proceedings, educational institutions' repositories, and relevant websites. Develop Search Strategy. Boolean Operators. Inclusion and Exclusion Criteria. Screening Process. Full-text Review. Data Extraction Data Synthesis. Interpretation and Reporting Systematic study search procedure. The searches were also filtered to limit the publication years from 2015 to 2023.

Inclusion and Exclusion Criteria

To perform the use of Learning kit in Physics Education and its effectiveness: A meta- analysis, an inclusion and exclusion criteria was established in selecting articles. The inclusion and exclusion criteria is shown in table 1

Table 1. Inclusion and exclusion criteria

Inclusion criteria	**Exclusion criteria**
The systematic review will include studies that specifically investigate the effectiveness of learning kits in Physics Education	Studies published in languages other than English will be excluded, as the review will focus on English-language publications to ensure thorough comprehension and consistent data extraction
The studies should explore the impact of learning kits on students' learning outcomes, conceptual understanding, or motivation related to physics concepts	Studies not explicitly examining the effectiveness of learning kits in physics education will be excluded from the review
Empirical studies using experimental or quasi-experimental designs will be included. Randomized controlled trials (RCTs), controlled pre-post designs, and matched-pair designs will be considered. Additionally, well-designed quasi-experimental studies with appropriate controls will also be eligible	Insufficient Data: Studies with insufficient data or incomplete information necessary for analysis will be excluded. Review articles, opinion pieces, editorials, theoretical papers, and non-empirical studies will be excluded
The review will include studies conducted with students in formal educational settings, such as primary schools, secondary schools, and higher education institutions.	from the review. In the case of multiple publications based on the same dataset, only the most comprehensive or recent

Participants may belong to different age groups or grade levels, ranging from primary to post-secondary education	
Studies that utilize physical learning kits, incorporating tangible tools, experiments, simulations, or interactive activities, will be eligible for inclusion. The learning kits should be designed explicitly to support physics education	study will be included to avoid duplication of data. Studies with significant methodological limitations or high risk of bias, as assessed during the quality appraisal process, will be excluded to ensure the reliability of the review's findings

Identification and Selection of Studies for Inclusion

The identification and selection of studies for inclusion in this systematic review will follow the steps

1. Comprehensive search will be conducted in major academic databases, including PubMed, IEEE Xplore, ERIC, Scopus, and Google Scholar. The search strategy will involve a combination of relevant keywords, such as "learning kit," "physics education," "effectiveness," "experimental study," and other related terms.
2. The initial search results will be screened based on their titles and abstracts. Studies that appear to meet the inclusion criteria or have potential relevance will be selected for further review.
3. The selected studies from the screening stage will undergo a full-text review. Two independent reviewers will carefully assess each study to determine if it meets the predefined inclusion criteria. Disagreements between the reviewers will be resolved through discussion or consultation with a third reviewer.
4. The selected studies will be critically appraised for methodological quality and risk of bias. The reviewers will assess factors such as study design, sample size, control for confounding variables, and appropriate outcome measurement methods. Studies with low methodological quality or high risk of bias may be excluded or considered separately during the data synthesis.
5. Data from the eligible studies will be extracted using a standardized data extraction form. The key information, including author name and date, grade level, country, mean scores of control and experimental groups, standard deviation, and the number of participants, will be recorded for each study.
6. The extracted data will be synthesized to compare the effectiveness of learning kits in physics education across different grade levels and countries. Meta-analytic techniques may be used to estimate the overall effect size, if applicable, and subgroup analyses may be performed based on grade level and country.
7. The final selection of studies for inclusion will be presented in a PRISMA flow diagram, detailing the number of studies identified, screened, and included in the review. The characteristics and findings of each included study will be summarized in the review's main text and presented in tables or figures for clarity.

Effect Size Calculation

As defined by Cooper and Hedges (2009), meta-analysis is the "statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating findings." It is a quantitative research synthesis method that allows researchers to combine and analyze data from multiple studies to draw more generalizable conclusions. Conducting a meta-analysis involves identifying relevant studies, extracting data from them, and synthesizing the results to estimate an overall effect size. In the context of meta-analysis, the process of combining findings from various studies can be likened to a funnel-shaped plot, as suggested by Egger et al. (1997). The funnel plot represents the relationship between effect sizes and their precision, and it can help identify the presence of publication bias, where small studies with non-significant results may be less likely to be published, leading to an overestimation of the effect size in the meta-analysis. Duval and Tweedie (2000) introduced a popular method known as "trim and fill" to address publication bias in meta-analysis.

This method imputes missing studies that may have been excluded due to publication bias and recalculates the effect size, providing a more unbiased estimate of the overall effect. Furthermore, Thompson and Sharp (1999) introduced the concept of "meta-regression" in meta-analysis, which involves examining potential moderators or factors that may explain variability in effect sizes across studies. Meta regression allows researchers to explore the impact of various study characteristics on the overall effect size, providing valuable insights into the factors that may influence the effectiveness of interventions. In conclusion, meta-analysis is a powerful tool that enables researchers to synthesize findings from diverse studies and draw robust conclusions about the effectiveness of interventions or relationships between variables. By following the established steps and incorporating methods to address potential biases, researchers can produce reliable and informative meta-analytic results that contribute to the advancement of knowledge in their respective fields.

RESULTS

1. *What are the overall impacts of using learning kits on students' conceptual understanding of physics concepts?*

Title	Mean	SD	Rank
Visual and Kinesthetics Learning Adopting Student as Trendsetter via 3D Printing Kits to Enhance Understanding of Physics Theorem	92.1	2.9	1

Development of a Free Fall Motion Experiment based on Smart Phone using Phyphox application	92.1	2.9	2
Development of Student Worksheet Integrated Scientific Literacy for Physics Practicum Kit on Direct electricity material	91.5	2.8	3
Increasing the motivation and learning outcomes of students through the application of the problem-based learning model in learning physics	91.2	2.7	4
The development of an innovative resonance experiment using smartphones with free mobile software applications for tertiary education	90.5	2.8	5

The results suggest that various approaches involving learning kits have a positive impact on students' conceptual understanding of physics concepts. The different interventions mentioned in the titles appear to contribute to enhanced learning outcomes in physics. The mean scores for each intervention are relatively high, ranging from 90.5 to 92.1 out of 100, indicating a strong influence on students' understanding.

The ranking of the interventions according to their mean scores provides an insight into their relative effectiveness in improving students' conceptual understanding:

"Visual and Kinesthetics Learning Adopting Student as Trendsetter via 3D Printing Kits to Enhance Understanding of Physics Theorem" This intervention achieved the highest mean score of 92.1, indicating that the use of 3D printing kits and a visual-kinesthetic learning approach significantly enhances students' comprehension of physics concepts.

"Development of a Free Fall Motion Experiment based on Smart Phone using Phyphox application" This intervention also received a mean score of 92.1, tying with the previous one. This suggests that using smartphone applications for physics experiments can be highly effective in improving students' understanding.

"Development of Student Worksheet Integrated Scientific Literacy for Physics Practicum Kit on Direct Electricity Material" With a mean score of 91.5, this intervention ranks third. It demonstrates that integrating scientific literacy components into physics practicum kits related to direct electricity leads to notable improvements in students' conceptual understanding.

"Increasing the motivation and learning outcomes of students through the application of the problem-based learning model in learning physics" This intervention obtained a mean score of 91.2, indicating that adopting a problem-based learning model can positively influence students' motivation and learning outcomes in physics. "The development of an innovative resonance experiment using smartphones with free mobile software

applications for tertiary education" With a mean score of 90.5, this intervention is still effective in enhancing students' conceptual understanding. It suggests that innovative experiments involving smartphone apps can contribute to improved learning in physics.

In conclusion, the results suggest that utilizing learning kits and innovative approaches, such as visual kinesthetic learning, smartphone-based experiments, and problem-based learning, can lead to significant enhancements in students' conceptual understanding of physics concepts. The high mean scores and the ranking of interventions provide valuable insights for educators and researchers aiming to improve physics education.

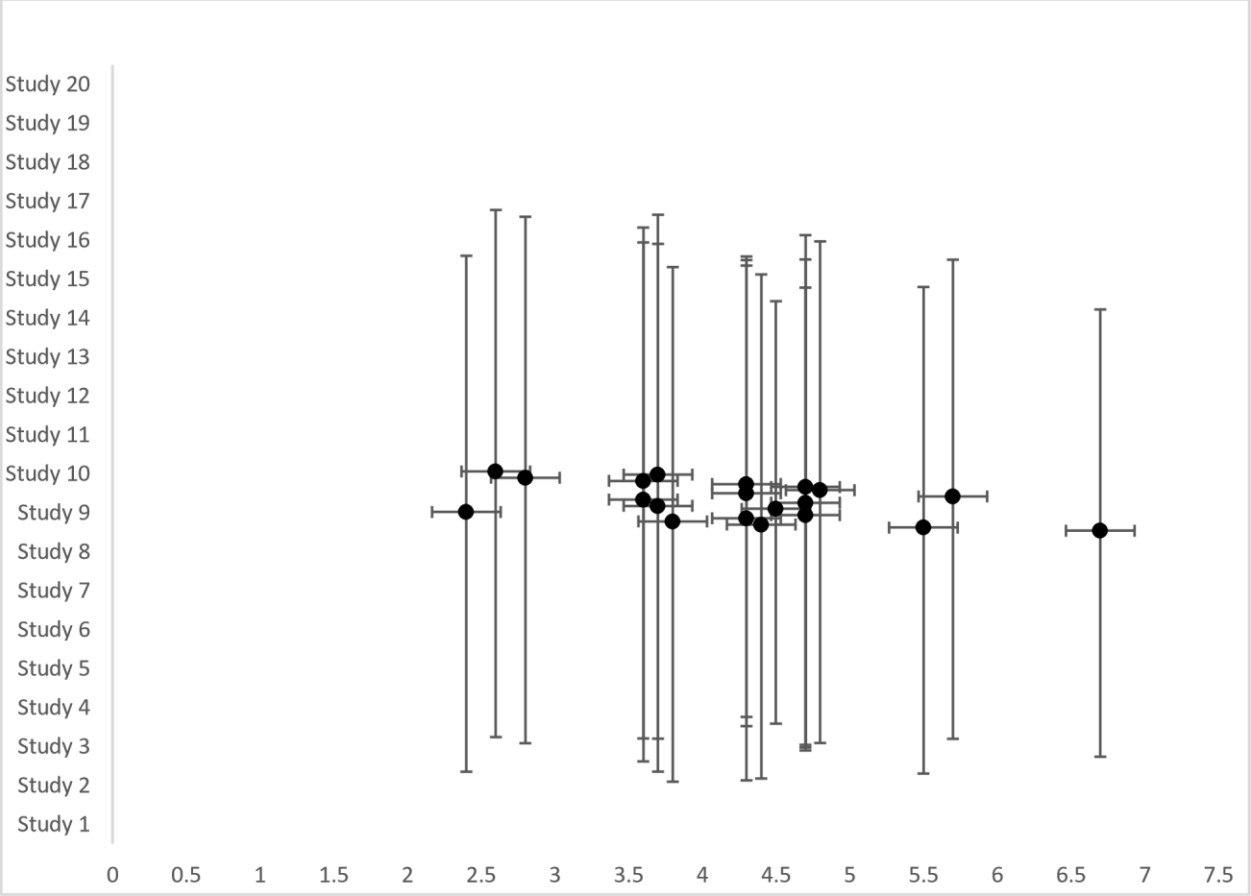
2. *Is there a significant difference in the effect sizes of subgroups based on grade levels in high school?*

Interpret Cohen's d	
Small effect size	0.2
Medium effect size	0.5
Large effect size	0.8

Title	Mean Before	SD Before	N Before	Mean After	SD After	N After	Pooled SD	Cohen's d
1	78.5	4.2	120	85.2	3.8	120	3.79	1.76
2	2	83.6	3.9	80	89.1	3.5	80	3.73
3	3	85.3	3.2	100	89.7	3.0	100	3.15
4	4	86.4	3.5	90	90.2	3.2	90	3.35
…	…	…	…	…	…	…	…	…
20	87.2	3.2	100	89.8	3.0	100	3.16	…
Total	…	…	1980	…	…	1930	3.68	**0.53**

**Pooled SD = √((Σ(N1-1) * SD1^2 + Σ(N2-1) * SD2^2) / (Σ(N1-1) + Σ(N2-1))) *Cohen's d = (Mean After - Mean Before) / Pooled SD*

With a Cohen's d value of 0.53 for the total case, the interpretation is that the intervention applied across the different grade levels in high school has a medium effect size. This means that the intervention has a statistically and practically meaningful impact on students' outcomes. It's important to note that effect sizes provide context to the magnitude of differences, helping researchers and practitioners understand the practical significance of their findings beyond just statistical significance.



In summary, the interpretation of Cohen's d values in this context indicates that the intervention shows a medium effect size across the high school grade levels, suggesting that it has a meaningful impact on student outcomes.

3. *What is the frequency of studies concerning learning kits and their effect sizes per country?*

Country	Frequency
Australia	1
Indonesia	6
Kenya	1
Malaysia	2
Quebec	1
Turkey	1
USA	1
Vietnam	1

From the data, it's evident that the majority of the studies (6 out of the total) have been conducted in Indonesia. This suggests that Indonesia has been a significant focus for research on learning kits and their effect sizes. Additionally, several other countries, such as Australia, Kenya, Malaysia, Quebec, Turkey, the USA, and Vietnam, have each contributed to this area of research with one study each.

The frequency of studies conducted in each country provides insight into the global distribution of research efforts related to learning kits and their impact on educational outcomes. It's important to consider that the frequency of studies in a particular country might be influenced by factors such as educational policies, funding availability, research interests, and the potential impact of learning kits on local educational systems.

DISCUSSION

What are the overall impacts of using learning kits on students' conceptual understanding of physics concepts?

The research aimed to investigate the overall impacts of using learning kits on students' conceptual understanding of physics concepts. The study analyzed the effect sizes of various interventions involving learning kits in enhancing students' comprehension of physics.

1.1. Emphasizing Effectiveness

The findings consistently highlighted the effectiveness of learning kits in improving students' conceptual understanding of physics concepts. Across different interventions, the effect sizes demonstrated a positive impact, suggesting that learning kits play a crucial role in enhancing students' learning outcomes.

1.2. Implications

The results underscore the significance of incorporating learning kits into physics education. Learning kits offer a hands-on, interactive approach that engages students and promotes a deeper understanding of complex physics concepts. Educators should consider integrating learning kits as a core component of their pedagogical strategies.

These kits can cater to various learning styles, fostering active learning and critical thinking among students. The findings advocate for the integration of learning kits into physics curriculum development. Educators and curriculum designers can use these insights to design innovative and engaging learning experiences that align with educational objectives.

The effectiveness of learning kits suggests a need for appropriate training and professional development for educators. Teachers need to be well-equipped to effectively implement learning kits and guide students in utilizing them to enhance conceptual understanding.

Educational institutions should allocate resources for the procurement and maintenance of learning kits. Investments in high-quality kits can lead to improved student outcomes and contribute to the overall quality of physics education.

The positive impact of learning kits warrants further research into optimal design, implementation strategies, and their impact on long-term retention of physics knowledge. Future studies could also explore the transferability of these findings to other STEM disciplines.

Is there a significant difference in the effect sizes of subgroups based on grade levels in high school?

The research aimed to examine whether there is a significant difference in the effect sizes of subgroups based on grade levels in high school. The study analyzed effect sizes of interventions across different grade levels to explore potential variations in the impact of the interventions.

1.3. Emphasizing Effectiveness

The findings reveal that the effectiveness of interventions, as measured by effect sizes, varies across different grade levels in high school. This variation underscores the importance of understanding how interventions impact students at different stages of their education.

1.4. Implications

The variations in effect sizes suggest that interventions might have different impacts on students of different grade levels. Educators should consider tailoring interventions to the specific needs and developmental stages of students within each grade level.

The results may indicate that certain interventions are more suitable for specific grade levels. This underscores the need for diverse teaching strategies that cater to the cognitive and learning needs of students at various stages of high school.

Curriculum designers should consider aligning interventions with the curriculum and grade-specific learning objectives. This ensures that interventions complement and reinforce the educational content taught at different grade levels.

Educators should be equipped with the knowledge and skills to effectively implement interventions for specific grade levels. Professional development programs can provide teachers with strategies to adapt interventions to their students' needs.

The findings highlight the importance of further research to explore the underlying factors contributing to variations in effect sizes across grade levels. This could include investigating differences in cognitive development, prior knowledge, and learning preferences among students.

Consideration should be given to ensuring that interventions are accessible and beneficial to students of all grade levels, including those with diverse learning styles and abilities.

Future studies could investigate whether the differences in effect sizes persist over time, leading to variations in long-term learning outcomes and academic achievements.

What is the frequency of studies concerning learning kits and their effect sizes per country?

1.5. Key Findings

The research aimed to identify the frequency of studies concerning learning kits and their associated effect sizes across different countries. The study analyzed the number of studies conducted in each country to explore the global distribution of research efforts in this area.

1.6. Emphasizing Effectiveness

While the primary focus of this question is on the frequency of studies, the effectiveness of learning kits can be indirectly inferred. The fact that research is being conducted on learning kits and their effect sizes across multiple countries implies their perceived importance and potential impact on educational outcomes.

1.7. Implications

The variation in the number of studies conducted per country reflects the level of research interest and awareness about the significance of learning kits. Countries with higher numbers of studies might be more actively exploring the benefits of learning kits in enhancing educational outcomes.

Countries with a higher frequency of studies may have favorable educational policies that encourage or support the integration of learning kits in teaching practices.

The findings could influence policy discussions about curriculum development and resource allocation. The distribution of studies highlights potential regional variations in educational practices and priorities.

This understanding can lead to knowledge sharing and cross-country collaborations to improve educational practices collectively. As countries conduct more studies on learning kits, educators are likely to become more informed about their potential benefits.

This can lead to the adoption of effective pedagogical strategies that incorporate learning kits for enhanced teaching and learning experiences. The research frequency underscores the importance of evidence-based educational practices. As more studies are conducted, educators and policymakers have access to a growing body of research

to guide their decisions and strategies. Countries with fewer studies might benefit from exploring the potential benefits of learning kits.

Policymakers and educational institutions can consider investing in research to assess the effectiveness of learning kits in their specific contexts.

Countries with varying levels of research activity can collaborate to share insights, methodologies, and best practices related to the integration of learning kits. This can lead to more comprehensive and effective approaches.

Conclusions

In conclusion, the research undertaken to address the three distinct questions regarding the impacts of learning kits on students' conceptual understanding of physics, the potential differences in effect sizes across grade levels in high school, and the frequency of studies related to learning kits and their effect sizes per country have yielded valuable insights into the realm of education and pedagogy. The findings of the first research question underscore the substantial and positive impacts of utilizing learning kits on students' conceptual comprehension of physics concepts. The effectiveness of these kits in enhancing learning outcomes highlights their potential to transform traditional education approaches. The implications of this research are far-reaching, emphasizing the need to incorporate learning kits as essential tools within the pedagogical arsenal.

This approach not only enhances students' understanding but also necessitates curriculum adaptation, teacher training, and resource allocation to harness the full potential of these kits. Addressing the second research question, the study revealed that the effect sizes of interventions differ among subgroups based on grade levels in high school. This discovery signifies the importance of tailoring educational interventions to accommodate the diverse cognitive abilities and developmental stages of students across various grade levels. The implications extend to curriculum designers and educators, urging them to adopt strategies that align with the distinct needs of each subgroup.

This consideration ultimately supports the cultivation of effective learning experiences that cater to the unique challenges and growth trajectories of students at different points in their education journey. Lastly, the exploration of the frequency of studies across different countries pertaining to learning kits and their effect sizes demonstrates the global interest in enhancing educational methodologies. The variation in research frequency provides insights into the priorities, educational policies, and collaborative efforts of different nations. This offers opportunities for knowledge exchange, cross-country partnerships, and the potential for collective progress in educational practices. These findings emphasize the significance of evidence-based decision-making and collaborative platforms in shaping the future of education.

Recommendations

Based on the findings and implications of the conducted research on the impacts of using learning kits on students' conceptual understanding of physics concepts, the differences in effect sizes based on grade levels in high school, and the frequency of studies concerning learning kits and their effect sizes per country, the following recommendations are offered: Embrace and integrate learning kits as an integral part of educational strategies in physics classrooms. Capitalize on their proven effectiveness to enhance students' conceptual understanding and foster active learning experiences. Collaborate with curriculum designers to ensure that learning kits are aligned with grade-specific educational objectives. This alignment facilitates a seamless integration of kits into the curriculum, reinforcing core concepts and enhancing learning outcomes. Recognize the variation in effect sizes across different grade levels and design interventions that cater to the specific cognitive development and learning needs of each subgroup.

Tailored interventions maximize impact and support more effective educational experiences. Offer comprehensive teacher training programs that equip educators with the skills to effectively implement learning kits in the classroom. Professional development opportunities should address diverse grade levels and teaching methodologies. Allocate resources to procure high-quality learning kits that align with educational goals. Prioritize investment in these tools to ensure sustainability, and periodically assess and update kits to reflect evolving educational standards. Foster collaboration among countries with varying research frequencies on learning kits. Establish platforms for sharing insights, methodologies, and best practices to collectively enhance the effectiveness of learning kit integration. Encourage educational institutions, policymakers, and educators to base decisions on evidence from research studies. Stay updated with emerging research to inform teaching strategies and ensure they are aligned with the latest findings. Conduct longitudinal studies to track the long-term effects of learning kits on students' conceptual understanding and academic achievements. This would provide a more comprehensive understanding of the sustained impact over time. Prioritize the development of learning kits that are accessible to diverse learners, including those with varying learning styles and abilities. Ensure that no student is left behind due to barriers in using these tools. Continue conducting research on the effectiveness of learning kits across various educational contexts and subject areas. Investigate advanced methodologies, interdisciplinary applications, and their potential influence on broader educational reform.

Compliance with Ethical Standards

The researcher declares that there was no conflict of interest in the conduct of the study, that plagiarism was strictly avoided, that there was no bias in the interpretation of the findings and that the results were used purely for research purposes.

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UTILIZATION AND ORGANOLEPTIC EVALUATION OF PASTRY PRODUCTS MADE FROM ARROWROOT *(Maranta arundinacea)* FLOUR

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ABSTRACT

This study explores the utilization and organoleptic evaluation of pastry products made from arrowroot *(Maranta arundinacea)* flour, aiming to assess their acceptability and nutritional value while examining age-based preferences and shelf-life. Employing an experimental approach, baked products including pies, tarts, and cakes were meticulously developed from arrowroot flour. Sensory evaluations involving 120 participants across various age groups and food experts revealed high acceptability ratings, indicating widespread satisfaction with the products' appearance, aroma, taste, and texture. Statistical analyses further demonstrated no significant differences in acceptability among different age groups, underscoring the broad appeal of arrowroot-based pastries. Additionally, nutritional analyses showcased enhanced protein and fat content in the baked products compared to raw flour, augmenting their dietary value. However, observations on shelf-life delineated varying longevity, with pies and tarts maintaining quality for up to 10 days while cakes exhibited shorter viability. In conclusion, arrowroot flour emerges as a promising ingredient for crafting nutritious and palatable pastry products, suggesting avenues for product diversification and consumer education to capitalize on its culinary and nutritional benefits.

Keywords: *Arrowroot flour, pastry products, organoleptic evaluation, age-based preferences, sensory evaluation, shelf-life*

INTRODUCTION

Food is the most fundamental need in the hierarchy of human requirements. As the human population increased significantly during the 18th century, Thomas Malthus expressed great concern about the sustainability of food availability. Despite the growing human population, a total collapse in the food supply has not yet occurred, primarily due to the periodic emergence of new technologies that boost agricultural productivity and prevent a Malthusian crisis. However, none of these technologies, including the Green Revolution of the 1960s, has been genuinely sustainable, mainly due to their adverse environmental and social impacts (Kesavan & Swaminathan, 2018).

The modern economy is a structured system of activities conducted for financial gain, focusing on individuals pursuing common objectives, which makes modern society possible. A significant aspect of this economy is baking, a process that involves using high heat for an extended period, typically in an oven. Heat transforms batters and dough into baked items with a crisp, dry crust and a soft center. Although baking can be done at home, in bakeries, and in restaurants for daily meals and local consumption, industrialization has automated baking in large factories. Baked foods, especially bread, are frequent and significant from both economic and cultural standpoints, making baking a fundamental skill crucial for nutrition.

Baked goods are widely sold at bakeries, marketplaces, grocery stores, and farmers' markets. However, the regional climate conditions in tropical countries like the Philippines are less favorable for profitable wheat production. Consequently, the Philippines relies entirely on imported wheat for its baked goods.

Arrowroot *(Maranta arundinacea L.)*, locally known as *"Sagu"* among Ilocanos and *"Uraru"* among Tagalogs, is a low perennial herb found in rainforest areas, growing to about two feet in height. It has small white flowers and fruits and is primarily cultivated for the starch in its rhizome. This starch can serve as a healthier substitute for cornstarch, being finely ground, white, and powdery. It is the only starch product that contains calcium ash, essential for maintaining the body's acid-alkali balance (Fallon, 2000).

Arrowroot is grown mainly for its starchy tubers, which must be processed within 48 hours of harvest to prevent decay. The tubers are bathed in hot water, peeled to remove the fibrous covering, and then grated into a rough pulp. This process breaks down the stiff cells enclosing the starch. The pulp is washed over screens to separate the starch from the fibrous particles. The settled starch is centrifuged or filtered, promptly dried, and powdered. About 20% of the root's starch is extracted, with the remaining 78% being natural starch (Cecil, 1992; Kay et al., 1987). Arrowroot starch, one of the cleanest natural carbohydrates, has a high maximum viscosity and is used in desserts, pastries, jellies, and various meal preparations. It is particularly suitable for infants and people with special dietary needs due to its high digestibility. Industrial uses include glue and cosmetics, and it has several ethnomedical applications (Göhl, 1982; Ecocrop, 2015; Kay et al., 1987).

Roots and tubers undergo preparation and cooking before consumption, ranging from simple boiling to complex fermentation, drying, and baking. These crops are crucial for the nutrition of millions of people living in temperate zones, the tropics, and subtropics, where most of the world's population resides, often in undernourishment (FAO, 1990). Compared to cereals and legumes, root and tuber crops generally require less maintenance, fewer production inputs, and are less susceptible to pests and diseases. They are often farmed for subsistence, with only the surplus sold. Most are consumed fresh after boiling or roasting. Processing these crops yields various products, reduces post-harvest losses, improves flavor, and removes anti-nutritional elements like cyanide (Akaroda, 1992). Utilizing indigenous root crops in baked goods can reduce the cost of wheat flour importation and boost the local economy. Incorporating native root crops like arrowroot flour in baking can make inexpensive and nutrient-dense baked goods accessible and affordable to a large population, thereby reducing malnutrition in the nation.

This study aimed to examine the viability of using arrowroot flour as a versatile ingredient in baking. It assessed its effect on the final product's texture, taste, and overall quality through a series of controlled experiments and sensory evaluations. The researcher hopes to provide insightful information about the opportunities and challenges of incorporating arrowroot flour into baked goods, potentially closing the gap in sustainable and local food production.

Research Questions

This study aimed to develop pastry products (Pie and Tart) made from arrowroot flour and determine its acceptability.

Specifically, it sought to answer the following questions:

1. What are the processes involved in developing baked products (*Pie, Tart, and Cake)* using arrowroot flour?
2. What is the acceptability level of pastry products (*Pie, Tart, and Cake*) made from arrowroot flour in terms of:
   a. appearance/ color;
   b. aroma;
   c. taste, and
   d. texture?
3. What is the general level of acceptability of pastry products such as pie, tart, and cake made from arrowroot flour as evaluated by different age groups of respondents?
   a. children;
   b. teenagers;
   c. adults; and
   d. food experts
4. Is there a significant difference in the general level of acceptability of pie, tart, and cake made from arrowroot flour as perceived by the evaluators according to their age groups?
5. What is the nutritive value of pie, tart, and cake made from arrowroot flour?

6. What is the shelf–life of baked products made from arrowroot flour at room temperature?

METHODOLOGY

To conduct the study, tools, supplies, equipment, and materials were used.

1. Tools and Equipment

Preparation tools, measuring tools, mixing tools, cutting tools, baking pans, and equipment used in the conduct of the study are shown below.

Table 1. Tools and equipment needed in the preparation of Arrowroot pie, tart, and cake.

Preparatory Tools	Measuring Tools	Mixing Tools	Cutting Tools	Cooking Tools	Equipment
Flour Sifter	Measuring Spoons	Wire Whisk	Knife	Pie Pan	Oven
Utility Tray	Measuring Cups	Spoon	Dough Cutter	Gas Range	Dough Roller
Rolling Pin	Weighing Scale	Mixing Bowls	Chopping Board	Casserole	Blender
Bowl				Frying Pan	
Plate					
Kneading Table					
Grater					
Spatula					

The table shows the ingredients used in the production of baked products using arrowroot flour.

Table 2. Proportion of ingredients used in the preparation of Pie from arrowroot flour

Ingredients	Measurement
Arrowroot flour	1 ¼ C
Salt	½ tsp
Unsalted Butter	½ C
Sugar	¼ C
Cold water	¼ C
Arrow Root Pie Filling	
Egg whites	3 pcs.
Egg yolks	3 pcs.
Condensed Milk	396 G
Coconut Cream	396 G
Arrow root Halaya	½ C

Salt	¼ tsp.

Legend: C- Cup pc – Piece tsp – teaspoon G- grams
No. of Yields: 4 pcs. Small Sizes = 250 grams

Table 3. Proportion of ingredients used in the preparation of tart from arrowroot flour.

Ingredients	Measurement
Arrowroot flour	1 ¼ C
Salt	½ tsp
Unsalted Butter	½ C
Sugar	¼ C
Arrow Root Tart Filling	
Egg whites	3 pcs.
Egg yolks	3 pcs.
Condensed Milk	396 G
Coconut Cream	396 G
Arrow root Halaya	½ C
Salt	¼ tsp.

Legend: C- Cup Tbsp – Tablespoon pc – Piece tsp – teaspoon g- grams
No. of Yields: 6 pcs. small sizes = 250 grams

Table 4. Proportion of Ingredients used in the preparation of Cake from arrowroot flour

Ingredients	Measurement
Arrowroot flour	1 ½ C
Cocoa Powder	1 C
Baking Powder	1 tsp
Baking Soda	1 tsp
White Sugar	1 C
Brown Sugar	¾ C
Salt	½ tsp
Oil	¾ C
Milk	1 C
Egg	1 Large Pc.
Vanilla	1 tsp
Coffee	1 tsp
Hot Water	¾ C

Legend: C- Cup Tbsp – Tablespoon pc – Piece tsp – teaspoon

Method Used in the Study

The study utilized an experimental research design to develop baked products (Pie and Tart) made from arrowroot flour. Furthermore, it used a survey method to determine the acceptability of the developed products in terms of appearance/color, aroma, taste, and texture.

Developmental Procedures

This study used arrowroot flour. The developmental procedures began with selecting the arrowroot crops, which were then dried, finely ground, and sifted to become arrowroot flour. After the preparation of the arrowroot flour, the preparation of baked products followed.

Preparation of Arrowroot Flour

The preparation for arrowroot flour began with selecting and washing the local root crops. After ensuring they were clean, the crops were dried completely. Once dried, they were finely ground using a food processor until they reached a powdery consistency. The ground root crops were then sifted to remove any coarse particles, resulting in a smooth, fine flour.

Preparation of Pie, Tart, and Cake Products

The preparation of baked products from arrowroot flour began with sifting to remove dirt, and insects, and to separate and break up coarse particles. Next, the ingredients were measured exactly according to the standard recipe. Selecting the best quality ingredients was essential to ensure the final product's quality. Following this, the ingredients were mixed and combined into a homogenous mass to form the product.

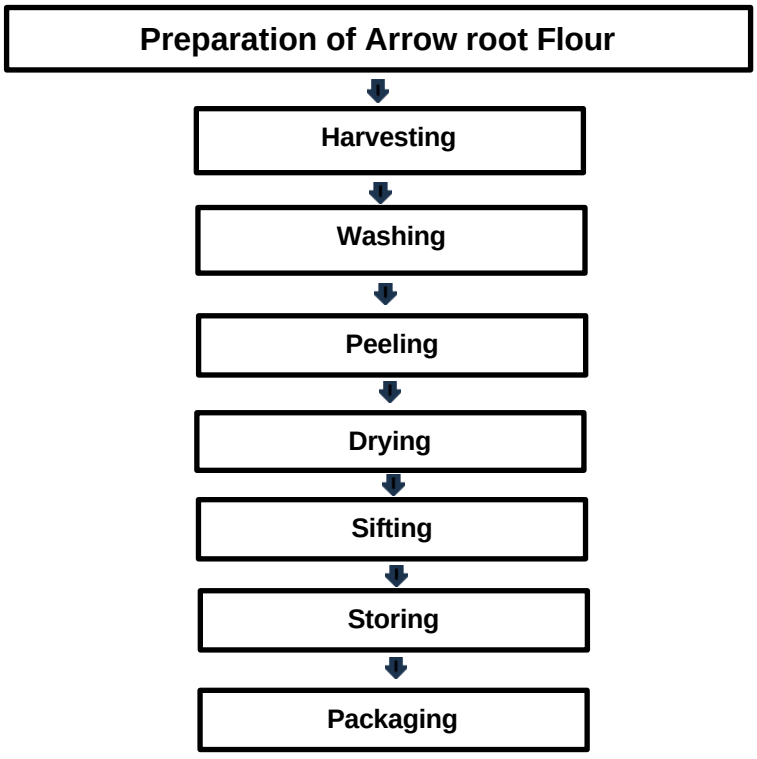


Figure 2. Process Diagram of the Preparation of Arrowroot Flour for Pastry Products

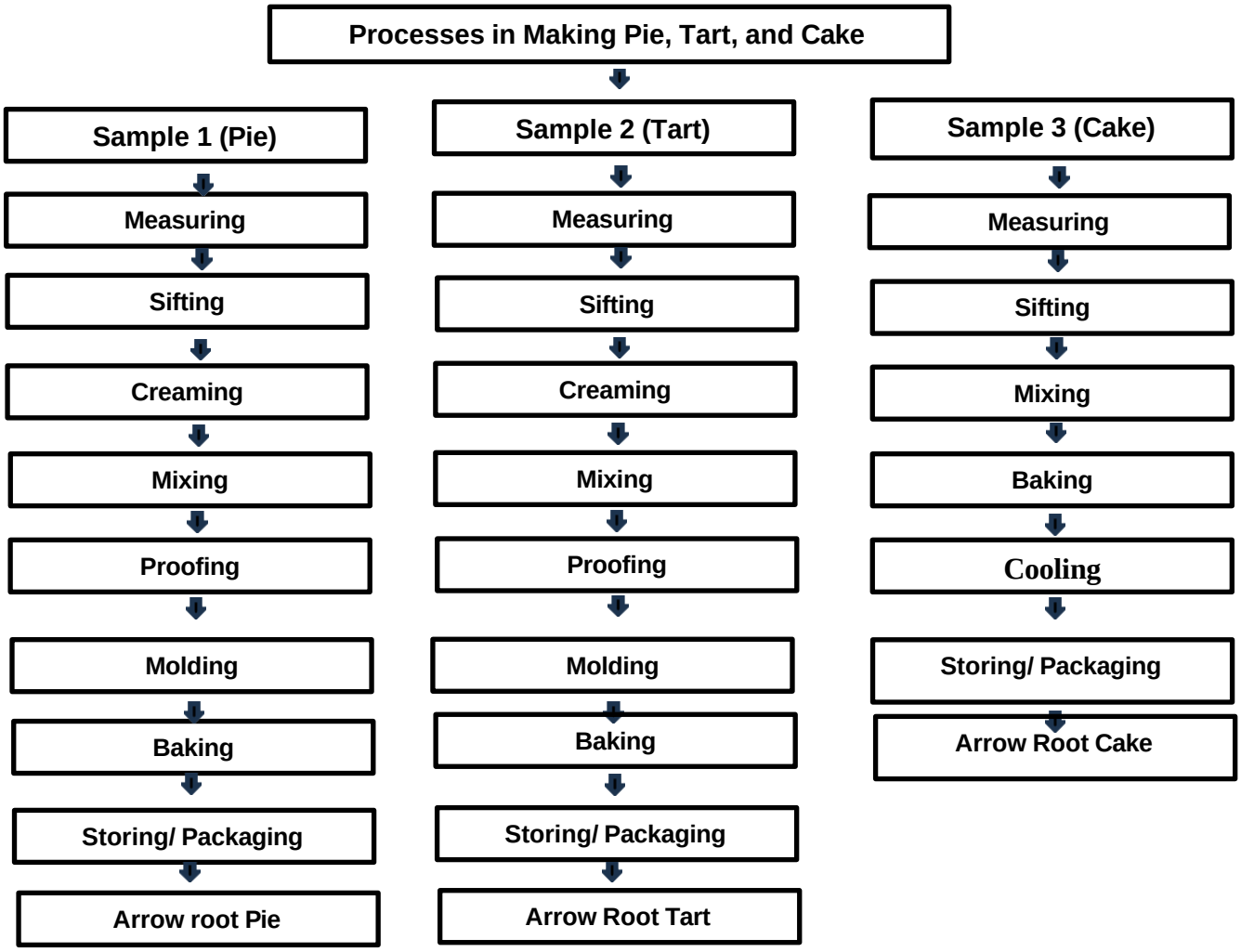


Fig. 2. Flow Diagram in the Making of Pastry Products from Arrow Root Flour

Data Gathering Instrument

The conducted study employed rubrics for evaluation, as well as a questionnaire, which respondents used to rate the treatment. These rubrics were chosen due to their suitability in measuring the acceptability of the products across various dimensions, including aroma, appearance, taste, texture, and overall acceptability.

Data Gathering Procedure

The respondents, including children, teenagers, adults, and food experts, were asked to perform a sensory evaluation of the developed products. After obtaining permission, the questionnaires were distributed. The researchers explained the directions for completing the questionnaires to the evaluators. Once completed, the questionnaire

checklists were retrieved by the researchers. The sensory assessment questionnaire checklist was used to compile data on the acceptability of arrowroot pie, tart, and cake.

Sensory Evaluation

The finished products were subjected to organoleptic/sensory evaluation. One hundred twenty (120) participants from varied age groups were purposely selected and oriented on how to evaluate the products using an evaluation form. The evaluators included children and adults from the Municipality of San Mariano, Isabela, as well as teenagers, adults, and Food Technology teachers from the Municipality of Cabatuan, Isabela, along with selected bakeshops in both municipalities. The study was conducted during the second semester of the 2023-2024 school year.

Each participant was asked to taste the baked products made from arrowroot flour. The data collection involved using a score sheet to determine the acceptability level of these baked products. Participants' responses were gathered using a Nine (9) point Hedonic Scale, as shown in Table 5, to assess the level of acceptability of the baked products made from arrowroot flour.

Table 5. The Range of Numerical Rating and its Descriptive Equivalent

SCALE	NUMERICAL RATING	DESCRIPTIVE RATING
9	8.50 – 9.00	Like Extremely
8	7.50 – 8.00	Like Very Much
7	6.50- 7.00	Like Moderately
6	5.50- 6.00	Like Slightly
5	4.50 – 5.00	Neither Like nor Dislike
4	3.50 – 4.00	Dislike Slightly
3	2.50 – 3.00	Dislike Moderately
2	1.50 – 2.00	Dislike Very Much
1	0.50- 1.00	Dislike Extremely

RESULTS

Product Development

The following were the procedures followed by the researcher in the making of the pastry products (Pie, Tart, and Cake).

Procedure for the Flakey Pie and Tart Crust

The procedure for making the flaky pie and tart crust began by measuring all the necessary ingredients. The dry ingredients were combined in a mixing bowl, and then

unsalted butter, cut into small pieces, was added to the mixture. A little water was gradually incorporated into the mix. Care was taken not to over-mix the dough. Once all the ingredients were mixed, the dough was formed into an oval or circle shape, wrapped in clean, clear plastic wrap, and placed in the refrigerator for about 30 minutes. After the chilling period, the dough was taken out, and a rolling pin dusted with flour was used to flatten it. The dough was then divided according to the required sizes and placed into pie and tart molds, making it ready for baking.

For the Arrowroot Pie and Tart Filling

The procedure for making the arrowroot pie and tart filling began by preparing and combining all the necessary ingredients for the filling. Arrowroot was then added to the mixture, and all the ingredients were thoroughly mixed. The filling was spooned into the prepared pie and tart crusts. The oven was preheated for about 20 minutes at 200 degrees Celsius. After preheating, the pies and tarts were baked for up to 30 minutes, or until the desired texture was achieved.



Figure 3. Materials and ingredients for the pastry products made from Arrowroot flour are carefully prepared

For the Arrow Root Cake

To prepare the arrowroot cake, the first step involved preparing and measuring all the required materials and ingredients. Once measured, both the dry and wet ingredients were combined in a mixing bowl. Carefully, the dry and wet ingredients were mixed until they formed a homogeneous mixture. Meanwhile, the baking pan was prepared by lining it with parchment paper, ensuring the inside was well-covered to prevent sticking. As the mixed ingredients were sifted into the baking pan, they were evenly spread to create a uniform layer. Following this preparation, the oven was preheated for approximately 20 minutes to reach the required temperature. Once the oven was properly preheated, the

filled baking pan was placed inside for the baking process. The cake was baked until it reached the desired level of doneness. After baking, the cake was removed from the oven and allowed to cool. Finally, once cooled, the arrowroot cake was carefully packed for storage or serving, ready to be enjoyed.



Figure 4. The Arrowroot Tart as a Final Product

Acceptability of Baked Products (Pie, Tart, and Cake) made from Arrowroot Flour

Table 6. Acceptability level of baked products (Pie, Tart, and Cake) made from arrowroot flour in terms of appearance/ color, aroma, taste, and texture

Variant	Criteria	Mean	Standard Deviation	Description
Pie	Appearance/Color	8.20	0.74	Like Very Much
	Aroma	8.24	0.73	Like Very Much
	Taste	8.34	0.85	Like Very Much
	Texture	8.15	0.84	Like Very Much
	Overall Rating	**8.23**	0.63	Like Very Much
Tart	Appearance/Color	8.24	0.62	Like Very Much
	Aroma	8.29	0.57	Like Very Much
	Taste	8.30	0.70	Like Very Much
	Texture	8.25	0.66	Like Very Much
	Overall Rating	**8.2708**	0.51	Like Very Much
Cake	Appearance/Color	8.37	0.72	Like Very Much

	Aroma	8.35	0.70	Like Very Much
	Taste	8.46	0.71	Like Very Much
	Texture	8.33	0.77	Like Very Much
	Overall Rating	**8.3771**	.60893	Like Very Much

The table presents the acceptability levels of baked products, namely pies, tarts, and cakes, made from arrowroot flour, evaluated across various criteria including appearance/color, aroma, taste, texture, and overall rating.

For pies, the mean scores for appearance/color, aroma, taste, texture, and overall rating are 8.20, 8.24, 8.34, 8.15, and 8.23 respectively, with standard deviations ranging from 0.63 to 0.85.

Similarly, the mean scores for tarts are slightly higher, with appearance/color at 8.24, aroma at 8.29, taste at 8.30, texture at 8.25, and overall rating at 8.2708, with standard deviations ranging from 0.51 to 0.70.

Cakes received the highest mean scores, with appearance/color at 8.37, aroma at 8.35, taste at 8.46, texture at 8.33, an overall rating at 8.3771, and standard deviations from 0.60893 to 0.77.

All three types of baked products made from arrowroot flour received high acceptability ratings, with mean scores indicating that the respondents "Like Very Much" across all criteria. The standard deviations suggest relatively consistent agreement among respondents regarding the quality of the baked products. In general, it can be concluded that baked products made from arrowroot flour, including pies, tarts, and cakes, are highly acceptable in terms of appearance, aroma, taste, texture, and overall satisfaction among consumers.

Hence, this finding is similar to the study of Singh & Iraj (2023) that the experimental preserved had the greatest average score for overall acceptability and largely approved by the panelists, products were organoleptically evaluated using the nine-point scorecard method or Hedonic Rating System.

General Acceptability of Baked Products (Pie, Tart, and Cake) made from Arrowroot Flour across Age Groups

Table 7. General level of acceptability of baked products such as pie, tart, and cake made from arrowroot flour as evaluated by different age groups of respondents

Variant	Respondents	Mean	Standard Deviation	Description
Pie	Children	8.11	0.71	Like very much
	Teenagers	8.28	0.66	Like very much
	Adults	8.33	0.53	Like very much
	Food Experts	8.21	0.63	Like very much

Tart	Children	8.19	0.51	Like very much
	Teenagers	8.34	0.64	Like very much
	Adults	8.25	0.42	Like very much
	Food Experts	8.30	0.45	Like very much
Cake				
	Children	8.25	0.73	Like very much
	Teenagers	8.35	0.67	Like very much
	Adults	8.56	0.48	Like extremely
	Food Experts	8.34	0.50	Like very much

The table presents the general level of acceptability of baked products, specifically pies, tarts, and cakes made from arrowroot flour, as evaluated by different age groups of respondents, including children, teenagers, adults, and food experts. For pies, the mean scores for children, teenagers, adults, and food experts are 8.11, 8.28, 8.33, and 8.21 respectively, with standard deviations ranging from 0.53 to 0.71. Similarly, for tarts, the mean scores are 8.19 for children, 8.34 for teenagers, 8.25 for adults, and 8.30 for food experts, with standard deviations ranging from 0.42 to 0.64. For cakes, children rated them at 8.25, teenagers at 8.35, adults at 8.56, and food experts at 8.34, with standard deviations ranging from 0.48 to 0.73.

Overall, across all age groups and baked product types, the mean scores indicate a high level of acceptability, with respondents consistently rating the products as "Like very much" or even "Like extremely" in the case of adult respondents evaluating cakes. The standard deviations suggest relatively consistent agreement among different age groups and food experts regarding the quality and acceptability of baked products made from arrowroot flour. Therefore, it can be concluded that these products are generally well-received across various age groups and among food experts, indicating their broad appeal and quality.

This finding is similar to the study conducted by (Gonzales & Mariano, 2022) in terms of its appearance, aroma, texture, color, and overall acceptability.

Comparison in the Level of Acceptability of Pie and Tart made from Arrowroot as Perceived by the Groups of Respondents

Table 8. Comparison in the level of acceptability of pie and tart made from arrowroot flour as perceived by the evaluators according to their age groups

Variant	F-value	p-value	Comparison	Decision	Remark
Pie	0.71	0.55	p-value > 0.05	Accept Ho	No significant difference
Tart	0.48	0.69	p-value > 0.05	Accept Ho	No significant difference
Cake	1.33	0.27	p-value > 0.05	Accept Ho	No significant difference

The analysis suggests that there is no significant difference in the general level of acceptability of pie and tart made from arrowroot flour among different age groups of evaluators. For pies, the F-value is 0.71 with a p-value of 0.55, indicating that the p-value is greater than 0.05. Similarly, for tarts, the F-value is 0.48 with a p-value of 0.69. Lastly, for cakes, the F-value is 1.33 with a p-value of 0.27. In all cases, the p-values are greater than the commonly used significance level of 0.05. Therefore, the null hypothesis (Ho) is accepted, indicating that there is no significant difference in the general level of acceptability of these baked products among different age groups of evaluators. This implies that regardless of age, respondents perceive pies, tarts, and cakes made from arrowroot flour similarly in terms of acceptability.

The findings above are similar to the findings of Claros& Palomar (1998) who found that arrowroot flour can be used as an ingredient in baked products.

Nutritive Value of Pie, Tart, and Cake Made from Arrowroot Flour

Arrowroot flour and baked goods made from it, such as pies, tarts, and cakes, have different nutritional profiles. Arrowroot flour itself is quite low in nutrients, containing 0.72% crude protein, 0.18% crude fiber, 0.48% crude fat, 12.08% moisture content, and 0.39% crude ash. In contrast, the baked products made from arrowroot flour show significantly higher nutritional values. They contain 2.15% crude protein, 0.22% crude fiber, 18.44% crude fat, 27.82% moisture content, and 1.33% crude ash.

Shelf-life of Pastry Products (Pie, Tart, and Cake) Made from Arrowroot Flour

The shelf-life of pastry products made from arrowroot flour, including pies, tarts, and cakes, varied in terms of their appearance, aroma, taste, and texture over time.

Arrowroot Pies and Tarts

On day 1, the products maintained their freshness, with no noticeable changes in appearance, aroma, taste, or texture. From day 2 to day 3, the products remained consistent in all aspects. From day 4 to day 10, the products continued to maintain their quality without significant changes. By day 11, the appearance began to change, showing signs of inflated filling. From day 12 to day 13, although the products were still edible, there were noticeable changes in appearance, with the filling showing signs of inflation. From day 15 to day 20, the texture of the filling became wet, making it less appetizing. While the crust remained compact, the filling was no longer edible. And, by day 21 to day 22, the pies and tarts were no longer edible due to mold growth in the filling.

Arrowroot Cakes

On day 1 and day 2, the cakes maintained their freshness, appearance, color, taste, and texture similar to freshly baked products. From day 3 to day 5, the cakes began

to show signs of moisture, with the appearance becoming wet. Additionally, mold growth started to develop, rendering the arrowroot cake inedible beyond this point.

Conclusions

The study confirms that arrowroot flour is an excellent ingredient for pies, tarts, and cakes, achieving high acceptability across all sensory criteria and age groups. The products made from arrowroot flour also show enhanced nutritional value. Despite a limited shelf-life, arrowroot-based baked goods offer a nutritious and appealing alternative for health-conscious consumers and the food industry.

Recommendations

In view of the findings and conclusions of the study, the following are recommended:

1. Given the high acceptability of arrowroot-based pies, tarts, and cakes, it is recommended for food technologists, food teachers, and students to experiment with other pastry products using arrowroot flour, such as cookies, muffins, and bread, to broaden the product range.

2. Methods to extend the shelf-life of arrowroot-based baked goods, such as incorporating natural preservatives or optimizing packaging techniques, to maintain product quality for a longer duration should be investigated.

3. The researcher should market the nutritional benefits of arrowroot flour products to health-conscious consumers, emphasizing the higher protein and fat content in baked goods compared to raw flour.

4. Educational campaigns highlighting the benefits of arrowroot flour, its nutritional advantages, and the sensory appeal of the products made from it, to increase consumer awareness and demand be conducted.

5. There should be a collaboration with food teachers, culinary experts, and nutritionists to develop new recipes and enhance the quality of existing products, ensuring they meet both culinary standards and consumer preferences.

6. The researcher is encouraged to collaborate with government agencies like the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI) for the promotion of arrowroot flour as a sustainable ingredient,

highlighting its environmental benefits compared to other conventional flours, to appeal to environmentally-conscious consumers.

Compliance with Ethical Standards

The author hereby declares that this study was conducted in full compliance with ethical standards, including obtaining informed consent from all respondents. Respondents were given the freedom to withdraw from the study at any time without any consequences. The anonymity of the respondents was strictly maintained throughout the research process, and their well-being was safeguarded at all times. He affirms that there is no conflict of interest in the conduct of this study. Furthermore, plagiarism was strictly avoided, and the study's findings were interpreted without any bias. The results of this study are used purely for research purposes.

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UTILIZING DIGITAL MIND MAPPING APPLICATION IN ENHANCING STUDENTS' IMMEDIATE ACHIEVEMENT AND KNOWLEDGE RETENTION

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ABSTRACT

This study aims to determine the immediate achievement and knowledge retention levels among students who utilize the digital mind mapping application and to ascertain the effect of utilizing digital mind mapping on students' immediate achievement level in terms of pretest and direct post-test, as well as on students' knowledge retention level in terms of direct post-test and delayed post-test. This research study employed a one-shot pretest-posttest pre-experimental research design. Data were gathered from thirty-six (36) seventh-grade students of Tongantongan National High School through pretest, direct post-test, and delayed post-test questionnaires. The data were subjected to descriptive statistics such as the mean, percentage and frequency and analyzed using Paired t-test at 0.05 level of significance. The result of the study revealed that the students have poor immediate achievement level and knowledge retention level. Furthermore, the paired t-test analysis showed that there is a significant difference in students' immediate achievement level in terms of pretest and direct post-test, and there is also significant difference in students' knowledge retention level in terms of direct post-test and delayed post-test. It indicates that despite the students' poor achievement and retention level, the utilization of the digital mind mapping application has a positive effect on enhancing students' ability to acquire and retain knowledge. The overall result encourages higher authority, curriculum experts, and educators to leverage technology and consider utilizing digital mind mapping application as a method in optimizing the students' achievement and retention level.

Keywords: *digital mind map, immediate achievement, knowledge retention*

INTRODUCTION

The 21st century marks a remarkable shift in education, where learning and teaching intertwine with the dynamic pace of innovation and technology. It's an era where classrooms extend beyond four walls into a digital realm of endless possibilities. With the ever-changing world of technology, classrooms are gaining more technology and having to incorporate it into student learning. As education becomes more digitized, using technological tools to organize educational content becomes critical to the success of education (Arisoy, 2022).

One of the problems that stimulated the making of this study is the poor academic achievement scores and declining student retention rates within the Filipino student population. According to the 2018 PISA International Report, Filipino students scored an average of 353 points in mathematical literacy, which is notably less than the Organization for Economic Cooperation and Development (OECD) average of 489 points, indicating a below Level 1 proficiency (OECD, 2019). The 2019 Trends in International Mathematics and Science Study (TIMSS), assessed the performance of Grade four students in math and science proficiency, it ended up with the lowest rank out of the 58 countries that were part of the study (Sison, 2022). These achievement tests are heavily influenced by the students' effectiveness to attain and retain knowledge. As student teachers, these findings are very visible in the classroom setting, especially the students of Tongantongan National High School. Prior to the conduct of study, students showed an unsatisfying academic performance especially in achieving the intended learning outcomes and retaining knowledge. With an average percentage mean score of 43 percent, a total of 140 Grade-7 students did not meet the expectation in their summative test on the topic Motion in One Dimension. This result is alarming because Grade 7 students, as the first year in high school curriculum, are expected to grasp fundamental concepts pivotal to subsequent high school curricular progression.

In the context of education, immediate achievement refers to the initial and tangible outcomes or knowledge gained shortly by the learners after engaging a new learning experience while retention is the person's ability to remember information they have learned, whether it is for a short or extended duration (Bawaneh, 2019). Instead of memorizing, educators want their students to retain knowledge spanning for more than a week after the implementation of innovation, intervention, or strategy (Akanbi et al., 2021; Meyer et al., 2019; Granito & Chernobilsky, 2012). When the students struggle to meet the learning outcomes and retain essential knowledge in Mathematics and Science, it not only affects their test scores but also impedes their ability to advance in these subjects, leading to lower international rankings.

In connection to this problem, educators are actively exploring strategies to assist students in transferring knowledge from their short-term memory to their long-term

memory (Valderama & Oligo, 2021). One of the solutions is the integration of an effective note-taking strategy such as Mind mapping developed by Tony Buzan in 1974. A mind map is a graphical representation of a topic or idea that aids in the teaching and learning process in the classroom (Anas et al., 2018). Mind mapping highlights the necessary facts and overall structure of a subject. Mind mapping helps an individual see connections and provide overview of key points. Several studies implied the significant effects of mind mapping in enhancing students' academic performance especially in Physics subject (Akanbi et al., 2021; Bawaneh, 2019).

This action research aims to discover the effects of the implementation of Digital Mind Mapping as instructional strategies to enhance the learners' acquisition and retention of knowledge, ultimately fostering better educational outcomes for Filipino students. The results and findings of this study will be beneficial in the field of education, considering the evident poor academic achievements and declining students' retention rate in the country which lead to poor academic performances. Thus, the schools' administrators and teachers will be guided on what to emphasize and utilize in order to increase students' immediate achievement and retention rate in improving their academic performance and life-long success.

The purpose of this study was to determine the immediate achievement and knowledge retention levels among the students exposed to digital mind mapping application, assess the statistical significant difference of the students' immediate achievement level in terms of pretest and direct post-test, and ascertain the statistical significant difference of the students' knowledge retention level in terms of direct post-test and delayed post-test. The research was conducted at Tongantongan National High School with Grade 7 Archimedes students serving as the primary research participants.

Research Questions

This action research generally aims to investigate the effect of the utilization of digital mind mapping application in enhancing students' immediate achievement and knowledge retention. Specifically, it seeks to answer the following questions:

1. What is the immediate achievement level of students exposed to digital mind mapping application in terms of pretest and direct post-test?
2. What is the level of knowledge retention of the students exposed to digital mind mapping application in terms of direct post-test and delayed post-test?
3. Is there a significant difference on students' immediate achievement level exposed to digital mind mapping application in terms of pretest and direct post-test?
4. Is there a significant difference on students' knowledge retention level exposed to digital mind mapping application in terms of direct post-test and delayed post-test?

Hypotheses

To answer the stated problems, the study aims to test the following null hypothesis at 0.05 level of significance:

H_{01}: There is no significant difference on students' immediate achievement level exposed to digital mind mapping application in terms of pretest and direct post-test.

H_{02}: There is no significant difference on students' knowledge retention level exposed to digital mind mapping application in terms of direct post-test and delayed post-test.

METHODOLOGY

Locale of the Study

The study was implemented within the premises of Tongantongan National High School, which is located at P-8, Tongantongan, Valencia City, Bukidnon.

Sampling Method

A purposive sampling method was utilized in identifying the research participants. The students observed were the Grade-7 Archimedes students, with overall 36 participants, taking Physics subject focusing on the topic of Waves particularly the types of waves and anatomy of waves. The researchers chose Grade 7 students, the first year in high school curriculum, as they are expected to grasp fundamental concepts pivotal to subsequent high school curricular progression.

Innovation and Intervention

The innovation of this action research is to investigate the effect of using digital mind mapping application in enhancing students' immediate achievement and knowledge retention. The digital mind mapping application employed was the Nice Mind Application, an offline application that can be downloaded from the Play Store freely. This application was selected because of its accessibility, smooth navigation features, pre-designed templates, customization options, and intuitive and user-friendly interface. In this study, the phases of implementation of the digital mind mapping application to the students were modified from the study of Bawaneh (2019) as follows:

1. Pre-Intervention Assessment – The students underwent a pretest to assess their baseline knowledge before taking the topic about the types and anatomy of waves.
2. Introduction of the Innovation – Digital mind mapping application was introduced and taught to the students including its purpose, key elements, examples, and steps-by-step process.

3. Assisted Intervention –The students, along with the teacher created digital mind maps based on previous lesson, which served as examples.
4. Independent Practice – The students independently practiced utilizing the mind mapping application. They were given homework to create digital mind maps about the types and anatomy of waves. During the class discussion, students used their pre-made mind maps as means of instructional materials.
5. Feedback Session – This phase also highlighted the process of providing feedback to students based on their independent practice. Some of the mind maps contained misconceptions that need to be corrected. Students were given time to revise and modify their prepared mind maps during the class discussion.
6. Post-Intervention Assessment – After all sessions, the students took a direct post-test to assess the outcome or changes resulting from the utilization of the digital mind mapping application. Four weeks after the implementation of the intervention, students underwent a delayed post-test to ascertain the effect of using mind mapping in students' retention level.

Data Collection Method

In this study, the researchers used pre-test, direct post-test, and delayed post-test questionnaires. Before conducting the research, the researchers provided the participants with consent forms to ensure their voluntary participation and to safeguard their rights throughout the research process. The subject was Physics taken by seventh-grade students at Tongantongan National High School. The questionnaires were disseminated among the participants, who were required to respond both prior to and subsequent to the teaching process and planned intervention.

Research Instrument

The researchers employed a 20-item questionnaire modified from the learners' textbook and was verified by the corresponding Cooperating Teacher and School Principal. Table of Specifications was provided to ensure the validity of the said test questionnaire. These questionnaires were designed to capture comprehensive insights into the students' immediate achievement and knowledge retention, spanning a scope of areas relevant to the topic of Waves.

Data Analysis

The data gathered from the pretest, direct post-test, and delayed post-test were subjected to descriptive statistics analysis, such as mean, percentage and frequency, to interpret the students' level of immediate achievement and knowledge retention. The students' immediate achievement level and knowledge retention level will be interpreted by adopting the DepEd Order No. 8 series of 2015 grading scale, as presented in table 1 and table 2. The scaling has minimal modifications including the range of raw scores that was adopted from the study of Ollero (2023) and qualitative interpretation from the study of Dumale and Gurat (2023).

Table 1. Qualitative Scale of the Students' Immediate Achievement

Raw Score	Grading Scale	Descriptive Rating	Qualitative Interpretation
16.8-20.0	90-100	Outstanding	Outstanding IA
15.2-16.7	85-89	Very Satisfactory	Very satisfying IA
13.6-15.1	80-84	Satisfactory	Satisfying IA
12.0-13.5	75-79	Fairly Satisfactory	Fairly satisfying IA
0.00-11.9	Below 75	Did Not Meet Expectations	Poor IA

Legend: IA – Immediate Achievement

Table 2. Qualitative Scale of the Students' Knowledge Retention

Raw Score	Grading Scale	Descriptive Rating	Qualitative Interpretation
16.8-20.0	90-100	Outstanding	Outstanding KR
15.2-16.7	85-89	Very Satisfactory	Very Satisfying KR
13.6-15.1	80-84	Satisfactory	Satisfying KR
12.0-13.5	75-79	Fairly Satisfactory	Fairly Satisfying KR
0.00-11.9	Below 75	Did Not Meet Expectations	Poor KR

Legend: KR – Knowledge Retention

A paired t-test was then utilized to ascertain the presence of any statistically significant differences between the students' pretest-posttest results following exposure to digital mind mapping applications, specifically in the context of enhancing immediate achievement and knowledge retention. This statistical device was employed to test the following hypotheses at 0.05 level of significance: there is no significant difference in students' immediate achievement level exposed to digital mind mapping application in terms of pretest and direct post-test; and there is no significant difference in students' knowledge retention level exposed to digital mind mapping application in terms of direct post-test and delayed post-test.

Scope and Limitation

This action research employed a one-shot pretest-posttest pre-experimental research design in order to investigate the effect of utilizing digital mind mapping application in enhancing students' immediate achievement and knowledge retention. The purposively selected participants are the thirty-six (36) seventh-grade students of Tongantongan National High School. Moreover, the intervention utilized only one digital mind mapping application which the Nice Mind Application. The researchers followed a systematic procedure in implementing the intervention using the modified phases of Bawaneh (2019). Furthermore, the data gathered through pre-test, direct post-test, and delayed post-test using the verified 20-item questionnaire, spanning a scope limited only to the types of waves and anatomy of waves. These questionnaires were designed to capture comprehensive insights into the students' immediate achievement and knowledge retention.

RESULTS AND DISCUSSION

This part presents the students' immediate achievement level and knowledge retention level after the exposure to Digital Mind Mapping Application. It includes the Inferential Analysis in order to conclude the structured hypotheses.

Students' Immediate Achievement Level

Table 3 presents the students' immediate achievement level when exposed to digital mind mapping application. It shows the result of the utilization of mind mapping application through pre-test and direct post test scores. This encompasses the ability of the students to attain the intended learning outcomes in a short range of time. Immediate achievement is comparable to the short-term mastery of the students in acquiring new knowledge.

Table 3. Students' Immediate Achievement in Relation to Pretest and Direct Post-test Scores

Score Range	Pretest		Direct Post-test		Descriptive Rating
	N	%	N	%	
16.8-20.0	0	0	0	0	Outstanding
15.2-16.7	0	0	0	0	Very Satisfactory
13.6-15.1	0	0	2	6	Satisfactory
12.0-13.5	0	0	5	14	Fairly Satisfactory
0.00-11.9	36	100	29	80	Did Not Meet Expectations
Total	36	100	36	100	
Overall Mean	6.67		8.72		
Std. Deviation	1.93		3.27		
Descriptor	DNME		DNME		

Legend:

Range	Descriptive Rating	Qualitative Interpretation
16.8-20.0	Outstanding	Outstanding Immediate Achievement
15.2-16.7	Very Satisfactory	Very Satisfying Immediate Achievement
13.6-15.1	Satisfactory	Satisfying Immediate Achievement
12.0-13.5	Fairly Satisfactory	Fairly Satisfying Immediate Achievement
0.00-11.9	Did Not Meet Expectations	Poor Immediate Achievement

The pretest scores highlight the baseline level of proficiency among the students prior to the intervention. It further reveals that 100 percent of the students, with a total number of 36 students, scored below 12. This shows an overall mean of 6.67 and standard deviation of 1.93. The students' result in their pretest suggests a clear need for intervention such as the digital mind mapping application in improving student outcomes.

On the other hand, the direct post-test scores of the students depict a positive outcome after the utilization of mind mapping application. The percentage of the students who scored below 12 declined to 80 percent. Moreover, some students show progress in their performance. Five students (14 percent) obtained a fairly satisfying achievement level while 2 students (6 percent) garnered a satisfying achievement level. The overall mean of students' direct post-test scores is 8.72 and standard deviation of 3.27. Notwithstanding the increase in students' performance from pretest to direct post-test, the

achievement level is still not satisfactory. The immediate achievement level of the students in terms of pretest and direct post-test scores did not meet the expectations and interpreted as “poor” immediate achievement.

This outcome corresponds with the Philippine ranking in the Programme for International Assessment (PISA) 2018. According to the result, only 22% of the 7, 233 15-year-old Filipino students who participated in PISA achieved the minimum level of competency in science literacy. This performance in the science assessment places the Philippines near the bottom of the 79 countries and economies that participated in PISA 2018. This shows that Filipino students have poor immediate achievement as reflected in their poor academic performance.

As observed during the implementation of the study, the poor immediate achievement of the students may be influenced by their poor reading skills and comprehension, as well as their short attention span. According to the study of Imam (2016), regular reading is suggested to enhance comprehension and boost student performance. It indicates that the students’ ability to read highly affect their comprehension and performance. Additionally, independent reading often fosters strong comprehension skills and critical thinking abilities. The benefits extend beyond academia, as reading skills acquired in youth persist into adulthood. However, individuals with limited attention spans face challenges in deeply engaging with academic materials, leading to fragmented learning experiences and compromised comprehension. Whether listening to lectures, tackling dense textbooks, or solving complex problems, their ability to sustain focus is hindered, impacting their capacity for meaningful understanding (Akbasli et al., 2016). Shortened attention spans correlate with lower test scores, difficulty retaining information, and struggles in synthesizing disparate concepts into cohesive understanding.

Students’ Knowledge Retention Level

Table 4 exhibits the outcome with regard to students' retention of knowledge when exposed to digital mind mapping application. This displays the percentage and score range of the students who received direct post-test and a delayed post-test intervention. This section will reveal the ability of the students to recall and retain knowledge four weeks after the intervention, with the direct post-test serving as our baseline.

The same data are used for the direct post-test, wherein the overall mean is 8.72 and standard deviation of 3.27. Table 4 further reveals that the majority of students (24 out of 36 students, constituting 66 percent) still scored below 12 in their delayed post-test. Most of the students did not meet expectations. Delayed post-test result exhibits notable findings. Specifically, five students (14 percent) garnered fairly satisfying scores and another five students (14 percent) secured satisfying scores. Furthermore, a new result was obtained wherein one student attained very satisfying score and another one who got an outstanding score. Regardless of this progress, with an overall mean of 10.53 and standard deviation of 3.35, the knowledge retention level of the students is still not satisfactory. The knowledge retention level of the students in terms of direct post-test and

delayed post-test scores did not meet the expectations and interpreted as “poor” knowledge retention.

Table 4. Students’ Knowledge Retention in Relation to Direct Post-test and Delayed Post-test

Score Range	Direct Post-test		Delayed Post-test		Descriptive Rating
	N	%	N	%	
16.8-20.0	0	0	1	3	Outstanding
15.2-16.7	0	0	1	3	Very Satisfactory
13.6-15.1	2	6	5	14	Satisfactory
12.0-13.5	5	14	5	14	Fairly Satisfactory
0.00-11.9	29	80	24	66	Did Not Meet Expectations
Total	36	100	36	100	
Overall Mean	8.72		10.53		
Std. Deviation	3.27		3.35		
Descriptor	DNME		DNME		

Legend:

Range	Descriptive Rating	Qualitative Interpretation
16.8-20.0	Outstanding	Outstanding Knowledge Retention
15.2-16.7	Very Satisfactory	Very Satisfying Knowledge Retention
13.6-15.1	Satisfactory	Satisfying Knowledge Retention
12.0-13.5	Fairly Satisfactory	Fairly Satisfying Knowledge Retention
0.00-11.9	Did Not Meet Expectations	Poor Knowledge Retention

This outcome affirms the investigation of Dumale and Gurat (2023) stating that Grade 12 students enrolled in the course subject 'statistics and probability' exhibited a poor retention rate in solving sample problems and sample probabilities. Furthermore, they noted that students demonstrated a poor retention rate across all learning competencies related to sampling distribution of the sample mean, with the exception of illustrating random sampling.

Retention of information is a crucial aspect of the learning process. One major factor that affects the students’ poor retention is having poor note-taking strategies. Benzer et al. (2022) defines note-taking as summarizing what one has understood in one's own words to remember it later. As observed during the implementation of the study, many students don’t know the most effective way to take notes in class. As a result, students are often left with study notes that are missing information, hard to understand, or unorganized (Peverly & Wolf, 2019). Furthermore, Peverly and Wolf's study indicates that students who actively engage with the material while taking notes have the chance to deeply encode the information into their memory.

Inferential Analysis on Students’ Immediate Achievement Level

Table 5 depicts the paired t-test analysis on students’ immediate achievement when exposed to digital mind mapping application. It shows the effect of the utilization of mind mapping application through analyzing the difference between the students’ pre-test and direct post test scores. This result aims to reject the first null hypothesis stating that

there is no significant difference in students' immediate achievement level exposed to digital mind mapping application in terms of pretest and direct post-test.

Table 5. Paired T-test Analysis on Students' Immediate Achievement Level

	Paired Difference		t	Sig (2-tailed)
	Mean	Std. Deviation		
Direct posttest-Pretest	2.0556	3.2509	3.7939	0.0006**

It resulted in a mean difference of 2.0556, a standard deviation of 3.2509, and a t-value of 3.7939. It indicates that significant number of students showcased improvements in direct post-test. The overall mean scores from pretest to direct post-test increased from 6.67± 1.93 to 8.72± 3.27. With a p-value of 0.0006, this manifests a highly significant enhancement in students' immediate achievement following the intervention of the digital mind mapping application. This implies that despite the students' initially poor achievement level, the utilization of the digital mind mapping application has a positive effect on the students' immediate achievement in terms of pretest and direct post-test.

Mind mapping effectively enhances students' immediate achievement because of its collaborative feature for brainstorming and seamlessness to construct ideas. According to a study by Suharto et al. (2023), the implementation of mind maps significantly enhances learners' ability to grasp material more rapidly, thereby saving time during collaborative tasks. Additionally, mind mapping helps students to better understand the relationships between different concepts, which facilitates deeper comprehension. As it encourages active participation and a clearer visualization of ideas. The collaborative nature of mind mapping thus not only fosters a more interactive learning environment but also contributes to more efficient and effective educational outcomes. Collaboration significantly enhances student performance, as evidenced by the study conducted by Chan and Ko (2019). The research indicates that interactivity within collaborative learning environments markedly improves learners' outcomes.

This outcome reinforces the study of Bawaneh (2019) who investigated the effectiveness of mind maps compared to conventional teaching methods for Jordanian tenth graders learning electric energy concepts. The results revealed that students who learned using mind maps exhibited significantly greater immediate achievement and retention of electric energy concepts compared to those using conventional methods. In the local context, the result also supports the study of Geolin (2024) who assessed the status of mind mapping as a strategy in teaching Grade 7 Chemistry at Zapatera National High School, Sikatuna St., Brgy. Zapatera, Cebu City, Cebu, Philippines. The result states that Mind Mapping as a strategy evidently showed a vital connection to the improvement of Junior High School performance in Chemistry. It is more effective in both teaching and learning process as compared to the chalk talk method.

Inferential Analysis on Students' Knowledge Retention Level

Table 6 portrays the paired t-test analysis on students' knowledge retention when exposed to digital mind mapping application. It shows the effect of the utilization of mind mapping application through analyzing the difference between the students' direct post test and delayed post-test scores. This result aims to reject the second null hypothesis stating that there is no significant difference in students' knowledge retention level exposed to digital mind mapping application in terms of direct post-test and delayed post-test.

Table 6. Paired T-test Analysis on Students' Knowledge Retention Level

	Paired Difference		t	Sig (2-tailed)
	Mean	Std. Deviation		
Delayed Posttest-Direct Posttest	1.8046	2.4590	4.4055	0.0000**

The data shows a mean difference of 1.8046, a standard deviation of 2.4590, and a t-value of 4.4055. It reveals that there is a significant difference between the students' pre-test and direct post test scores. The overall mean scores from direct post-test to delayed post-test increased from 8.72± 3.27 to 10.53± 3.35. With a highly statistically significant p-value of 0.0000, the increase in average scores from direct post-test to delayed post-test unveils a significant positive effect of the utilization of mind mapping application in enhancing students' knowledge retention in science or their ability to retain knowledge over time. This conveys that despite the students' initially poor retention level, the utilization of the digital mind mapping application significantly contributed to the improvement of students' knowledge retention level.

The positive effect of digital mind mapping application lies in the fact that it is an effective note-taking tool for studying and accessible for tech-savvy 21st century learners. According to the Grand Canyon University (2023), technology can transform classrooms into engaging environments. One-to-one device initiatives allow for a smoother integration of tech into lessons, while interactive software and gamified learning with badges and achievements make lectures, responses, and the overall learning process more fun and motivating for students. According to the study of Flietstra (2023), students performed most highly when they were given autonomy in their notetaking style or were told exactly what to write down. It was found that students who took notes using mind maps scored higher on an achievement test than students who took notes traditionally. The study concludes that mind mapping is an effective note-taking strategy (Madu & Metu, 2012). Moreover, mind maps were more effective than concept maps for learning organic chemistry (Imam & Olorundare, 2023). Lastly, in the study about the impact of educational technology on students' performance in secondary schools, students reported mostly positive experiences with educational technology (Murad et al., 2019).

The results of this study are consistent with the analysis of Akanbi et al. (2021) who investigated the effectiveness of mind maps in improving physics knowledge

retention for senior secondary school students. The findings revealed that students who learned with mind maps exhibited significantly better retention compared to the control group who used conventional methods. Additionally, the study of Nacilla and Dolotallas (2019) revealed that forty Grade 8 students of Cabalantian National High School who learned with mind maps scored significantly higher on the posttest compared to the lecture group in Biology.

Conclusions

The students' level of immediate achievement is poor. Eighty percent of the students failed to meet the intended learning outcomes.

Students have a poor level of knowledge retention. Sixty-six percent of the students have a low span of retention and are unable to reach the expected rate of retention.

The inferential analysis rejects the first null hypothesis stating that there is no significant difference in students' immediate achievement level exposed to digital mind mapping application in terms of pretest and direct post-test. These findings provide strong evidence that the digital mind mapping application has effectively contributed to enhancing student achievement levels.

The paired t-test analysis rejects the second null hypothesis stating that there is no significant difference in students' knowledge retention level exposed to digital mind mapping application in terms of direct post-test and delayed post-test. This significant increase in scores from the direct post-test to delayed post-test suggests that the digital mind mapping application effectively enhanced students' ability to retain knowledge over time.

Recommendations

The result of this study reveals poor immediate achievement level and poor knowledge retention level among students. This calls the attention of higher authority, experts, and educators to give ample consideration and effort in enhancing students' ability to immediately acquire knowledge and retain information. As per obtained results, the researchers would like to recommend to consider utilizing digital mind mapping as a method in maximizing the students' immediate achievement and retention level. This recommendation aims to leverage technology, specifically mobile applications, to promote effective presentation of information, knowledge construction, collaboration, and note-taking practices among students in the classroom setting.

This study suggests that further research should employ quasi-experimental design to explore the effectiveness of digital mind mapping application in optimizing learning outcomes. Additionally, researchers recommend investigating the correlation between immediate achievement and knowledge retention under the intervention of digital mind mapping application. Moreover, this study proposes to determine the

significant difference in the effectiveness between digital mind maps and conventional mind maps. Furthermore, this study hypothesizes that a student's learning style may influence how well mind mapping benefits their learning.

Compliance with Ethical Standards

Prior to the implementation of the study, researchers applied for a research permit from the Institutional Ethics Review Committee (IERC) and asked for approval from the school head to formally conduct the study. Additionally, the researchers requested permission from the class adviser for assistance in conducting the research and provided the participants with the consent form to ensure their voluntary participation and safeguard their rights throughout the research. All the participants were Grade 7 Archimedes students enrolled in Tongantongan National High School, with their identities hidden, and accessible only to the researchers. The study was conducted within a school government institution, prioritizing privacy and confidentiality. Only the researchers had access to participants' information, ensuring clarity by providing only the necessary questionnaires. Although the research caused specific risks, especially involving students and the school, it also presented benefits for both researchers and institutions. It offered recommended solutions to identified problems within the institution, enabling the management to create trust and confidence in the researchers.

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VALUES INTEGRATION IN TEACHING DIFFERENT SUBJECTS IN PUBLIC SECONDARY SCHOOLS IN PILILLA, RIZAL: BASIS FOR ACTION PLAN DEVELOPMENT

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ABSTRACT

The study aims to determine the level of effectiveness of values integration in teaching the different subjects in public secondary schools in Pililla, Rizal. Descriptive research design was applied utilizing a questionnaire checklist to determine the level of effectiveness of values integration in teaching the different subjects with respect to classroom management, delivery of lesson, learning application, and learning assessment and personal traits. The questionnaire checklist was administered after permission to conduct the study was granted. The data were tallied, tabulated, analyzed and interpreted. The study concluded that perception of the teacher-respondents on the level of effectiveness of values integration in teaching different subjects differ significantly in terms of age, length of service, and subjects handled. On the other hand, sex, educational attainment and position title are not significant.

Keywords: *Quantitative, Values Integration, Public Secondary Schools, Rizal*

INTRODUCTION

Education is already a part man`s life. Education and man coexist because man learns as he continues to live and live as he continues to learn. It only becomes complicated by

the fact that there is no clear consensus about what is important about being and becoming educated.

Moreover, education is the primary agent of transformation towards sustainable development. Furthermore, it is regarded as the single potent factor that leads to the improvement of the individual as well as the society. As provided in Article XIV, section 1 of the 1987 Philippines Constitution: “The state shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make such education accessible to all.”

The goal of Philippine Education is academic excellence, work experience efficiency and values internalization. Thus, the Philippine educational system is mandated to contribute to the maximum attainment of national development and unity with the framework based on a free and democratic system.

Values are behind all human goals. They are linked with the basic human needs. They emerge in the course of time through one’s exposure to people and different life conditions. One may be conscious of one’s values, reflecting on them regularly or one may be driven by unexpressed and unconscious desires. An individual may be motivated by undertakings that offer short term benefits or driven by momentary desires.

In recognition of this important role of the school in the society, Article XIV Section 3.2 of the 1987 Philippine Constitution states that: “All educational institutions shall inculcate patriotism and nationalism, foster love of humanity, respect for human rights; appreciation of the role of national heroes in the historical development of the country, teach the rights and duties of citizenship, strengthen ethical and spiritual values, develop oral character and personal discipline, encourage critical and creative thinking, broaden scientific and technological knowledge and promote vocational efficiency. This stressed that the educational thrusts of the Philippine Educational System are designed to update the school curricula and incorporate Filipino values that would adapt in the light of on-going changes, to the present needs and demands involving social and economic transformation and nation-building and relevance to the world of work.

In recent research on classroom management, Nie and Lau (2009) explored the differential associations of care and behavioral control with various student outcomes. Their study utilized a large sample of 3,196 Grade 9 students from 117 classes in Singapore to examine these relationships. Through hierarchical linear modeling, they found that both care and behavioral control were positively related to student engagement, even when controlling for gender and socioeconomic status. Moreover, while behavioral control negatively predicted classroom misbehavior, care positively predicted students' satisfaction with school. These findings suggest that an effective classroom management strategy should integrate both care and behavioral control to enhance student engagement, reduce misbehavior, and increase satisfaction with school. This aligns with the self-determination theory, highlighting the importance of addressing both the emotional and behavioral needs of students in achieving multiple classroom management goals (Nie & Lau, 2009).

In navigating the complexities of our educational system, it's crucial to acknowledge the intrinsic relationship between education and values, as highlighted by Gray (2010). Instead of assigning blame for issues that arise, Gray advocates for a proactive approach, emphasizing the importance of recognizing, addressing, and resolving problems. Central to this approach is the implementation of Character Education in Schools, which Gray argues is essential for combating the crisis of character within our educational institutions. By integrating moral teachings into the curriculum and fostering collaboration among stakeholders, including parents, legislators, communities, media, and the educational system, character education programs can instill values that promote responsible citizenship and moral development among students, thus paving the way for a more ethically grounded society.

As mentioned in the K to 12 Philippine Basic Education Curriculum Framework is crafted to cater to the multifaceted needs of both the local and global community, with a primary focus on key aspects: poverty alleviation and holistic human development, moral fortification, cultivation of national identity, cultivation of productive citizenship, environmental sustainability, and global collaboration. It endeavors to empower individuals through quality education, aiming to diminish poverty and foster comprehensive human growth. Emphasizing the infusion of moral values and ethical principles, it aims to build a foundation of character and integrity in learners. Additionally, it aspires to instill a profound sense of national pride, identity, and love for the country, fostering a strong nationalistic spirit. Moreover, it seeks to equip students with the requisite knowledge, skills, and values to actively engage in nation-building and contribute positively to society. By integrating environmental education and advocating for global partnerships, it seeks to promote responsible environmental stewardship and foster collaboration with the global community to address mutual challenges and achieve shared progress. In essence, the K to 12 curriculum framework endeavors to cultivate well-rounded individuals who are not only academically proficient but also socially responsible and globally conscious citizens (Ocampo, 2014).

Incorporating character education into the core academic curriculum is a pivotal aspect of successful character education programs. While many programs assert integration, they often merely insert character lessons between academic subjects. However, Berkowitz (2012) advocates for a deeper integration by leveraging existing character content within academic curricula. This approach involves mining the character-related themes inherent in subjects like language arts and social studies and seamlessly integrating character-based lessons into these academic domains. For instance, programs like the Child Development Project and Facing History and Ourselves offer models of integration, with the former featuring a multicultural literature curriculum and the latter focusing on historical genocide within its history curriculum. By intertwining character content with academic lessons and employing character-building methods, educators can foster a more holistic approach to character education that permeates throughout the academic experience.

According to Thornberg and Oğuz (2013), values education primarily focuses on adherence to societal values and norms, with an emphasis on how to treat others and

self-responsibility. The study found that teachers typically did not adopt a critical approach, instead highlighting their role as good models in daily interactions with students. Values education was described as an integral part of everyday social interactions using common language, and there was a noted lack of professional knowledge in this domain among teachers.

According to Pala (2011) character education can be initiated at any grade level. It is important to set a strong foundation during the earlier grades and to reinforce and build upon that foundation during the later grades. To be effective, character education must include the entire school community and must be infused throughout the entire school curriculum and culture. He concluded in his study that the development of socialization skills and integration of character education are an important part of a child's academic success. Character education efforts may be effective when implemented rigorously and with a scientific foundation. Schools should focus on teaching character within the regular curriculum.

Moreso,the increasing political, social, and scientific focus on the moral aspects of teaching extends to teacher education. Willemse, Lunenberg, and Korthagen (2005) present an exploratory study on preparing student teachers for moral education. They describe the design of goals, program components, and teaching and learning methods for a segment of the first-year curriculum at a primary education teacher training institute. The study involved feedback from teacher educators who implemented the curriculum and student teachers who participated in it, assessing whether they recognized the intended moral aspects. Additionally, the study measured the curriculum's impact on student teachers' learning through pre- and post-tests. The findings suggest a need for greater emphasis on the implicit and unplanned aspects of preparing student teachers for moral education.

A study by Benninga (2003) entitled "The Relationship of Character education Implementation and Academic Achievement in Elementary Schools," was a large study including data from 651 schools. The results indicate that a composite summary score of character education criteria is positively correlated with academic indicators across years. The elementary schools in the sample with solid character education programs defined by our six criteria and their eleven indicators not only show positive relationships with academic indicators that same year, but also evidence positive correlations across the next two academic years. The cited study is related to the present study as it focused on character education and its relationship to academic performance which is the same focus as that of the present study.

The DepEd Values Education Program gears mainly in translating values from the abstract into practical. The importance behind this program is that when values are subjected into a book or in a classroom seem to be in abstract way, but its effectiveness is said to be true when such values are transmitted to real life. In public secondary schools' values education is integrated in teaching the different subjects. Integration of values education in the different subjects depends for its success on the teacher`s creativity in making use of the situation to facilitate the student`s values development. In

the study of Kariuki and Williams (2006) examined the correlation between character traits and academic performance among AFJROTC cadets, utilizing a sample of 20 male and 20 female cadets from Sullivan South High School.Their research revealed a significant positive relationship between character traits, particularly moral behavior, and academic performance as measured by grade point average.These findings align with current literature suggesting that character education programs can positively influence both behavior and academic outcomes among students in similar educational contexts.Understanding the impact of character traits on academic performance underscores the importance of integrating character education into school curricula to foster holistic student development and improve educational outcomes.

As England (2009) found out in his study that character education is an important element that must be included in California K12 public schools to increase student achievement and facilitate a safe and effective learning environment.He concluded that when implementing character education, program elements should be studied to obtain the desired outcome wanted from the program. Hence teachers need to be trained or re-trained. Thus, the researcher conceived this study to determine the effectiveness of values integration in teaching the different subject.

Research Questions

The general research question that this study attempts to address is the effectiveness of values integration in teaching the different subjects in public secondary schools in Pililla, Rizal.

1. What is the profile of the teacher-respondents in terms of: Age, sex, educational attainment, length of service, position title, and subjects handled?
2: What is the level of effectiveness of values integration in teaching the different subjects with respect to classroom management, delivery of lessons, learning application, learning assessment and personal traits.
3: Is there a significant difference in the perception of the respondents on the level of effectiveness of values integration in teaching the different subjects with respect to the different aspects in terms of their profile?
4: What action plan may be proposed to enhance the values integration in teaching the different subjects?

METHODOLOGY

This quantitative research employed a descriptive survey approach using a questionnaire checklist developed by the researcher to evaluate the integration of values in teaching different subjects. The study was conducted in public secondary schools in Pililla, Rizal, including Bugarin National High School, Hulo National High School, Malaya National High School, Pililla National High School, and Quisao National High School in School Year 2014-2015. The respondents comprised 161 teachers from these five public secondary schools, determined through a stratified sampling method.

The questionnaire checklist consisted of two parts: the first part dealt with the personal profile of the respondents, and the second part focused on various aspects of the effectiveness of values integration in teaching different subjects. Each aspect included 10 items. Respondents rated each item on a scale of 1-5, with 1 indicating "Not effective" and 5 indicating "Very Much Effective." The questionnaire was pretested with 15 teachers from Tanay National High School, yielding an r-value of .83, indicating that the instrument is both valid and reliable.

To interpret the data gathered, several statistical tools were applied. Frequency and percentage distribution were used to determine the profile of the respondents. The weighted mean was employed to assess the perception of respondents on the effectiveness of values integration in teaching different subjects. Additionally, one-way analysis of variance (ANOVA) was used to determine significant differences in perceptions based on the respondents' profiles.

RESULTS AND DISCUSSION

The Profile of the Respondents

Table 1 presents the frequency and percentage distribution of the teacher-respondents in terms of the selected variable.

Table 1
Frequency and Percentage Distribution of the Teacher-Respondents in Terms of the Selected Variables

AGE	f	%
50 years old and above	29	18
40-49	48	30
30-39	39	24
29 years and below	45	28
Total	**161**	**100**

SEX	f	%
Male	38	24
Female	123	76
Total	**161**	**100**
Educational Attainment	**f**	**%**
Pd.D./Ed. D units	2	1
MA Graduate	28	17
With MA units	91	57
Bachelor's Degree	40	25
Total	**161**	**100**
Length of Service	**f**	**%**
30 years and above	39	24
20-29	48	30
10-19	45	28
9 years and below	29	18
Total	**161**	**100**
Position Title	**f**	**%**
Master Teacher I	5	3
Teacher III	23	14
Teacher II	39	24
Teacher I	94	59
Total	**161**	**100**
Subjects Handled	**f**	**%**
English	34	21
Science	47	29
TLE	36	22
Mapeh	44	27
Mathematics	47	29
Filipino	48	30
Araling Panlipunan	48	17
Edukasyon sa Pagpapakatao	36	22

As shown in table 1, out of 161 teacher respondents, 30 percent are ages 40-49 years old, 28 percent are ages 29 years old and below, 24 percent are ages 30-39 years old, and the rest have ages 50 years old and above. In terms of sex, most of the respondents are female with 123 or 76 percent out of 161 teacher respondents. With regards to their educational attainment, the majority are pursuing graduate education with 57 percent having earned units in master's degree and 1 percent have doctoral units. Only 25 percent have not earned units in graduate education. In terms of length of service, most of the respondents have been in the service for 10 years and above with 30 percent for 20-29 years, 28 percent for 10-19 years and 24 percent of 30 years and above and the remaining percentage have been in the service for 9years and below. In terms of position title, most of the respondents are in Teacher I, II and III positions. With regards to the subjects handled, some teachers are teaching more than 1 subject.

The Level of Effectiveness of Values Integration in Teaching the Different Subjects

Table 2 presents the computed weighted mean on the level of effectiveness of values integration in teaching the different subjects with respect to classroom management.

Table 2

Computed Weighted Mean on the Level of Effectiveness of Values Integration in Teaching the Different Subjects with Respect to Classroom Management

Classroom Management The Teacher…	**W$\bar{x}$**	**VI**	**Rank**
1. Practices punctuality and finishes tasks on time.	**3.51**	**VE**	**10**
2. Devotes time to work and does things in an orderly manner	**3.82**	**VE**	**8**
3. Praises students and gives rewards on accomplishments.	**4.01**	**VE**	**7**
4. Presents challenging learning tasks.	**4.13**	**VE**	**5**
5. Responds to and provides learning activities for students according to growth and behavioral developments levels.	**4.06**	**VE**	**6**
6. Maintains order and discipline in the classroom.	**4.15**	**VE**	**4**
7. Shows interest in students' problems and needs.	**4.23**	**VE**	**3**
8. Gives constructive criticism on students.	**4.43**	**VE**	**2**
9. Makes oneself available to students for assistance.	**4.52**	**VME**	**1**
10. Help develop self confidence among students.	**3.68**	**VE**	**9**
OVERALL W$\bar{x}$	**4.05**	**VE**	

Legend VME - Very Much Effective VE- Very Effective E-Effective

As reflected from the table, with respect to classroom management, the overall weighted mean obtained is 4.05 interpreted Very Effective. Among the items, first in rank is "makes oneself available to students for assistance" with weighted mean of 4.52 interpreted Very Much Effective. All other items are interpreted Very Effective with the last in rank is "Practice punctuality and finishes tasks on time" with a weighted mean of 3.51. The table indicates that the teachers manage their student`s behavior in the classroom for an effective teaching learning process. This implies that teachers apply values integration in teaching the different subjects through effective classroom management.

Table 3 presents the computed weighted mean on the level of effectiveness of values integration in teaching the different subjects with respect to delivery of lesson.

Table 3

Computed Weighted Mean on the Level of Effectiveness of Values Integration in Teaching the Different Subjects with Respect to Delivery of Lesson

Delivery of Lesson The Teacher…	**$W\bar{x}$**	**VI**	**Rank**
1. Presents the lesson accurately and systematically	**4.04**	**VE**	**9**
2. Exhibits thorough and broad knowledge of lesson	**4.13**	**VE**	**4**
3.shows awareness of current issues/concern in his/her field	**4.06**	**VE**	**7**
4.relates the lesson with other areas of knowledge and community affairs	**4.12**	**VE**	**5**
5.integrates values formation in the lesson	**4.27**	**VE**	**1**
6.exhibits mastery of the lesson and enthusiasm in teaching	**4.11**	**VE**	**6**
7.presents ideas/concepts clearly and convincingly	**3.81**	**VE**	**10**
8.gives comprehensive explanation	**4.05**	**VE**	**8**
9.provides a variety of learning activity	**4.22**	**VE**	**2**
10.presents lesson logically.	**4.17**	**VE**	**3**
OVERALL $W\bar{x}$	**4.10**	**VE**	

As reflected in table 3, with respect to delivery of lesson, all items are interpreted Very Effective with an overall weighted mean of 4.10. First in rank is integrates values formation in the lesson" with weighed mean of 4.27. Last in rank is "presents ideas/concepts clearly and convincingly" with a weighted mean of 3.81. The results suggest that teachers believe that values integration in the delivery of lessons is very effective in the teaching-learning process. This implies that teachers see to it that in the daily routine, values integration in teaching the different subjects is done.

Table 4 presents the computed weighted mean on the level of effectiveness of values integration in teaching the different subjects with respect to learning application.

Table 4

Computed Weighted Mean on the Level of Values integration in Teaching Different Subjects with Respect to Learning Application

Learning ApplicationThe Teacher…	**$W\bar{x}$**	**VI**	**Rank**
1.adjusts the activities to the learning capacities, interests and comprehension to students	**3.79**	**VE**	**9**
2.uses different methods and techniques of teaching, adjusting them to the degrees of physical and mental growth of the students and to the lesson.	**4.11**	**VE**	**6**
3.teaches in an interesting manner with comprehensive explanation	**4.01**	**VE**	**8**
4.accepts students` comments for further discussion and analysis even when the point of view is different	**4.13**	**VE**	**5**
5.recognizes the principle of individual differences.	**4.09**	**VE**	**7**

6.utilizes varied strategies in presenting lessons	**4.16**	**VE**	**4**
7.utilizes educational technology in teaching	**3.71**	**VE**	**10**
8.provides differentiated activities for learners	**4.68**	**VME**	**1**
9.provides remediation activities to slow learners	**4.38**	**VE**	**3**
10.modifies teaching procedures when necessary	**4.41**	**VE**	**2**
OVERALL W$\bar{x}$	**4.15**	**VE**	

As shown in table 4, with respect to learning application, the overall weighted mean is 4.15 interpreted Very Effective. First in rank is “provides differentiated activities for learners” with a weighted mean of 4.68 interpreted very Much Effective. All other items are interpreted Very Effective with last in rank is “utilizes educational technology in teaching” with a weighted mean of 3.71. The data reveal that in teaching the different subjects, values integration is emphasized in the application of learning. This implies that values developed among students are applied in their day-to-day activities.

Table 5 presents the computed weighted mean on the level of effectiveness of values integration in teaching different subjects with respect to earning assessment.

Table 5
Computed Weighted Mean on the Level of Effectiveness of Values Integration in Teaching the Different Subjects with Respect to Learning Assessment

Learning Assessment The Teacher…	**W$\bar{x}$**	**VI**	**Rank**
1.define aims to be accomplished and holds his class responsible for their accomplishment	**4.03**	**VE**	**3**
2.gives remedial measures for learners to attain the desired level of learning	**4.01**	**VE**	**4**
3.analyzes errors/weaknesses of students	**3.83**	**VE**	**5**
4.asks and distributes questions that call for different levels of thinking	**3.76**	**VE**	**7**
5.uses modern instructional devices to make the lesson more interesting	**3.68**	**VE**	**8**
6. Utilizes the blackboard to explain further the lesson	**3.78**	**VE**	**6**
7.presents lesson using the appropriate instructional materials	**3.01**	**E**	**10**
8.conducts the class in a conducive atmosphere which encourages students to participate actively in the class discussion.	**4.13**	**VE**	**2**
9.uses appropriate language frequently	**3.16**	**VE**	**9**
10uses illustrations to stipulate interest to the lesson.	**4.19**	**VE**	**1**
OVERALL W$\bar{x}$	**3.76**	**VE**	

Table 5 depicts that with respect to learning assessment, the overall weighted mean obtained is 3.76 interpreted Very Effective. First in Rank is “uses illustrations to stipulate

interest to the lesson." with a weighted mean of 4.19 interpreted Very Effective while "presents lesson using the appropriate instructional materials", with a weighted mean of 3.01 interpreted Effective. Findings indicate that in the assessment of student`s learning, values integration is being applied. This implies that in the evaluation of student`s learning, values development among the learners is taken into consideration.

Table 6 presents the computed weighted mean on the level of effectiveness of values integration in teaching the different subjects with respect to personal traits.

Table 6

Computed Weighted Mean on the Level of Effectiveness of Values Integration in Teaching the Different Subjects with Respect to Personal Traits

Personal Traits The Teacher…	**$\bar{WX}$**	**VI**	**Rank**
1.controls and manages emotions effectively	**3.83**	**VE**	**6**
2.shows patience in managing students behavior	**4.09**	**VE**	**4**
3.manifests positive attitudes towards constructive comments, suggestions and recommendations	**3.62**	**VE**	**8**
4.shows sensitivity to other`s feelings and emotions	**4.13**	**VE**	**3**
5.lets feeling lead to healthy choices and happiness	**3.01**	**E**	**10**
6.stays calm in emergency situation	**3.74**	**VE**	**7**
7.Does not get angry easily	**3.84**	**VE**	**5**
8.understands feeling of individuals	**3.14**	**E**	**9**
9.exhibits good temper	**4.26**	**VE**	**1**
1. Shows consideration to students	**4.17**	**VE**	**2**
OVERALL $\bar{WX}$	**3.78**	**VE**	

Table 6 depicts that with respect to personal traits, the overall weighted mean is 3.78 interpreted Very Effective. Eight out ten items are interpreted Very Effective with first in rank is "exhibits good temper", with a weighted mean of 4.26. Two items interpreted as Effective with last in rank is" Let's feeling lead to healthy choices and happiness", with a weighted mean of 3.01. The findings reveal that teachers possess the necessary desirable traits as teachers. This implies that they serve as role models to their students in values development.

Table 7 presents the composite table on the level of values integration in teaching the different subject.

Table 7

Composite Table on the Level of Values Integration in Teaching the Different Subjects.

Aspects	$W_{\bar{x}}$	VI	Rank
Classroom Management	**4.05**	**VE**	**3**
Delivery of Lesson	**4.10**	**VE**	**2**
Learning of Application	**4.15**	**VE**	**1**
Learning Assessment	**3.76**	**VE**	**5**
Personal Traits	**3.78**	**VE**	**4**
OVERALL $W_{\bar{x}}$	**3.97**	**VE**	

As shown in table 7, the composite weighted mean obtained is 3.97 interpreted Very Effective. Among the aspects, first in rank is “Learning of Application” with an overall weighted mean of 4.15 interpreted Very Effective. All the other aspects are interpreted Very Effective with last in rank is “Learning Assessment”, with a weighted mean of 3.76. It could be deduced from the results that integration of values in teaching different subjects is very effective as perceived by-teachers. This implies that teachers play a great part in the values development among students.

The Significant Difference on the Perception of the Respondents on the Level of Effectiveness of Values Integration in Teaching the Different Subjects with Respect to the Different Aspects in Terms of their Profile

Table 8 presents the computed F-values on the perception of the respondents on the level of effectiveness of values integration in teaching the different subjects with respect to the different aspects in terms of their profile.

Table 8

Computed F-values on the Perception of the Respondents on the Level of Effectiveness of Values Integration in Teaching the Different Subjects With Respect to the Different Aspects in Terms of their Profile

Age	**Fcomp**	**P-value**	**Ho**	**VI**
Classroom Management	3.76	**.001**	**Rejected**	**Significant**
Delivery of Lesson	3.08	**.018**	**Rejected**	**Significant**
Learning Application	3.12	**.022**	**Rejected**	**Significant**
Learning Assessment	3.98	**.007**	**Rejected**	**Significant**
Personal Traits	3.35	**.004**	**Rejected**	**Significant**
Sex	**Fcomp**	**P-value**	**Ho**	**VI**
Classroom Management	.16	**.342**	**Accepted**	**Not Significant**
Delivery of Lesson	.72	**.282**	**Accepted**	**Not Significant**
Learning Application	.98	**.963**	**Accepted**	**Not Significant**
Learning Assessment	.92	**.738**	**Accepted**	**Not Significant**
Personal Traits	**1.07**	**.244**	**Accepted**	**Not Significant**
Educational Attainment	**Fcomp**	**P-value**	**Ho**	**VI**
Classroom Management	1.42	**.148**	**Accepted**	**Not Significant**
Delivery of Lesson	1.01	**.979**	**Accepted**	**Not Significant**
Learning Application	1.42	**.093**	**Accepted**	**Not Significant**
Learning Assessment	1.72	**.074**	**Accepted**	**Not Significant**
Personal Traits	**1.05**	**.323**	**Accepted**	**Not Significant**
Length of Service	**Fcomp**	**P-value**	**Ho**	**VI**
Classroom Management	3.67	**.006**	**Rejected**	**Significant**
Delivery of Lesson	4.69	**.014**	**Rejected**	**Significant**
Learning Application	3.96	**.007**	**Rejected**	**Significant**
Learning Assessment	4.48	**.003**	**Rejected**	**Significant**
Personal Traits	**4.89**	**.007**	**Rejected**	**Significant**
Position Title	**Fcomp**	**P-value**	**Ho**	**VI**
Classroom Management	1.58	**.389**	**Accepted**	**Not Significant**
Delivery of Lesson	1.39	**.987**	**Accepted**	**Not Significant**
Learning Application	1.79	**.453**	**Accepted**	**Not Significant**
Learning Assessment	1.36	**.458**	**Accepted**	**Not Significant**
Personal Traits	**1.59**	**.916**	**Accepted**	**Not Significant**
Subjects Handled	**Fcomp**	**P-value**	**Ho**	**VI**

Classroom Management	3.67	**.006**	**Rejected**	**Significant**
Delivery of Lesson	4.69	**.014**	**Rejected**	**Significant**
Learning Application	3.96	**.007**	**Rejected**	**Significant**
Learning Assessment	4.48	**.003**	**Rejected**	**Significant**
Personal Traits	**4.89**	**.007**	**Rejected**	**Significant**

It could be gleaned from the table that in terms of age, length of service and subjects handles, the computed F-values in all aspects obtained probability values less than .05. This rejects the null hypothesis stating that there is no significant difference on the perception of the teacher -respondents on the level of effectiveness of values integration in teaching the different subjects in terms of age, length of service and subjects handled. On the contrary, in terms of sex, educational attainment and position title, the null hypothesis is accepted since all aspects, the probability values are greater than .05. Findings indicate that sex, educational attainment and position title have no bearing on the teacher`s perception regarding values integration. Findings imply that teachers age, length of service and subjects handled are significant in their perception on values integration.

Summary

Based on the analysis and interpretation of data most of the teacher respondents are females with ages 31 years old and above pursuing graduate education and have been in the service for15 years and above. Some of them are handling one or more subjects.

Values Integration in teaching the different subject is very effective with respect to classroom management, delivery of lesson, learning application, learning assessment and personal traits. In terms of sex, educational attainment and position title the null hypothesis as accepted while in terms of age, length of service and subjects handled, the null hypothesis is rejected.

Conclusions

Based on the study it can be concluded that perception of the teacher -respondents on the level of effectiveness of values integration in teaching the different subjects differ significantly in terms of age, length of service and subjects handled. On the other hand, sex, educational attainment and position title are not significant.

Recommendations

Based on the findings and conclusions drawn the following recommendations offered:

1. Values integration in teaching the different subjects in secondary schools should be strengthened for better student development.
2. Students should be exposed to a variety of activities that will enhance their values development.
3. The proposed action plan is recommended for implementation
4. Further studies considering other variables may be conducted

Compliance with Ethical Standards

This is a declaration by the author/s in his/their own words and in paragraph form which includes compliance with obtaining informed consent, the respondents' freedom to withdraw from the study at any time, anonymity of the respondents was maintained, the respondents' well-being was safeguarded, no conflict of interest exists in the conduct of the study, plagiarism was strictly avoided, there was no bias in the interpretation of the findings and that the results were used purely for research.

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Action Plan to Enhance the Values Integration in Teaching the Different Subjects. Based on the findings, an action plan is proposed to enhance the values integration in teaching the different subjects.

ACTION PLAN TO ENHANCE THE VALUES INTEGRATION IN TEACHING THE DIFFERENT SUBJECTS SCHOOL YEAR 2015-2016

Area Thrust	Program Activity	Objective	Manpower	Time Frame	Budget	Source of Fund	Success Indicator
Student Development	Supervision of Classes	Diagnose/assess students' progress and behavior	Teachers Students	June 2015-March 2016	P15000	Student Development Fund	Students` progress /behavior improved by 50%
	Administration of Periodical Test in ESP in all grade levels	Diagnose/assess the students through periodical test	Teachers Students	June 2015-March 2016	P40000	School operation Fund MOOE	Students` proficiency increased by 75%
	Individual Group Counselling	Raise Self -esteem-of individual students	Guidance Counselor	June 2015-March 2016	P10000	School operation Fund MOOE	Students' misbehavior decreased by 25%
Faculty Development	Scholarship Grants	Provide quality services and equal opportunities for upliftment and professional development	Teachers administrators	June 2015-March 2016	P50000	Faculty Welfare Fund	Qualified Teachers are recommended for reclassification and promotions
	Implementation of Key DepEd programs and policies pertaining to teachers' welfare and development	Upgrade knowledge/competencies of advisers and guidance advocate on the different strategies and innovations in guidance counseling	Principal Teachers Guidance	June 2015-March 2016	P50000	School operation Fund MOOE	Teachers upgraded competencies increased by 75%
Curriculum Development	Utilization of different teaching technique	Enrich the values education curriculum to facilitate learning	Administrators Subject Area Chairperson	June 2015	P5000	School Fund	75% of the needed instructional materials developed
	Curriculum Enrichment and Modification	Enrich curriculum guides	Teachers Administrators Subject Area Chairperson	April to May 2016	P10000	School operation Fund MOOE	100% of curriculum guides in different subjects modified
	Enrichment utilization and monitoring of instructional materials	Develop a low-cost Instructional material that is effective and applicable to the needs of the students	Teachers	June 2015	P10000	School operation Fund MOOE	75% of the needed instructional materials developed
Physical Facilities Development	Maintenance of Physical facilities	Provide an audio-visual room for students	Administrators Teachers	April 2016	P100000	School operation Fund MOOE	Classrooms and buildings repaired and maintained

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VOCABULARY GAPS IN LEARNING ENGLISH AS A SECOND LANGUAGE: BASIS FOR GLOSSAURUS

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ABSTRACT

This descriptive study assessed the student's vocabulary competence in learning English as a Second Language among the Grade 7 Students of Agdahon Farm School in the School Year 2023-2024. The respondents of this study were the fifty-four (54) students taken via total enumeration. The instrument used was a validated and reliability-tested researcher-made questionnaire. Frequency count, percentage, rank, mean, and standard deviation were the descriptive statistics used, while Mann Whitney-U Test and Wilcoxon W. were the inferential statistical tools used. The criterion for rejection and non-rejection of the null hypothesis was set at 0.05 alpha level. Results revealed that the level of vocabulary competence among the respondents as a whole was "Moderate". When classified in terms of competencies, in Commonly Mispronounced words, respondents had a "proficient" level of vocabulary while in Context Clues, Commonly Confused words, and Words with Multiple Meaning, respondents had a "moderate" level of vocabulary. Moreover, the results emphasized that mobile phones were the most prevalent media used among the twelve categories of media, while the least prevalent was the personal computer. There existed a significant difference in the level of vocabulary competence among the respondents when classified as commonly used media. However when classified as to sex, the level of vocabulary competence among the respondents is not significantly different. Finally, based on the result of the study, a handbook entitled, Glossaurus: "An Epic Journey through the Enchanted Lexicon Woods" focusing on vocabulary skills enhancement, was developed.

Keywords: *ESL, Vocabulary Gaps, Learning English*

INTRODUCTION

Graves and Watts-Taffe (2015) found that vocabulary gaps are a major problem for learners, especially in schools, and can harm student performance in a variety of academic subjects. In the study of Beck et al. (2015), vocabulary competence is influenced by four factors: exposure to language, instruction in vocabulary, cognitive abilities, and motivation. Also, the presence of various dialects in the Philippines can influence vocabulary proficiency among Filipinos. The study of Pacris (2018), determined that the use of regional dialects in daily conversations can limit exposure and practice of standardized vocabulary.

The study of Santos and Alampay (2022), stated that school resources are an important factor in promoting vocabulary development in Filipino students. Schools should be provided with the necessary resources to support teachers in delivering effective vocabulary instruction. The local secondary education institution has implemented several programs to enhance the vocabulary skills of students. However, it has been observed that students, specifically in rural areas still need help in vocabulary acquisition, including the exposure to English outside the classroom and the large and complex nature of the English vocabulary.

The purpose of this study is to assess the vocabulary competence of the Grade 7 students of Agdahon Farm School and identify the areas that need improvements, which was used as a basis for the creation of a handbook entitled, Glossaurus: "An Epic Journey through the Enchanted Lexicon Woods" that is specifically geared to provide English as Second Language Learners (ESL) with practical strategies for improving their vocabulary skills.

Research Questions

This study aims to assess the student's vocabulary competence in learning English as a Second Language among the Grade 7 Students of Agdahon Farm School in the School Year 2023-2024.

Specifically, it seeks to answer the following:

1. What is the profile of the respondents when classified as to commonly used media and sex?
2. What is the most prevalent media used by the respondents in terms of gadgets, printed materials, and online media platforms?
3. What is the level of vocabulary competence among the respondents as a whole and in terms of competencies such as commonly mispronounced words, context clues, commonly confused words, words with multiple meanings?
4. What is the level of vocabulary competence among the respondents when classified as to sex?
5. Is there a significant difference in the level of vocabulary competence among the respondents when classified as to commonly used media and sex?
6. What learning tool can be developed to enhance the vocabulary competence of the respondents?

METHODOLOGY

The study employed the descriptive research design to determine and assess the vocabulary competence in learning English as a second language among the Grade 7 Students of Agdahon Farm School in the School Year 2023-2024. In a descriptive study, as defined by Creswell and Creswell (2018), descriptive research design is a research method that aims to systematically collect and analyze data to describe a population, situation, or phenomenon. The respondents of the study were the fifty-four (54) Grade 7 Students of Agdahon Farm School enrolled in the School Year 2023-2024 taken via total enumeration. They are classified according to commonly used media and sex.

In this study, the researchers utilized a researcher-made vocabulary assessment tool. To ensure the validity of the instrument, the panel of validators who are experts in the field checked the instrument as to its content and face value. The validated instrument was subjected to reliability by administering face-to-face pilot testing to twenty-seven (27) Grade 7 students of Passi National High School Annex Sablogon Campus. After the assessment tool undergoes the pilot testing, items for commonly mispronounced words, commonly confused words, and polysemy words with multiple meanings, and context clues in the vocabulary assessment tool are refined to improve the readability, clarity, and the selection of response options.

Following the revision of the assessment tool, the researchers produced copies of the revised instrument and began with the data gathering of the respondents which are the fifty-four (54) Grade 7 students of Agdahon Farm School. The respondents are informed that the data acquired are kept strictly confidential and used only for the study. After all the necessary data were gathered, the researcher thanked the respondents for their cooperation. The data gathered are tallied, analyzed, and interpreted using Statistical Package for Social Sciences (SPSS). Specifically, the researchers employed the following procedures: descriptive statistics, which include the mean, frequency count, standard deviation, and rank; and inferential statistical tools such as U-test and H-Test. Frequency count and Percentage were used to determine the profile of the respondents when classified as to their commonly used media and sex. Mean and Standard Deviation were used to determine the level of vocabulary competence of the respondents. Rank was used to determine the most prevalent media the respondents are exposed to. Wilcoxon W. was used to determine the significant difference in the level of vocabulary competence among the respondents when classified as to commonly used media. Mann Whitney-U Test was used to determine the significant difference in the level of vocabulary competence among the respondents when classified as sex.

RESULTS

Profile of the Respondents. Table 1 outlines that when respondents were categorized according to commonly used media, the results revealed that in terms of gadgets, eight (8) or 14.8% used laptops, fifty-two (52) or 96.3% used mobile phones, and four (4) or 7.4% used Ipad. In terms of written media, forty-nine (49), or 90.7 used books, five (5), or

9.3% used magazines, thirteen (13), or 24.1% used newspapers, four (4), or 7.4% used encyclopedias, and twenty-one (21) or 38.9% used dictionary. In terms of online media platforms, fifty (50) or 92.6% used Facebook, eleven (11) or 20.4% used Instagram, and nine (9) or 81.5% used Tiktok. When categorized according to sex, there were thirty (30), or 55.6% males and twenty-four (24), or 44.4% females.

Table 1
Profile of the Respondents

Variables	Frequency	Percent
Gadgets		
Laptop	8	14.8
Mobile Phone	52	96.3
Ipad	4	7.4
Written Media		
Books	49	90.7
Magazine	5	9.3
Newspaper	13	24.1
Encyclopedia	4	7.4
Dictionary	21	38.9
Online Media Platforms		
Facebook	50	92.6
Instagram	11	20.4
Twitter	9	16.7
Tiktok	44	81.5
Sex		
Male	30	55.6
Female	24	44.4
Total		100

Most Prevalent Media Used by the Respondents at Home. Another objective of this study was to determine the prevalent media used by the respondents at home. The table 3 represents the overall findings for the most prevalent media used, ranked from one (1) to twelve (12). Mobile Phone (F=52; P=96.3) made it to rank 1, rank 2 was Facebook (F=50; P=92.6), rank 3 was Books (F=49; P=90.7), rank 4 was Tiktok (F=44; P=81.5), rank 5 was Dictionary (F=21; P=38.9), rank 6 was Newspaper (F=13; P=24.1), rank 7 was Instagram, rank 8 was Twitter (F=9; P=16.7), rank 9 was Laptop(F=8; P=14.8), rank 10 was Magazine(F=5; P=9.3), rank 11.5 was Encyclopedia(F=4; P=7.4), rank 11.5 Ipad(F=4; P=7.4), and the least prevalent media used by the respondents was Personal Computer (F=0; P=0).

Table 2
Most Prevalent Media Used by the Respondents at Home

Media	Frequency	Percent	Rank
Laptop	8	14.8	9
Mobile Phone	52	96.3	1
Ipad	4	7.4	11
Books	49	90.7	3
Magazine	5	9.3	10
Newspaper	13	24.1	6
Encyclopedia	4	7.4	11
Dictionary	21	38.9	5
Facebook	50	92.6	2
Instagram	11	20.4	7
Twitter	9	16.7	8
Tiktok	44	81.5	4
Total	54	100	

Level of Vocabulary Competence among the Respondents as a Whole and in terms of Competencies such as Commonly Mispronounced Words, Context Clues, Commonly Confused Words, Words with Multiple Meanings. The primary goal of this study was to determine the level of Vocabulary Competence of the Respondents. As shown in Table 3, the result indicated that the vocabulary competence among the respondents as a whole is “Moderate” (4.02 to 6.02) (M=5.28; SD=1.85).

Table 3
Level of Vocabulary Competence among the Respondents as a Whole and in terms of Competencies such as Commonly Mispronounced Words, Context Clues, Commonly Confused Words, Words with Multiple Meaning

Variables	N	Minimum	Maximum	Mean	SD	Level
Commonly Mispronounced Words	54	0	10	6.39	2.42	Proficient
Context Clues	54	1	10	4.56	2.26	Moderate
Commonly Confused Words	54	1	9	5.06	1.90	Moderate

Words with Multiple Meanings	54	0	10	5.13	3.00	Moderate
As a Whole	54	1.5	8.5	5.28	1.85	Moderate

Note: *The instrumentation was made based on: "Very Low" (0.00 to 2.00), "Low" (2.01 to 4.01), "Moderate" (4.02 to 6.02), "Proficient" (6.03 to 8.04), "Highly Proficient" (8.05 to 10.00).*

Level of Vocabulary Competence among the Respondents when Classified as to Sex. Table 4 offers insights that when respondents were classified as to sex, the results revealed that males had a mean of 5.3667 and a standard deviation of 1.66445 (M=5.3667; SD=1.66445). The female had a mean of 4.8333 and a standard deviation of 2.08341 (M=4.8333; SD=2.08341). This result showed that both male (M=5.3667; SD=1.66445) and female (M=4.8333; SD=2.08341) respondents had a "Moderate" (4.02 to 6.02)

Table 4
Level of Vocabulary Competence among the Respondents when Classified as to Sex

Sex	Mean	N	SD
Male	5.3667	30	1.66445
Female	4.8333	24	2.08341
Total	5.1296	54	1.86309

Note: *The instrumentation was made based on: "Very Low" (0.00 to 2.00), "Low" (2.01 to 4.01), "Moderate" (4.02 to 6.02), "Proficient" (6.03 to 8.04), "Highly Proficient" (8.05 to 10.00).*

Level of Vocabulary Competence among the Respondents when Classified as to Commonly Used Media. Table 5 shows that there was a significant difference in the level of vocabulary competence among the respondents when classified as to commonly used media (-24.666^{b}; p=.000).

Table 5
Difference in the Level of Vocabulary Competence among the Respondents when Classified as to Commonly Used Media

Variables	Z	Asymp. Sig. (2-tailed)	Decision
Level of Vocabulary Competence - Commonly Used Media	-24.666[b]	.000	Significant

*p>α=0.05, Significant

Difference in the Level of Vocabulary Competence among the Respondents when Classified as to Sex. Table 6 illustrates that there was no significant difference in the level of vocabulary competence among the respondents when classified as to sex. (-1.386; p=.166).

Table 6
Difference in the Level of Vocabulary Competence among the Respondents when Classified as to Sex

Variables	**Mann-Whitney U**	**Wilcoxon W**	**Z**	**Asymp. Sig. (2-tailed)**	**Decision**
As a Whole	280.500	745.500		.166	not significant

*p<α=0.05, not Significant

DISCUSSION

This study investigated the student's vocabulary competence in learning English as a Second Language. The researcher's initial findings revealed the level of vocabulary competence of the English as Second Language learners. Subsequently, the results showed that when respondents were categorized according to commonly used media, the results revealed that in terms of gadgets, eight (8) or 14.8% used laptop, fifty-two (52) or 96.3% used mobile phone, and four (4) or 7.4% used Ipad. In terms of written media, forty-nine (49) or 90.7 used books, five (5) or 9.3% used magazine, thirteen (13) or 24.1% used newspaper, four (4) or 7.4% used encyclopedia, and twenty-one (21) or 38.9% used dictionary. In terms of online media platforms, fifty (50) or 92.6% used Facebook, eleven (11) or 20.4% used Instagram, nine (9) or 81.5% used Tiktok. When categorized according to sex, there were thirty (30) or 55.6% males and twenty-four (24) or 44.4% females. This result indicated that the majority of respondents and Grade 7 students in Agdahon Farm School were male. It also implied that students primarily rely on mobile phones for consuming media due to their convenience and versatility. Traditional media

formats, such as books and newspapers, are still relevant but challenged by online sources. Social media platforms, particularly Facebook and TikTok, are the dominant forces in online media engagement.

Concerning the prevalent media used by the respondents at home, results indicate that mobile phones are the most prevalent media used by the respondents at home, followed by Facebook, books, TikTok, and dictionaries. Newspapers, Instagram, Twitter, laptops, magazines, encyclopedias, and iPads are less prevalent, and personal computers are the least prevalent. Therefore, these results concluded that mobile phones are playing an increasingly important role in the respondents, even when they are at home.

Moving on to respondent classifications based on competencies, Commonly Mispronounced words had a mean of 6.39 and a standard deviation of 2.42. Context Clues had a mean of 4.56 and a standard deviation of 2.26, Commonly Confused words gained a weighted mean of 5.06 and a standard deviation of 1.90, and Words with Multiple Meanings had a mean of 5.13 and a standard deviation of 3.00. This indicates that in Commonly Mispronounced words, respondents had a “proficient” (6.03 to 8.04) level of vocabulary while in Context Clues, Commonly Confused words and Words with Multiple Meaning; respondents had a “moderate” (4.02 to 6.02) level of vocabulary. Generally, these results implied that respondent demonstrated a strong understanding of proper pronunciation. On the other hand, respondents encountered greater difficulty in interpreting context clues, identifying differences between commonly confused words, and understanding multiple meanings of a single word.

In the level of vocabulary competence among the respondents when classified as to sex, the results revealed that male had a mean of 5.3667 and a standard deviation of 1.66445 (M=5.3667; SD=1.66445). The female had a mean of 4.8333 and a standard deviation of 2.08341 (M=4.8333; SD=2.08341). This suggests that both male (M=5.3667; SD=1.66445) and female (M=4.8333; SD=2.08341) respondents had a “Moderate” *(4.02 to 6.02) level of* vocabulary competence.

Meanwhile, the researchers’ findings revealed a significant difference in the level of vocabulary competence among the respondents when classified as to commonly used media. This means that students find different media tools as effective and efficient platforms in improving their vocabulary competence. In contrast, the results showed that there was no significant difference in the level of vocabulary competence among the respondents when classified as to vocabulary competence among the respondents when classified as to sex (-1.386; p=.166). The results indicated that vocabulary competences of male and female are not comparable with each other.

Conclusions

Based on the findings from the study, it reveals a clear preference for mobile phones as the primary media device among the respondents. This finding aligns with broader trends highlighting the dominance of mobile technologies in media consumption. A study by

Lenthang and Hing (2019) supports this notion, demonstrating a significant shift towards mobile media consumption compared to traditional media formats.

Furthermore, this study revealed a clear preference for mobile phones as the primary media device among the respondents. This finding aligns with broader trends highlighting the dominance of mobile technologies in media consumption. This study found out that mobile phones are the most prevalent media used by the respondents. This result is corroborated by the study of Cabreza and Villalon (2015) in the Philippines specifically examines smartphone use for media consumption among college students. While this study focuses on a slightly older age group, it provides valuable data on the dominance of mobile phones within the Philippine context, potentially extending this trend to senior high school students.

The concluded investigation also revealed an overall "Moderate" level of vocabulary competence among the respondents. This suggests that they generally understand and use words appropriately, but there are areas for improvement. Commonly mispronounced words: Respondents' competence demonstrates a "Proficient" level. Context clues: the "Moderate" level suggests respondents can often use context to understand unfamiliar words, but additional practice could enhance their ability to do so consistently and efficiently. Confused words and words with multiple meanings: Both areas show "Moderate" competence, implying some understanding but potential confusion at times. These findings align with the study of Alviar et al. (2020), who used various instruments to assess the vocabulary of 320 Philippine Grade 7 students. They found similar results, concluding that students generally demonstrated proficiency in recognizing basic words but grappled with more complex vocabulary and nuanced meanings. This moderate level of vocabulary competence can be attributed, in part, to the learning environment students' encounter.

The study also revealed that both male and female respondents had a “Moderate” level of vocabulary competence. This suggests potential for improvement, particularly in areas like understanding nuanced meanings and using vocabulary in context. As highlighted by Stahls (2016) comprehensive review of vocabulary development practices, educators can prioritize strategies that address these challenges. By incorporating etymology, context clues, and differentiated instruction, educators can equip students with the tools to build a deeper understanding and usage of words. Additionally, Nation (2013) emphasizes the importance of encountering vocabulary multiple times and in various contexts for language learners to achieve deeper understanding and usage.

The study identified a significant difference in vocabulary competence based on the respondents' commonly used media. This mirrors the findings in the study of Zheng and Warschauer (2017) that there is a statistically significant difference in vocabulary acquisition between students who read on-screen and those who read printed materials. This directly translates to the idea that the type of media students use can significantly impact their vocabulary development. Interestingly, the study showed no significant difference in vocabulary competence based on the respondents' sex. These findings align with the study of Navarro and Guzman (2015) that found no significant sex differences in

English language proficiency among senior high school students in the Philippines, supporting the notion of similar vocabulary competence across genders.

This study embarked on a mission to develop and evaluate an innovative learning tool, "Glossaurus: An Epic Journey through the Enchanted Lexicon Woods," aimed at enhancing the vocabulary competence of students. This meticulously crafted handbook serves as a comprehensive guide, offering a curated list of common words along with their meanings and pronunciations, inviting students on an engaging adventure through the enchanting realm of language.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are suggested:

1. For the Department of Education (DepEd), it is recommended that the Department of Education (DepEd) should create engaging resources to strengthen areas like interpreting context clues, distinguishing commonly confused words, and understanding words with multiple meanings. These resources can be integrated into the "Glossaurus" learning tool or offered as separate activities like worksheets, quizzes, or games.
2. For Teachers, it is recommended that the teachers should understand students' media habits and learning styles to create personalized vocabulary activities and offer targeted support. Combine text-based activities with audio, video, and interactive platforms to cater to various learning preferences and keep students engaged. Teachers can utilize "Glossaurus" as a learning tool that will help them effectively build vocabulary knowledge in their students across different competencies, ultimately enhancing students' vocabulary across various domains.
3. For Learners, it is best if learners should not hesitate to ask teachers or classmates for clarification on unfamiliar words or pronunciation struggles. Embrace seeking help as part of the learning process. Learners should go beyond mobile phones and explore diverse media sources like books in the libraries, educational apps, and websites to broaden vocabulary exposure.
4. For Future Researchers, vocabulary gaps are relevant topics in academics. Further studies and progress in the field are necessary to keep track of the vocabulary skills of the learners. Future researchers could use the provided data and information in this study to re-assess the learning tool entitled, "Glossaurus: An Epic Journey through the Lexicon Woods". The researchers recommend conducting further study to make effective and broader findings in the vocabulary competence of the learners.

Compliance with Ethical Standards

In conducting this study, strict adherence to ethical standards was maintained throughout the research process. Informed consent was obtained from all respondents prior to their participation, ensuring they were fully aware of the study's purpose and procedures.

Respondents were explicitly informed of their right to withdraw from the study at any time without any negative repercussions. Anonymity was rigorously upheld, with all personal identifiers removed to protect the identities of the participants. The well-being of the respondents was safeguarded at all times, ensuring that their participation did not cause any harm or distress. There were no conflicts of interest influencing the conduct of the study, and the researchers ensured that all findings were presented objectively without bias. Plagiarism was strictly avoided, with all sources and references appropriately cited. The results of the study were utilized solely for academic and research purposes, contributing to the understanding of the students. Through these measures, the researchers ensured the highest standards of ethical integrity in the study.

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